VIACHESLAV I. ADAMCHUK, PH.D., P.ENG., P.E.

Professor and Chair
Department of Bioresource Engineering, McGill University
21,111 Lakeshore Road, Ste-Anne-de-Bellevue, Quebec, H9X 3V9, Canada
phone: 514-398-7657; fax: 514-398-7990; viacheslav.adamchuk@mcgill.ca
URL: http://adamchukpa.mcgill.ca

EDUCATION

PhD in Agricultural and Biological Engineering, Purdue University (West Lafayette, Indiana, USA), 08/1998-**08/2000**.
PhD dissertation: Automated mapping of soil pH, potassium and mechanical impedance for site-specific management.
MSc in Agricultural and Biological Engineering, Purdue University (West Lafayette, Indiana, USA), 06/1997-**08/1998**.
MS thesis: Rapid determination of soil pH for site-specific farming.
BSc (Diploma Specialist) in Mechanical Engineering (Agricultural Mechanization), National Agricultural University of Ukraine (National University of Life and Environmental Sciences of Ukraine), Kyiv, Ukraine, 09/1991-**06/1996**. Specialization: Research and Testing of Agricultural Machinery.
Diploma project: A power control system for multicylinder gasoline engines by individual cycle cut-off for trucks used in agricultural transportation (in Ukrainian).

EMPLOYMENT HISTORY

Professor in the Department of Bioresource Engineering, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada, 07/2019-present. **Department Chair** - 08/2018-05/2028**.**
Adjunct Professor in the Department of Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, USA, 06/2010-05/2025.
Associate Professor in the Department of Bioresource Engineering, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada, 06/2010-06/2019.
Associate Professor and Extension Precision Agriculture Engineer in the Department of Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, USA, 07/2007-05/2010.
Assistant Professor and Extension Precision Agriculture Engineer in the Department of Biological Systems Engineering, University of Nebraska-Lincoln, Lincoln, Nebraska, USA, 12/2000-06/2007.
Post-Doctoral Assistant in the Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA, 08/2000-11/2000.
Graduate Research Assistant in the Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA, 06/1997-08/2000.
Visiting Research Assistant in the Department of Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, USA, 10/1996-05/1997.
Assistant to the Rector for International Programs and Co-coordinator of Linkage Project between National Agricultural University of Ukraine, Kyiv, Ukraine and Iowa State University, Ames, Iowa, USA, 09/1995-10/1996.
Project Assistant in the Laboratory of Distance Monitoring, Institute of Plant Physiology and Genetics, National Academy of Science, Kyiv, Ukraine, 10/1993-09/1995.

AREA OF RESEARCH AND OUTREACH

Develop and deploy sensor systems for determining soil and crop attributes, investigate geospatial data acquisition, processing, and interpretation techniques, and implement precision agriculture and other digital technologies to improve crop production's value, quality, and environmental safety.

TEACHING EXPERIENCE

McGill University

FMT4 027, Precision Agriculture, 3 cr., Winter 2011-2017 and 2019-2025.

BREE 329, Precision Agriculture, 3 cr., Winter 2019-2025.

BREE 412, Machinery Systems Engineering, 3 cr., Fall 2010.

BREE/ENVB 430, GIS for Natural Resource Management, 3 cr., Fall 2010-2015.

BREE 490/495, Engineering Design 2 and Engineering Design 3, 3 cr., Winter 2017.

BREE 504, Instrumentation and Controls, 3 cr., Winter 2012, Fall 2013-2016 and 2018-2024.

BREE/ENVB 529, GIS for Natural Resource Management, 3 cr., Fall 2016 and 2018-2024.

BREE 485/486/651/652/751/752/753/754, Senior Undergraduate and Graduate Seminar, 1 cr., Fall 2011-2013 and Winter 2013-2014.

University of Nebraska-Lincoln

MSYM 109, Physical Principles in Agriculture, 4 cr., Spring 2000, 2001 and 2006.

BSEN/AGEN 112, Introduction to Problem Solving in Agricultural and Biological Systems Engineering, 2 cr., Spring 2007-2010.

AGRO/MSYM/AGEN 431, Site-Specific Crop Management, 3 cr., Fall 2001-2009.

AGEN 896, Precision Agriculture Advances, 3 cr., Fall 2004 and individual projects.

AGRO 841, Understanding and Managing Spatial Variability in Soils, 2 cr., Spring 2005, 2006, 2008, and 2010 (distance education).

PROFESSIONAL MEMBERSHIPS

Professional Agricultural Engineer

License 100223225, Professional Engineers Ontario, Canada, 2018-present.

License E-10643, State of Nebraska, USA, 2002-present.

Associate Member of the Center for Intelligent Machines (CIM), McGill University, 2015-present

Engineering Societies:

American Society of Agricultural and Biological Engineers (ASABE), 1997-present

Precision Agriculture Committee (MS-54), 2002-present. **Secretary, 2004-2006**

Department Heads Committee (EOPD-210), 2018-present

Soil-Plant-Machine Dynamics Committee (MS-45), 2003-present

Crop Production Systems, Machinery, and Logistics Committee (MS-49), 2003-present

Mechatronics and Robotics Committee (ITSC-318), 2012-present

Robotics Competition Committee (P-127), 2008-2016

Canadian Society for Bioengineering (CSBE), 2011-present

International Commission of Agricultural and Biosystems Engineering (CIGR), Next leaders event, 2011, Section III: **Plant Production board** member, 2018-2026.

Canadian Advisory Committee for the International Organization for Standardization ISO/TC23/SC19 Agricultural Electronics, 2012 – present.

Leadership in ISO/TC23/SC19/WG7 (**ISO 12188**), 2009-2015.

ISO/TC 347 Data-Driven Agrifood Systems, 2024-present

Coordinating Committee for OECD Tractor Testing in the USA, 2002-2010

Environmental and Engineering Geophysical Society (EEGS), 2009

Soil Science Societies:

    Canadian Soil Science Society (CSSS), 2012-present

    Soil Science Society of America (SSSA), 2008-2011

    International Union of Soil Sciences (IUSS) Working Group on Proximal Soil Sensing, 2009-present. **Co-founder** and **vice-chair, 2009-2013**

Precision Agriculture Societies:

    International Society of Precision Agriculture (ISPA), 2010-present. **Elected secretary, 2014-2016** and **2016-2018**. Country representative, 2010-2022

    CRAAQ Commission Géomantique et Agriculture de Précision, 2010-present

    NCERA-180 Precision Technologies for Food, Fiber, and Energy Production Committee, 2001-2012

    Nebraska Agricultural Technology Association (NeATA), 2001-2010

Editorial Boards:

    Editorial Board of Computers and Electronics in Agriculture Journal, 2009-present

    Editorial Board of Precision Agriculture Journal, 2010-present

    Associate Editor of Canadian Biosystems Engineering Journal, 2018-present

    Guest Editor of two Special Issues of Sensors Journal, 2020-2021

Other Licenses:

    Private pilot, since 1998 (USA, inactive since 2004)

    Operators (driving) license, since 1994 (Ukraine, USA, Canada), motorcycle endorsement, 1998-2010 (USA)

    Certified tractor and farm machinery operator, since 1994 (Ukraine)

Languages: Ukrainian, English, Russian, and French

PROFESSIONAL AWARDS

CSBE/SCGAB Glen Downing Award for outstanding work in industry, teaching, research, or extension in the area of machinery systems, or bioenergy systems, 2019.

ASABE Standard Development Award for ASABE/ISO 12188-2:2012 "Positioning and Guidance in Agriculture - Part 2: Testing satellite-based auto-guidance systems" standard, 2016.

Susan J. Rosowski Professorship in recognition of distinguished scholarship and creative activity, University of Nebraska-Lincoln, 2009-2010.

UNL Extension Excellence in Team Programming Award for "GEAR-TECH-21" non-formal education program, 2009.

ASABE Educational Aids Competition Blue Ribbon Award for "The Nebraska 4-H robotics and GPS/GIS year 1 curriculum" website, 2009.

ASABE Educational Aids Competition Blue Ribbon Award for "GNSS-based auto-guidance in agriculture (SSMG-46)" short publication, 2009.

ASABE Educational Aids Competition Blue Ribbon Award for "Weed targeting herbicide management" extension circular, 2009.

Pierre C. Robert Precision Agriculture Young Scientist Award, Ninth International Conference on Precision Agriculture, Denver, Colorado, 2008.

ASAE Educational Aids Competition Blue Ribbon Award for "On-the-go vehicle-based soil sensors" extension circular, 2003.

Dinsdale Family Faculty Award for outstanding teaching, research and outreach in the Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, 2002.

ASAE Superior Paper Award for "Application of a strain gauge array to estimate soil mechanical impedance on-the-go" Transactions of the ASAE 44(6):1377-1383, 2002.

The University of Nebraska University-wide Departmental Teaching Award for the 2001-2002 Academic Year, 2002.

MAIN AWARDED GRANTS

1. Zhao, X. and **V. Adamchuk**. Improving expert systems for generating strategic recommendations. Mon Système Fourrager (MSF, Montreal, QC, Canada), $346,840.
2. **Adamchuk, V.** 2023-2028. Integrated proximal sensing of soil and crop. National Science and Engineering Research of Canada (NSERC) Discovery, $295,000.
3. Bouroubi, Y., **V. Adamchuk**, and S. Foucher. 2023-2026. Development of a decision support system to determine the potential for soil organic matter accumulation in Quebec and the practices to achieve it. FRQNT programme de recherche en partenariat - Agriculture durable, $750,000 ($75,000 direct control).
4. **Adamchuk, V.** 2022-2023. Development of an integrated sensor system for automated on-the-spot measurement of physical soil properties. Mitacs Accelerate International with support from Ztractor (Palo Alto, California, USA), $30,000.
5. **Adamchuk, V.** 2022. Wireless subsurface soil sensor network. Mitacs Accelerate with support from NestingSafe (Montreal, QC, Canada), $15,000.
6. **Adamchuk, V.** 2021-2022. Development of crop quality/quantity estimation methods using UAV imagery. AAFC AgriRisk Initiatives Program with support from Drone Des Champs (Laval, Quebec, Canada), $50,000.
7. Leduc, M., **V. Adamchuk**, and K. Chokmani, and S. Homayouni. 2021-2024. AI-driven decision support tools for alfalfa's winter survival and persistency. Mitacs Accelerate with support from Canadian Forage Grassland Association (Fredericton, NB, Canada) AAFC and MAPAQ, $2,044,298 ($310,900 direct control).
8. **Adamchuk, V.** 2021-2024. Model development for ground-engaging tools using real-time numerical terramechanics and discrete-element method. Mitacs Accelerate with support from CNH Industrial (Saskatoon, SK, Canada), $120,000 (plus $35,000 supplemental).
9. **Adamchuk, V.** 2021-2024. Agricultural multi-layer data fusion to support cloud-based agricultural advisory services. Mitacs Accelerate with support from Telus Communication (Calgary, AB, Canada) and Olds College (Olds, AB, Canada), $120,000.
10. Meldrum, P., M. Leduc, and **V. Adamchuk**. 2021-2022. Toward a more sustainable Macdonald Farm: Assessment and Strategic Planning. McGill Sustainability Project Fund and MAPAQ, $162,504.
11. **Adamchuk, V.** 2020-2021. Agricultural anomaly detection using temporal dynamics of remote sensing data. Mitacs Accelerate with support from horoma AI (Magog, Quebec, Canada), $40,000.
12. **Adamchuk, V.** 2019-2020. Development of an integrated sensor system for automated on-the-spot measurement of physical soil properties. Mitacs Accelerate International with support from Ztractor (Palo Alto, California, USA), $30,000.
13. **Adamchuk, V.** 2019. Development of willow tree yield mapping technology. National Science and Engineering Research of Canada (NSERC) Engage Project with Agro Energie (St-Roch-de-l'Achigan, Quebec), $25,000.
14. **Adamchuk, V.** and Y. Comeau. 2019. Development and validation of a semi-automated in-situ soil sensor using vis-NIR spectroscopy. Mitacs Accelerate with support from ChrysaLabs (Montreal, Quebec), $80,000 ($53,333 direct control).
15. **Adamchuk, V.** 2017. Analysis of complementarity of different spectral analytics to sense soil properties. National Science and Engineering Research of Canada (NSERC) Engage Project with LogiAg, Inc. (Chateauguay, Quebec), $25,000.
16. **Adamchuk, V.** 2017-2023. Integrated proximal sensing of soil and crop. National Science and Engineering Research of Canada (NSERC) Discovery, with Discovery Accelerator Supplement (DAS) for 2017-2020, $366,000.
17. Madramootoo, C. (PI), J. Whalen, **V. Adamchuk** (co-applicant), Z. Qi, A. Akbarzadeh, S. Kulshreshtha, A. Fredeen, E. Yiridoe, and P. Havard. 2017-2022. An integrated socio-economic and biophysical framework for mitigating greenhouse gas emissions under

agricultural water management systems in Eastern Canada. Agriculture and Agri-Food Canada (AAFC), Agricultural Greenhouse Gases Program (AGGP), $1,608,712 ($100,000 direct control).

18. Vasseur, E. (PI) and **V. Adamchuk** (collaborator). 2017-2019. Analysis and automation of injury assessment in dairy cattle. Agriculture and Agri-Food Canada (AAFC) Agri-Risk Program, $113,326 (no direct control).

19. **Adamchuk, V**. 2017. Machine vision yield monitor for vegetable crops. Mitacs Accelerate with support from Delfland (Napierville, Quebec), $15,000.

20. Tremblay, N. and **V. Adamchuk** (University subcontract). 2015-2018. Optimization of nitrogen fertilization in response to production system uncertainties such as soils, weather and economics across Canada under 4R stewardship, Fertilizer Canada, Agri-Innovation Program (AIP), $210,452 ($132,394 direct control).

21. **Adamchuk, V.** 2015-2016. Development of a sensor network system for precision apiculture and surface soil imaging using smart phone technology. Bayer Crop Science, $25,000.

22. **Adamchuk, V.** (PI), A. Biswas, P. Raymer, P. Hermans, and S. Prasher. 2015-2018. Development of scale-up sensor-based precision agriculture services in Ontario. Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), New Directions Research Program (NDRP), $200,000 (100% direct control).

23. **Adamchuk, V.** 2014. Computer vision cultivator guidance. National Science and Engineering Research of Canada (NSERC) Engage Project with Agri-Fusion 2000, Inc. (Saint-Polycarpe, Quebec), $25,000.

24. Madramootoo, C. (PI), **V. Adamchuk** (co-applicant), Bronsch, J.J., and Woods S.S. 2013-2016. Application of variable rate irrigation technology for water efficiency and conservation. National Science and Engineering Research of Canada (NSERC) Strategic Project, $244,300 ($100,000 direct control).

25. **Adamchuk, V.** 2012-2014. Zones on-the-go. Deere and Company Corporation, $315,000 (five work orders).

26. **Adamchuk, V.I.** 2011-2017. Integrated proximal sensing of soil and crop. National Science and Engineering Research of Canada (NSERC) Discovery, $124,000.

27. Madramootoo, C. (PI), J. Whalen, **V. Adamchuk** (co-applicant), D. Burton, S. Kulshreshtha, A. Madani, C. Tan, and T. Zhang. 2011-2015. Effects of agricultural water management systems on greenhouse gas emissions in Eastern Canada. Agriculture and Agri-Food Canada (AAFC), Agricultural Greenhouse Gases Program (AGGP), $1,999,712 ($225,000 direct control).

28. **Adamchuk, V.I.** 2011-2012. Integrated soil sensing technology for optimized management of land resources. Canada Foundation for Innovation (CFI), Leader Opportunity Fund (LOF), $270,000.

29. Yatsenko, V. (PI) and **V. Adamchuk** (Canada collaborator). 2011-2013. New methods for active remote sensing of chemical and biological agents by optical devices. Science and Technology Center in Ukraine (STCU) project #5240, $110,000 (no direct control).

30. **Adamchuk, V.** (PI), S. Ci, D. Martin, H. Shariff, and R. Ferguson. 2009-2011. Optimization of irrigation efficiency of center-pivot systems using spatial and temporal data integration. Nebraska Water, Energy and Agriculture Initiative (WEAI), $115,386 (100% direct control).

31. Hanna, M. (PI), R. Hoy, D. Martin, W. Kranz, **V. Adamchuk** (collaborator). 2009-2011. Evaluation of biofuel driven irrigation pumps and/or electric generators for use during peak electricity demand. Nebraska Water, Energy and Agriculture Initiative (WEAI), $137,000 (no direct control).

32. Barker, B. (PI), Krehbiel, C. Nelson, and **V. Adamchuk** (collaborator). 2009-2010. 4-H robotics: engineering for today and tomorrow. United States Department of Agriculture, 4-H National Headquarters, $400,000 ($10,309 direct control).

33. Kocher, M., D. Keshwani, **V. Adamchuk** (collaborator), and D. Jones. 2009-2010. Logistics and economics of dual harvesting of grain and biomass. CLAAS of Omaha, Inc., $60,000 (no direct control).
34. Barker, B.S. (PI), **V.I. Adamchuk** (co-PI), G.L. Nugent, N. Grandgenett, and B. Chen. 2008-2013. Scale-up: Robotics and GPS/GIS in 4-H: workplace skills for the 21st century. National Science Foundation (NSF), Information Technology Experiences for Students and Teachers (ITEST), $2,498,940 ($120,000 direct control).
35. **Adamchuk, V.I.** (PI), C.A. Shapiro, C.S. Wortmann, R.B. Ferguson, and R. Perrin. 2008-2010. Profitability-oriented site-specific liming for soybean production. Nebraska Soybean Board, $88,520 (100% direct control).
36. Lund, E.B. (PI) and **V.I. Adamchuk** (University collaborator) 2008-2010. Soil core analysis network for in-field measurements of nitrogen and other soil properties. United States Department of Agriculture (USDA), Small Business Innovation Research (SBIR), Phase I, $79,677 ($3,000 direct control).
37. Wortmann, C. (PI), **V. Adamchuk** (collaborator), R. Ferguson, C. Shapiro, J. Hay, D. Varner. 2008-2009. Farmer evaluation and learning of spatial management of soil acidity. University of Nebraska Extension, $7000 (no direct control).
38. **Adamchuk, V.I.** (PI), A. Samal, C. Wortmann, L.K. Soh, and R.B. Ferguson. 2006-2009. Delineation of differentiated management areas within an agricultural field to optimize crop production. University of Nebraska-Lincoln, Channing B. and Katherine W. Baker Fund #3524, $36,000 (100% direct control).
39. Barker, B.S. (PI), **V.I. Adamchuk** (co-PI), G.L. Nugent, and N. Grandgenett. 2006-2009. Robotics and GPS/GIS in 4-H: workplace skills for the 21st century. National Science Foundation (NSF), Information Technology Experiences for Students and Teachers (ITEST), $864,139 ($154,186 direct control).
40. Wortmann, C. (PI), **V. Adamchuk** (collaborator), R. Ferguson, D. Varner, J. Mulliken, and A. Vybiral. 2006-2007. The use of spatial information to manage river valley soils: producer/consultant education. University of Nebraska Extension, $7,500 (no direct control).
41. **Adamchuk, V.** (PI), J. Mulliken, and A. Martin. 2005-2006. Weed targeting herbicide application. University of Nebraska Extension, $7,000 (100% direct control).
42. Lund, E. (PI) and **V. Adamchuk** (University collaborator). 2003-2006. A soil sampling system for on-the-go analysis and mapping of pH and other properties. United states Department of Agriculture (USDA), Small Business Innovation Research (SBIR), Phase II, $262,325 ($60,654 direct control).
43. **Adamchuk, V.I.** (PI). 2002. Instrumentation system for deep-tillage research. John Deere Product Engineering Center, $14,500.
44. Drummond P. (PI), C. Christy, E. Lund, and **V. Adamchuk** (University collaborator). 2002. A soil sampling mechanism for on-the-go analysis and mapping of pH and other properties United States Department of Agriculture (USDA), Small Business Innovation Research (SBIR), Phase I, $61,888 ($3,300 direct control).
45. Dobermann, A (PI), R. Caldwell, **V. Adamchuk** (co-PI), and R. Ferguson. 2001-2006. Thematic soil mapping and crop-based strategies for site-specific management. United States Department of Agriculture (USDA), Application of Geospatial and Precision Technologies (AGPT), $1,025,000 ($158,682 direct control).
46. **Adamchuk, V.I.** (PI) 2001-2002. Automated mapping of residual soil nitrate. University of Nebraska-Lincoln, Layman Trust Fund, $7,500.

PATENTS

1. **Adamchuk, V.**, A. Biswas, L. Qi, <u>M. Leclerc</u>[1], <u>B. Sudarsan</u>, and <u>W. Ji</u>. 2019. Apparatus for analyzing a sample of granular material. United States Patent No. 10,495,568, Canadian Patent Application No. 3,003,118.
2. **Adamchuk, V.I.**, <u>A. Pouliot</u>, and <u>T. Stanhope</u>. 2019. Steering wheel adapter for agricultural vehicle vision guidance system. United States Design Patent No. D863,367, Canadian Industrial Design Patent No. 163,371, European Industrial Design Patent EP002938100.
3. **Adamchuk, V.I.**, <u>A. Pouliot</u>, and <u>T. Stanhope</u>. 2018. Guidance system and steering control device for an agricultural vehicle. United States Patent No. 10,104,827.
4. **Adamchuk, V.I.**, <u>N. Dhawale</u>, <u>F. Rene-Laforest</u>, S. Prasher, and <u>A. Pouliot</u>. 2016. Soil analysis apparatus, method, and system having a displaceable blade assembly and sensor. US Patent No. 9,389,214.
5. **Adamchuk, V.I.**, A.V. Skotnikov, and <u>J.D. Speichinger</u>. 2006. Instrumented deep tillage implement. US Patent No. 7,028,554, Canadian Patent No. 2,473,368.
6. **Adamchuk V.I.**, M.T. Morgan, and D.R. Ess. 2002. System and method for automated measurement of soil pH. US Patent No. 6,356,830.

EDITED PUBLICATIONS

1. **Adamchuk, V.**, K. Sudduth, and A. Biswas. 2020. *Sensors, Special Issue: Smart Sensing Technologies for Agriculture*, 234 pages. Basel, Switzerland: MDPI.
2. Viscarra Rossel, R.A., **V.I. Adamchuk**, and R. Gebbers. 2015. *European Journal of Soil Science, volume 66(4), Special Issue: Proximal Soil Sensing*. Hoboken, New Jersey: John Wiley and Sons, Inc.
3. **Adamchuk, V.I.** and R.A. Viscarra Rossel. 2013. *Geoderma, volume 199, Special Issue: Proximal Soil Sensing*. Amsterdam, The Netherlands: Elsevier.
4. Barker, B.S., G.L. Nugent, N. Grandgenett, and **V.I. Adamchuk**. 2012. *Robotics in K-12 Education: A New Technology for Learning*, 407 pages. Hershey, Pennsylvania: IGI Global.
5. **Adamchuk, V.I.** and R.A. Viscarra Rossel. 2011. *Proceedings of the Second Global Workshop on Proximal Soil Sensing*, Montreal, Quebec, Canada, 15-18 May 2011, 163 pages. Montreal, Quebec, Canada: McGill University.

REFEREED BOOK CHAPTERS

1. **Adamchuk, V.I.**, A. Biswas, <u>H.H. Huang</u>, J.E. Holland, J.A. Taylor, B. Stenberg, J. Wetterlind, K. Singh, B. Minasny, C. Fidelis, D. Yinil, T. Sander-son, D. Snoeck, and D.J. Field. 2021. Soil Sensing. In: *Sensing Approaches for Precision Agriculture*, Chapter 4, 93-132, R. Kerry and A. Escola, eds. Cham, Switzerland: Springer.
2. **Adamchuk, V.**, <u>W. Ji</u>, R. Viscarra Rossel, R. Gebbers, and N. Tremblay. 2018. Proximal soil and plant sensing. In: *Precision Agriculture Basics*, Chapter 9, 119-140, D.K. Shannon, D.E. Clay, and N.R. Kitchen, eds. Madison, Wisconsin: ASA-CSSA-SSSA.
3. An, W., D. Wu, S. Ci, H. Luo, **V. Adamchuk**, and Z. Xu. 2017. Agriculture cyber-physical systems. In: *Cyber-Physical Systems - Foundations, Principles and Applications*, Chapter 25, 399-417, H. Song, D.B. Rawat, S. Jeschke and C. Brecher, eds. London, UK: Academic Press.
4. **Adamchuk, V.I.**, B. Allred, J. Doolittle, K. Grote, and R.A. Viscarra Rossel. 2017. Tools for proximal soil sensing. In: *Soil Survey Manual*, Chapter 6, 355-394, USDA Handbook 18, C. Ditzler, K. Scheffe, and H.C. Monger, eds. Washington, DC: Government Printing Office.
5. **Adamchuk, V.I.** 2015. Precision agriculture and food security. In: *Bringing Space Down to Earth* by the World Economic Forum's Global Agenda Council on Space Security, 17-19. Geneva, Switzerland: World Economic Forum.

---

[1] Names of supervised students and postdoctoral assistants are underlined.

6. Viscarra Rossel, R.A. and **V.I. Adamchuk**. 2013. Proximal soil sensing. In: *Precision Agriculture for Sustainability and Environmental Protection*, Chapter 6, 99-118, M.A. Oliver, T.F.A. Bishop, and B.P. Marchant, eds. Abingdon, UK: Routledge.

7. **Adamchuk, V.I.**, M.C. Patent Nygren, C.C. Lutz, and K.P. Morgan. 2012. Learning geospatial concepts as part of a non-formal education robotics experience. In: *Robotics in K-12 Education: A New Technology for Learning*, Chapter 14, 284-300, B.S. Barker, G.L. Nugent, N. Grandgenett, and V.I. Adamchuk, eds. Hershey, Pennsylvania: IGI Global.

8. Shiratsuchi, L.S., M.F. Vilela, R.B., Ferguson, J. F. Shanahan, **V.I. Adamchuk**, A.V. Resende, S.C. Hurtado, and E.J. Corazza. 2012. Developing an algorithm for on-the-go nitrogen management in the Brazilian Cerrado (in Portuguese: Desenvolvimento de um algoritmo baseado em sensores ativos de dossel para recomendação da adubação nitrogenada em taxas variáveis). In: *Agricultura de Precisão: Um Novo Olhar*, 184-188, R.Y. Inamasu, J.M. Naime, A.V. Resende, L.H. Bassoi, and A.C.C. Bernardi, eds. São Carlos, São Paulo, Brasil: Embrapa Instrumentação.

9. **Adamchuk, V.I.**, R.A. Viscarra Rossel, K.A. Sudduth, and P. Schulze Lammers. 2011. Sensor fusion for precision agriculture. In: *Sensor Fusion – Foundation and Applications,* Chapter 2, 27-40, C. Thomas, ed. Rijeka, Croatia: InTech.

10. **Adamchuk, V.I.** and R.A. Viscarra Rossel. 2011. Precision agriculture: proximal soil sensing. In: *Encyclopedia of Agrophysics*, 650-656, J. Gliński, J. Horabik, and J. Lipiec, eds. New York, New York: Springer.

11. **Adamchuk, V.I.**, R.D. Grisso, and M.F. Kocher. 2011. Spatial variability of field machinery use and efficiency. In: *GIS Applications in Agriculture. Volume Two. Nutrient Management for Energy Efficiency*, Chapter 8, 135-146, D.E. Clay and J.F. Shanahan, eds. Boca Raton, Florida: CRC Press.

12. **Adamchuk, V.I.**, R.B. Ferguson, and G.W. Hergert. 2010. Soil heterogeneity and crop growth. In: *Precision Crop Protection – the Challenge and Use of Heterogeneity*, Chapter 1, 3-16, E.C. Oerke, R. Gerhards, G. Menz, and R.A. Sikora, eds. New York, New York: Springer.

13. **Adamchuk, V.I.** and R.A. Viscarra Rossel. 2010. Development of on-the-go proximal soil sensor systems. In: *Proximal Soil Sensing*, Chapter 2, 15-28. R.A. Viscarra Rossel, A. McBratney, and B. Minasny, eds. New York, New York: Springer.

14. **Adamchuk, V.I.** and C. Wang. 2007. Collocating multiple self-generated data layers. In: *GIS Applications in Agriculture*, Chapter 10, 185-196. F.J. Pierce and D. Clay, eds. Boca Raton, Florida: CRC Press.

15. **Adamchuk, V. (Slava)** 2005. Selected sample problems in the area of power and machinery. In: *A Guide to Professional Licensure for Agricultural, Food, and Biological Systems Engineers*, F.W. Koenig and C.G. Henry, eds. St. Joseph, Michigan: ASAE.

16. Casady, W.W. and **V.I. Adamchuk**. 2003. Global positioning system and GPS receivers in agriculture. In: *Encyclopedia of Agricultural, Food, and Biological Engineering*, 444-446. D.R. Heldman, ed. New York, New York: Marcel Dekker, Inc.

REFEREED JOURNAL ARTICLES

1. Bahrami, H., K. Chokmani, S. Homayouni, **V.I. Adamchuk**, M. Saifuzzaman, and M. Leduc. 2025. Alfalfa detection and stem count from proximal images using a combination of deep neural networks and machine learning. *Computers and Electronics in Agriculture* 232:110115 (https://doi.org/10.1016/j.compag.2025.110115).

2. Karp, F.H.S., **V. Adamchuk**, P. Dutilleul, and A. Melnitchouck. 2024. Comparative study of interpolation methods for low-density sampling. *Precision Agriculture* 25:2776-2800 (https://doi.org/10.1007/s11119-024-10141-0).

3. Lachgar A., D.J. Mulla, and **V. Adamchuk**. 2024. Implementation of proximal and remote soil sensing, data fusion and machine learning to improve phosphorus spatial prediction for

farms in Ontario, Canada. *Agronomy* 14:693 (35 pages, https://doi.org/10.3390/agronomy14040693).

4. Jiang, X., S. Sun, **V. Adamchuk**, G. Weisman, P. Ramsay, and A. Rello Rincona. 2024. Spinach yield mapping using multispectral UAV imagery. *Smart Agricultural Technology* 7:100389 (14 pages, https://doi.org/10.1016/j.atech.2023.100389).

5. Boily, G.C., **V. Adamchuk**, M. Roberge, and V. Sadrmanesh. 2023. Discrete-element method (DEM) simulation and validation of soil volume in wheel loader bucket. *Canadian Biosystems Engineering* 65:2.1-2.13 (https://doi.org/10.7451/CBE.2023.65.2.1).

6. Karp, F.H.S., **V.I. Adamchuk**, A. Melnitchouck, B. Allred, P. Dutilleul, and L.R. Martinez. 2023. Validation and potential improvement of soil survey maps using proximal soil sensing. *Journal of Environmental and Engineering Geophysics* 28(1):45-61 (doi:10.32389/JEEG22-018).

7. Portz, G., J.P. Molin, T. Canata, and **V.I. Adamchuk**. 2023. Integration of ultrasonic and optical sensing systems to assess sugarcane biomass and N-uptake. *Precision Agriculture* 25:83-99 (https://doi.org/10.1007/s11119-023-10059-z).

8. Buelvas, R.M., **V.I. Adamchuk**, J. Lan, V. Hoyos-Villegas, A. Whitmore, and M. Stromvik. 2023. Development of a quick-install rapid phenotyping system. *Sensors* 23:4253 (19 pages, https://doi.org/10.3390/s23094253).

9. Mat Su, A.S. and **V.I. Adamchuk**. 2023. Temporal and operation-induced instability of apparent soil electrical conductivity measurements. *Frontiers in Soil Science* 3:1137731 (11 pages, doi: 10.3389/fsoil.2023.1137731).

10. Johnston. A., **V. Adamchuk**, A. Cambouris, J. Lafond, I. Perron, J. Lajeunesse, M. Duchemin, and A. Biswas. 2022. Proximal and remote sensing data integration to assess spatial soil heterogeneity in wild blueberry fields. *Soil Systems* 6:89 (28 pages, https://doi.org/10.3390/soilsystems6040089).

11. Zeitoun, R., **V. Adamchuk**, and A. Biswas. 2022. A novel paper-based reagentless dual functional soil test to instantly detect phosphate infield. *Sensors,* 22:8803 (15 pages, https://doi.org/10.3390/s22228803).

12. Behera, S.K., **V.I. Adamchuk**, A.K. Shukla, P.S. Pandey, P. Kumar, V. Shukla, C. Thiyagarajan, H.K. Rai, S. Hadole, A.K. Sachan, P. Singh, V. Trivedi, A. Mishra, N.P. Butail, P. Kumar, R. Prajapati, K. Tiwari, D. Suri, and M. Sharma. 2022. The scope for using proximal soil sensing by the farmers of India. *Sustainability*, 14:8561 (16 pages, https://doi.org/10.3390/su14148561).

13. Zhang, Y., D. Saurette, T.H. Easher, W. Ji, **V. Adamchuk**, and A. Biswas. 2022. Comparison of sampling designs for calibrating digital soil maps at multiple depths. *Pedosphere* 2022, 32(4):588–601.

14. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, R.A. Viscarra Rossel, and A.A. Ismail. 2022. Evaluation of two portable hyperspectral-sensor-based instruments to predict key soil properties in Canadian soils. *Sensors* 2022, 22, 2556 (18 pages, https://doi.org/10.3390/s22072556)

15. Sanches, G.M., R. Otto, **V. Adamchuk**, and P.S.G. Magalhaes. 2022. Spatial variability of soil attributes by an electromagnetic induction sensor: A framework of multiple fields assessment under Brazilian soils. *Biosystems Engineering* 216:229-240 (https://doi.org/10.1016/j.biosystemseng.2022.02.017).

16. Vestergaard, R.J., H.B. Vasava, D. Aspinall, S. Chen, A. Gillespie, **V. Adamcuhk**, and A. Biswas. 2021. Evaluation of optimized preprocessing and modeling algorithms for prediction of soil properties using VIS-NIR spectroscopy. *Sensors* 2021, 21, 6745 (18 pages, https://doi.org/10.3390/s21206745).

17. Saifuzzaman, M., **V. Adamchuk**, A. Biswas, and N. Rabe. 2021. High-density proximal soil sensing data and topographic derivatives to characterize field variability. *Biosystems Engineering* 211:19-34 (doi.org/10.1016/j.biosystemseng.2021.08.018).

18. Dhawale, N., **V. Adamchuk**, S. Prasher, and R. Viscarra Rossel. 2021. Precision and accuracy of vis-NIR hyperspectral soil reflectance measurements. *Soil Systems* 2021, 5, 48 (19 pages, doi.org/10.3390/soilsystems5030048).
19. Fontenelli, J.V., **V.I. Adamchuk**, M.M.C. Ferreira, L.R. do Amaral, C.C.B. Guimarães, J.A.M. Demattê, and P.S.G. Magalhães. 2021. The synergy of soil spectroscopy does not improve soil attributes prediction and mapping: A case of study from Southeast Brazil. *Geoderma* 402 (2021) 115347 (10 pages, doi.org/10.1016/j.geoderma.2021.115347).
20. Zeitoun, R., **V. Adamchuk**, J. Warland, and A. Biswas. 2021. Paper-polished carbon screen-printed electrodes increase reusability and enhance performance in phosphomolybdate electrochemical detection. *Journal of Electroanalytical Chemistry,* 890 (2021) 115229 (8 pages, doi.org/10.1016/j.jelechem.2021.115229).
21. Lajili, A., A.N. Cambouris, K. Chokmani, M. Duchemin, I. Perron, B.J. Zebarth, A. Biswas, and **V.I. Adamchuk**. 2021. Analysis of four delineation methods to identify potential management zones in a commercial potato field in Eastern Canada. *Agronomy,* 11:432. (16 pages, doi.org/10.3390/agronomy11030432).
22. Boatswain Jacques, A.A., **V.I. Adamchuk**, J. Park, G. Cloutier, J.J. Clark, and C. Miller. 2021. Towards a machine vision-based yield monitor for the counting and quality mapping of shallots. *Frontiers in Robotics and AI* 8:627067 (12 pages doi.org/10.3389/frobt.2021. 627067).
23. Vidana Gamage, D.N., H.B. Vasava, I.B. Strachan, **V.I. Adamchuk**, and A. Biswas. 2021. Comparison of heating strategies on soil water measurement using actively heated fiber optics on contrasting textured soils. *Sensors*, 21:962 (17 pages, https://doi.org/10.3390/ s21030962).
24. Yari, A., L. Gilbert, C.A. Madramootoo, S.A. Woods, and **V.I. Adamchuk**. 2021. Optimum irrigation strategy to maximize yield and quality of potato: A case study in southern Alberta, Canada. *Irrigation and Drainage*, 70(4):609-621 (doi.org/10.1002/ird.2556).
25. Leclerc, M., **V. Adamchuk**, J. Park, and X. Lachapelle-T. 2020. Development of willow tree yield-mapping technology. *Sensors*, 20:2650 (18 pages, doi:10.3390/s20092650).
26. Zhang, Y., W. Ji, D.D. Saurette, T. Huq Eashere, H. Li, Z. Shi, **V.I. Adamchuk**, and A. Biswas. 2020. Three-dimensional digital soil mapping of multiple soil properties at a field scale using regression kriging. *Geoderma*, 366:114253 (11 pages, https://doi.org/10.1016/ j.geoderma.2020.114253).
27. Fu, Y., P. Taneja, S. Lin, W. Ji, **V. Adamchuk**, P. Daggupati, and A. Biswas. 2020. Predicting soil organic matter from cellular phone images under varying soil moisture. *Geoderma,* 361:114020 (10 pages, doi.org/10.1016/j.geoderma.2019.114020).
28. Adamchuk-Chala, N.I., V.O. Yatsenko, M.M. Baranovskij, J.V. Bojko, and **V.I. Adamchuk**. 2020. Determination of soil heterogeneity by precision farming methods. *Ukrainian Journal of Ecology* 10(6):42-47 (doi:10.15421/2020_255).
29. Buelvas, R.M., **V.I Adamchuk**, E. Leksono, P. Tikasz, M. Lefsrud, and J. Holoszkiewicz. 2019. Biomass estimation from canopy measurements for leafy vegetables based on ultrasonic and laser sensors. *Computers and Electronics in Agriculture,* 164:104896 (13 pages, doi.org/10.1016/j.compag.2019.104896).
30. Qi, L., **V. Adamchuk**, H.H. Huang, M. Leclerc, Y. Jiang, A. Biswas. 2019. Proximal sensing of soil particle sizes using a microscope-based sensor and Bag of Visual Words model. *Geoderma,* 351:144-152.
31. Saifuzzaman, M., **V. Adamchuk**, R. Buelvas, A. Biswas, S. Prasher, N. Rabe, D. Aspinall, and W. Ji. 2019. Clustering tools for integration of satellite remote sensing imagery and proximal soil sensing data. *Remote Sensing,* 11:1036 (17 pages, doi:10.3390/rs11091036).
32. Ji, W., **V.I. Adamchuk**, S. Chen, A.S. Mat Su, A. Ismail, Q. Gan, Z. Shi, and A. Biswas. 2019. Simultaneous measurement of multiple soil properties through proximal sensor data fusion: A case study. *Geoderma,* 341:111–128.

33. Tikasz, P., S. MacPherson, **V. Adamchuk**, and M. Lefsrud. 2019. Aerated chicken, cow, and turkey manure extracts differentially affect lettuce and kale yield in hydroponics. *International Journal of Recycling of Organic Waste in Agriculture*, 8:241–252.

34. Henry, E., **V. Adamchuk**, T. Stanhope, C. Buddle, N. Rindlaub. 2018. Precision apiculture: Development of a wireless sensor network for honeybee hives. *Computers and Electronics in Agriculture,* 156:138-144.

35. Edwards, K.P., C.A. Madramootoo, J.K. Whalen, **V.I. Adamchuk**, A.S. Mat Su, and H. Benslim. 2018. Nitrous oxide and carbon dioxide emissions from surface and subsurface drip irrigated tomato fields. *Canadian Journal of Soil Science,* 98(3): 389-398.

36. Vidana Gamage, D.N., A. Biswas, I.B. Strachan, and **V.I. Adamchuk**. 2018. Soil water measurement using actively heated fiber optics at field scale. *Sensors,* 18(4):1116 (15 pages, doi:10.3390/s18041116).

37. Sudarsan, B., W. Ji, **V. Adamchuk**, and A. Biswas. 2018. Characterizing soil particle sizes using wavelet analysis of microscope images. *Computers and Electronics in Agriculture,* 148:217-225.

38. Zhang, Y., A. Biswas, W. Ji, **V.I. Adamchuk**. 2017. Depth-specific prediction of soil properties *in situ* using vis-NIR spectroscopy. *Soil Science Society of America Journal*, DOI:10.2136/sssaj2016.08.0253.

39. Yari, A., C.A. Madramootoo, S.A. Woods, and **V.I. Adamchuk**. 2017. Performance evaluation of constant versus variable rate irrigation. *Irrigation and Drainage*, 66: 501-509.

40. Yari, A., C.A. Madramootoo, S.A. Woods, **V.I. Adamchuk**, and H.H. Huang. 2017. Assessment of field spatial and temporal variabilities to delineate site-specific management zones for variable-rate irrigation. *Journal of Irrigation and Drainage Engineering,* 143(9):04017037 (7 pages, doi:10.1002/ird.2131).

41. Zhang, Y., A. Biswas, and **V.I. Adamchuk.** 2017. Implementation of a sigmoid depth function to describe change of soil pH with depth. *Geoderma*, 289:1-10.

42. Ji, W., **V. Adamchuk**, A. Biswas, N. Dhawale, B. Sudarsan, Y. Zhang, R. Viscarra Rossel, and Z. Shi. 2016. Assessment of soil properties *in situ* using a prototype portable MIR spectrometer in two agricultural fields. *Biosystems Engineering*, 152:14-27.

43. Sudarsan, B., W. Ji, A. Biswas, and **V. Adamchuk**. 2016. Microscope-based computer vision to characterize soil texture and soil organic matter. *Biosystems Engineering,* 152:41-50.

44. Viscarra Rossel, R.A., T. Behrens, E. Ben-Dor, D.J. Brown, J.A.M. Demattê, K.D. Shepherd, Z. Shi, B. Stenberg, A. Stevens, **V. Adamchuk**, H. Aïchi, B.G. Barthès, H.M. Bartholomeus, A.D. Bayer, M. Bernoux, K. Böttcher, L. Brodský, C.W. Du, A. Chappell, Y. Fouads, V. Genot, C. Gomez, S. Grunwald, A. Gubler, C. Guerrero, C.B. Hedley, M. Knadel, H.J.M. Morrás, M. Nocita, L. Ramirez-Lopez, P. Roudier, E.M. Rufasto Campos, P. Sanborn, V.M. Sellitto, K.A. Sudduth, B.G. Rawlins, C. Walter, L.A. Winowiecki, S.Y. Hong, W. Ji. 2016. A global spectral library to characterize the world's soil. *Earth-Science Reviews,* 155:198-230.

45. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, R.A. Viscarra Rossel, A.A. Ismail, and J. Kaur. 2015. Proximal soil sensing using a portable mid-infrared spectrometer. *European Journal of Soil Science*, 66(4):661-669 (doi: 10.1111/ejss.12265).

46. Kaur, J., **V.I. Adamchuk**, J.K. Whalen, and A.A. Ismail. 2015. Development of an NDIR CO_2 sensor-based system for assessing soil toxicity using substrate-induced respiration. *Sensors*, 15:4734-4748 (doi:10.3390/s150304734).

47. Klassen, S.P., J. Villa, **V. Adamchuk**, and R. Serraj. 2014. Soil mapping for improved phenotyping of drought resistance in lowland rice fields. *Field Crop Research,* 167:112-118.

48. Pan, L., **V.I. Adamchuk**, S. Prasher, R. Gebbers, R.S. Taylor, and M. Dabas. 2014. Vertical soil profiling using a galvanic contact resistivity scanning approach. *Sensors*, 14:13243-13255 (doi: 10.3390/s140713243).

49. Pan, L., **V.I. Adamchuk**, R.B. Ferguson, P.R.L. Dutilleul, S.O. Prasher. 2014. Analysis of water stress prediction quality as influenced by the number and placement of temporal soil-water monitoring sites. *Journal of Water Resource and Protection*, 6:961-971.

50. An, W., S. Ci, H. Luo, D. Wu, **V. Adamchuk**, H. Sharif, X. Wang, and H. Tang. 2013. Effective sensor deployment based on field information coverage in precision agriculture. *Wireless Communications and Mobile Computing*, 15:1606–1620 (doi: 10.1002/wcm.2448).

51. Pan, L., **V.I. Adamchuk**, D.L. Martin, M.A. Schroeder, and R.B. Ferguson. 2013. Analysis of soil water availability by integrating spatial and temporal sensor-based data. *Precision Agriculture* 14(4):414-433.

52. Roberts, D.F., R.B. Ferguson, N.R. Kitchen, **V.I. Adamchuk**, and J.F. Shanahan. 2012. Relationships between soil-based management zones and canopy sensing for corn nitrogen management. *Agronomy Journal* 104(1):119-129.

53. **Adamchuk, V.I.**, A.S. Mat Su, R.A. Eigenberg, and R.B. Ferguson. 2011. Development of an angular scanning system for sensing vertical profiles of soil electrical conductivity. *Transactions of the ASABE* 54(3):1-11.

54. **Adamchuk, V.I.**, R.A. Viscarra Rossel, D.B. Marx, and A.K. Samal. 2011. Using targeted sampling to process multivariate soil sensing data. *Geoderma* 163(1-2):63-73.

55. Viscarra Rossel, R.A., **V.I. Adamchuk**, K.A. Sudduth, N.J. McKenzie, and C. Lobsey. 2011. Proximal soil sensing: an effective approach for soil measurements in space and time, Chapter 5. *Advances in Agronomy* 113:237-283.

56. Kocher, M. F., **V.I. Adamchuk**, J.A. Smith, and R.M. Hoy. 2011. Verifying power claims of high-power agricultural tractors without a PTO to sell in Nebraska. *Applied Engineering in Agriculture* 27(5):711-715.

57. Roberts, D.F., **V.I. Adamchuk**, J.F. Shanahan, R.B. Ferguson, and J.S. Schepers. 2011. Estimation of surface soil organic matter using a ground-based active sensor and aerial imagery. *Precision Agriculture* 12(1):82-102.

58. Shiratsuchi, L., R. Ferguson, J. Shanahan, **V. Adamchuk**, D. Rundquist, D. Marx, and G. Slater. 2011. Water and nitrogen effects on active canopy sensor vegetation indices. *Agronomy Journal* 103(6):1815-1826.

59. Gebbers, R. and **V.I. Adamchuk**. 2010. Precision agriculture and food security. *Science* 327(5967):828-831.

60. Easterly D.R., **V.I. Adamchuk**, M.F. Kocher, and R.M. Hoy. 2010. Using a vision sensor system for performance testing of satellite-based tractor auto-guidance. *Computers and Electronics in Agriculture* 72(2):107-118.

61. Coffman, B.A., M.F. Kocher, **V.I. Adamchuk**, R.M. Hoy, and E.E. Blankenship. 2010. Testing fuel efficiency of a tractor with continuously variable transmission. *Applied Engineering in Agriculture* 26(1):31-36.

62. Solari, F., J.F. Shanahan, R.B. Ferguson, and **V.I. Adamchuk**. 2010. An active sensor algorithm for corn nitrogen recommendations based on a chlorophyll meter algorithm. *Agronomy Journal* 102(4):1090-1098.

63. Barker, B., N. Grandgenett, G. Nugent, and **V. Adamchuk**. 2010. Pairing educational robotics with geospatial technologies in informal learning environments. *Journal of Youth Development* 5(2):48-56.

64. Nugent, G., B. Barker, N. Grandgenett, and **V. Adamchuk**. 2010. Impact of robotics and geospatial technology interventions on youth STEM learning and attitudes. *Journal of Research on Technology in Education* 42(4):391-408.

65. Barker, B.S., N. Grandgenett, G. Nugent, and **V.I. Adamchuk**. 2010. Robots, GPS/GIS, and programming technologies:the power of "digital manipulatives" in youth extension experiences. *Journal of Extension* 48(1):1FEA7 (electronic publication, 9 pages).

66. Roberts, D.F., **V.I. Adamchuk**, J.F. Shanahan, R.B. Ferguson, and J.S. Schepers. 2009. Optimization of crop canopy sensor placement for measuring nitrogen status in corn. *Agronomy Journal* 101(1):140-149.
67. Hemmat A., A. Khorsandy, A. Masoumi and **V.I. Adamchuk**. 2009. Influence of failure mode induced by a horizontally-operated single-tip penetrometer on measured soil resistance. *Soil Tillage and Research* 105(1):49-54.
68. **Adamchuk, V.I.**, T.I. Ingram, K.A. Sudduth, and S.O. Chung. 2008. On-the-go mapping of soil mechanical resistance using a linear depth effect model. *Transactions of the ASABE* 51(6):1885-1894.
69. Hemmat, A. and **V.I. Adamchuk**. 2008. Sensor systems for measuring soil compaction:review and analysis. *Computers and Electronics in Agriculture* 63(2):89-103.
70. Hemmat, A., **V.I. Adamchuk**, and P. Jasa. 2008. Use of an instrumented disc coulter for mapping soil mechanical resistance. *Soil Tillage and Research* 98(2):150-163.
71. Sethuramasamyraja, B., **V.I. Adamchuk**, A. Dobermann, D.B. Marx, D.D. Jones, and G.E. Meyer. 2008. Agitated soil measurement method for integrated on-the-go mapping of soil pH, potassium and nitrate contents. *Computers and Electronics in Agriculture* 60(2):212-225.
72. Kyaw, T., R.B. Ferguson, **V.I. Adamchuk,** D.B. Marx, D.D. Tarkalson, and D.L. McCallister. 2008. Delineating site-specific management zones for pH-induced iron chlorosis. *Precision Agriculture* 9(1-2):71-84.
73. **Adamchuk, V.I.** and P.T. Christenson. 2007. Development of an instrumented blade system for mapping soil mechanical resistance represented as a second-order polynomial. *Soil Tillage and Research* 95(1):76-83.
74. **Adamchuk, V.I.**, E.D. Lund, T.M. Reed, and R.B. Ferguson. 2007. Evaluation of an on-the-go technology for soil pH mapping. *Precision Agriculture* 8(2):139-149.
75. Sethuramasamyraja, B., **V.I. Adamchuk**, D.B. Marx, A. Dobermann, G.E. Meyer, and D.D. Jones. 2007. Analysis of an ion-selective electrode-based methodology for integrated on-the-go mapping of soil pH, potassium and nitrate contents. *Transactions of the ASABE* 50(6):1927-1935.
76. **Adamchuk, V.I.**, M.T. Morgan, and S.M. Brouder. 2006. Development of an on-the-go soil pH mapping method:analysis of measurement variability. *Applied Engineering in Agriculture* 22(3):335-344.
77. **Adamchuk, V.I.** and J.P. Molin. 2006. Instrumented shanks for soil mechanical resistance measurements (in Portuguese:Hastes instrumentadas para mensuração da resistência mecânica do solo). *Revista Engenharia Agrícola* 26(1):161-196.
78. **Adamchuk, V.I.**, E. Lund, B. Sethuramasamyraja, M.T. Morgan, A. Dobermann, and D.B. Marx. 2005. Direct measurement of soil chemical properties on-the-go using ion-selective electrodes. *Computers and Electronics in Agriculture* 48(3):272-294.
79. Siefken, R.J., **V.I. Adamchuk**, D.E. Eisenhauer, and L.L. Bashford. 2005. Mapping soil mechanical resistance with a multiple blade system. *Applied Engineering in Agriculture* 21(1):15-23.
80. **Adamchuk, V.I.** and L.V. Aniskevich. 2005. Precision farming technologies to serve agriculture (in Ukrainian:Tehnologii tochnogo zemlerobstva na sluzhbi sil's'kogo gospodarstva). *Visnyk Agrarnoi Nauky* 10:42-44.
81. **Adamchuk, V.I.**, A.V. Skotnikov, J.D. Speichinger, and M.F. Kocher. 2004. Technical note:Development of an instrumented deep-tillage implement for sensing of soil mechanical resistance. *Transactions of the ASAE* 47(6):1913-1919.
82. **Adamchuk, V.I.**, J.W. Hummel, M.T. Morgan, and S.K. Upadhyaya. 2004. On-the-go soil sensors for precision agriculture. *Computers and Electronics in Agriculture* 44(1):71-91.
83. **Adamchuk, V.I.**, M.T. Morgan, and J.M. Lowenberg-DeBoer. 2004. A model for agro-economic analysis of soil pH mapping. *Precision Agriculture* 5(2):109-127.

84. Grisso, R.D., M.F. Kocher, **V.I. Adamchuk**, P.J. Jasa, and M.A. Schroeder. 2004. Field efficiency determination using traffic pattern indices. *Applied Engineering in Agriculture* 20(5):563-572.
85. Voityuk, D.G., L.V. Aniskevich, and **V.I. Adamchuk.** 2004. Modern technologies for energy management within an agricultural field (in Ukrainian:Suchasni tehnologii keruvannya energetychnym potentsialom sil's'kogospodars'kogo polya). *Naukovyj Visnyk Natsional'nogo Agrarnogo Universitetu* 73(1):222-229.
86. Brouder, S.M., M. Thom, **V.I. Adamchuk**, and M.T. Morgan. 2003. Potential uses of ion-selective potassium electrodes in soil fertility management. *Communications in Soil Science and Plant Analysis* 34(19-20):2699-2726.
87. Dobermann, A., J. Ping, **V.I. Adamchuk**, G.C. Simbahan, and R.B. Ferguson. 2003. Classification of crop yield variability in irrigated production fields. *Agronomy Journal* 95(5):1105-1120.
88. **Adamchuk, V.I.**, M.T. Morgan, and H. Sumali. 2001. Application of a strain gauge array to estimate soil mechanical impedance on-the-go. *Transactions of the ASAE* 44(6):1377-1383.
89. **Adamchuk, V.I.** 2001. Automated systems for measuring of soil properties in process (in Ukrainian:Avtomatyzovani systemy dlia vymiriuvannia vlastyvostej gruntu na hodu). *Agrarna Nauka i Osvita* 2(3-4):107-112.
90. Heber, A.J., J.Q. Ni, T.T. Lim, C.A. Diehl, A.L. Sutton, R.K. Duggirala, B.L. Haymore, D.T. Kelly, and **V.I. Adamchuk**. 2000. Effect of a manure additive on ammonia emission from swine finishing buildings. *Transactions of the ASAE* 43(6):1895-1902.
91. **Adamchuk, V.I.**, M.T. Morgan, and D.R. Ess. 1999. An automated sampling system for measuring soil pH. *Transactions of the ASAE* 42(4):885-891.

REFEREED CONFERENCE PROCEEDINGS
1. **Adamchuk, V.**, J. Lan, K. Abdalla, P. Dias Carlson, M. Debbagh, C. Madramootoo, and B. Kvezereli. 2023. Instrumentation for on-the-spot measurement of soil health indicators. In: *Precision Agriculture: Papers from the 14th European Conference on Precision Agriculture*, Bologna, Italy, 2-16 July 2023, ed. J. Stafford, 823-829. Wageningen, The Netherlands: Wageningen Academic Publishing.
2. Karp, F.H.S., **V. Adamchuk**, P. Dutilleul, and A. Melnitchouck. 2023. Comparative study of interpolation methods for low-density sampling. In: *Precision Agriculture: Papers from the 14th European Conference on Precision Agriculture*, Bologna, Italy, 2-16 July 2023, ed. J. Stafford, 563-569. Wageningen, The Netherlands: Wageningen Academic Publishing.
3. **Adamchuk, V.**, R. Lacroix, S. Shinde, N. Tremblay, and H. Huang. 2017. An uncertainty-based comprehensive decision support system for site-specific crop management. In: Proceedings of the 11th European Conference on Precision Agriculture, Edinburgh, Scotland, UK, 17-20 July 2017, ed. J. Taylor. *Advances in Animal Biosciences*, 8(2), 625-629 (doi:10.1017/S2040470017000462).
4. **Adamchuk, V.**, F. Reumont, J. Kaur, J. Whalen, and N. Adamchuk-Chala. 2017. Proximal sensing of soil biological activity for precision agriculture. In: Proceedings of the 11th European Conference on Precision Agriculture, Edinburgh, Scotland, UK, 17-20 July 2017, ed. J. Taylor. *Advances in Animal Biosciences*, 8(2), 406-411 (doi:10.1017/S204047001700 139X).
5. Stanhope, T.P. and **V.I. Adamchuk**. 2016. Feature-based visual tracking for agricultural implements. In: Proceedings of the 5th IFAC Conference on Sensing, Control and Automation for Agriculture, Seattle, Washington, USA, 14-17 August 2016, ed. M. Karkee. Prosser, Washington, USA: Washington State University (electronic publication, 6 pages).
6. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, P.R.L. Dutilleul, and R.B. Ferguson. 2014. Spatially constrained geospatial data clustering for multilayer sensor-based measurements. In: *Proceedings of Joint International Conference on Geospatial Theory, Processing,*

Modeling and Applications, Toronto, Ontario, Canada, 6 - 8 October 2014, 187-190. Ottawa, Ontario, Canada: Canadian Institute of Geomatics (on-line publication).

7. Mastorakos, M., **V. Adamchuk**, F. Réne-Laforest, and C. Hemplemen. 2014. Development of a capacitance-based sensor for on-the-go soil moisture measurements. In: *Transactions of the Fourth International Symposium on Soil Water Measurement Using Capacitance, Impedance and TDT*, Montreal, Quebec, Canada, 16-18 July 2014, ed. I.C. Paltineanu, 97-106. Laurel, Maryland, USA: Paltin International, Inc.

8. Lenz, J., P. Münch, and **V. Adamchuk**. 2013. Real time sensing and ISOBUS in agriculture. In: *Proceedings of the 71st International Conference on Agricultural Engineering LandTechnik - AgEng 2013,* Hannover, Germany, 8-9 November 2013. Düsseldorf, Germany: VDI Wissensforum GmbH (6 pages).

9. Bouroubi, Y., N. Tremblay, and **V. Adamchuk**. Estimating nitrogen sufficiency index using a natural local reference approach. In: *Proceedings of the Second International Conference on Agro-Geoinformatics*, Fairfax, Virginia, 12-16 August 2013. USA: Open Geospatial Consortium (electronic publication, 5 pages).

10. **Adamchuk, V.I**. 2013. Theoretical basis for sensor-based in-season nitrogen management. In: *Precision Agriculture: Papers from the 9th European Conference on Precision Agriculture*, Lleida, Catalonia, Spain, 7-11 July 2013, ed. J. Stafford, 403-410. Wageningen, The Netherlands: Wageningen Academic Publishing.

11. Huang, H.H., **V.I. Adamchuk**, I.I. Boiko, and R.F. Ferguson. 2013. Effect of sampling patterns and interpolation methods on prediction quality for soil variability mapping. In: *Precision Agriculture: Papers from the 9th European Conference on Precision Agriculture*, Lleida, Catalonia, Spain, 7-11 July 2013, ed. J. Stafford, 243-250. Wageningen, The Netherlands: Wageningen Academic Publishing.

12. Portz, G., L.R. Amaral, J.P. Molin, and **V.I. Adamchuk**. 2013. Field comparison of ultrasonic and canopy reflectance sensors used to estimate biomass and N-uptake in sugarcane. In: *Precision Agriculture: Papers from the 9th European Conference on Precision Agriculture*, Lleida, Catalonia, Spain, 7-11 July 2013, ed. J. Stafford, 111-117. Wageningen, The Netherlands: Wageningen Academic Publishing.

13. Pan, L., **V.I. Adamchuk**, S. Prasher, R. Gebbers, and R.S. Taylor. 2013. Vertical soil profiling using a galvanic contact resistivity scanning approach. In: *Proceedings of the 22nd Symposium on the Application of Geophysics to Engineering and Environmental Problems*, Denver, Colorado, 17-21 March 2013. Denver, Colorado: EEGS (CD publication).

14. **Adamchuk, V.I.**, A.K. Jonjak, C.S. Wortmann, R.B. Ferguson, and C.A. Shapiro. 2011. Case studies on the accuracy of soil pH and lime requirement maps. In: *Precision Agriculture: Papers from the 8th European Conference on Precision Agriculture*, Prague, Czech Republic, 11-14 July 2011, ed. J. Stafford, 289-301. Prague, Czech Republic: Czech Centre for Science and Society.

15. Pan L., **V.I. Adamchuk**, D.L. Martin, M.A. Schroeder, R.B. Ferguson. 2011. Combining on-the-go soil sensing and a wireless sensor network to increase irrigation water use efficiency. In: *Precision Agriculture: Papers from the 8th European Conference on Precision Agriculture*, Prague, Czech Republic, 11-14 July 2011, ed. J. Stafford, 459-468. Prague, Czech Republic: Czech Centre for Science and Society.

16. Ferguson, R., J. Shanahan, D. Roberts, J. Schepers, F. Solari, **V. Adamchuk**, L. Shiratsuchi, B. Krienke, M. Schlemmer, and D. Francis. 2011. In-season nitrogen management of irrigated maize using a crop canopy sensor. In: *Precision Agriculture: Papers from the 8th European Conference on Precision Agriculture*, Prague, Czech Republic, 11-14 July 2011, ed. J. Stafford, 503-513. Prague, Czech Republic: Czech Centre for Science and Society.

17. An, W., S. Ci, X. Wang, H. Sharif, J. Lin, **V. Adamchuk**, and D. Martin. 2011. Monitoring-quality-driven sensor deployment optimization in wireless sensor networks. In: *Proceedings*

of the International Conference on Wireless Networks (ICWN'11), Las Vegas, Nevada, 18-21 July 2011. San Diego, California: Universal Conference Management Systems and Support.

18. Barker, B., N. Grandgenett, G. Nugent, and **V. Adamchuk**. 2010. The short-term benefits of educational robotics when paired with geospatial technologies in informal learning environments. In: *Proceedings of the 2nd International Conference on Computer Supported Education (CSEDU 2010),* Valencia, Spain, 7-10 April 2010, 391-404. Setubal, Portugal: INSTICC.

19. Nugent, G., B. Barker, M. Toland, N. Grandgenett, and **V. Adamchuk**. 2009. The use of digital manipulatives in K-12: Robotics, GPS/GIS and Programming. In *Proceedings of the 39th ASEE/IEEE Frontiers in Education Conference*, Session T1A, San Antonio, Texas, 18-21 October 2009, New York, New York: IEEE (electronic publication, 6 pages).

20. **Adamchuk, V.**, G. Nugent, B. Barker, and N. Grandgenett. 2009. The use of robotics, GPS and GIS technologies to encourage STEM-oriented learning in youth. In: *Proceedings of the 2009 Midwest Section Conference of the American Society for Engineering Education*, Lincoln, Nebraska, 16-18 September 2009, ed. D. Schulte. Washington, DC: ASEE (CD publication, 6 pages).

21. Barker, B., G. Nugent, N. Grandgenett, and **V. Adamchuk**. 2009. Synchronous educational robotics competitions in the virtual world. In: *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications*, Honolulu, Hawaii, 22-26 June 2009, 3237-3242. Chesapeake, Virginia: AACE (CD publication).

22. Nugent, G., B. Barker, M. Toland, N. Grandgenett, and **V. Adamchuk**. 2009. Measuring the impact of robotics and geospatial technologies on youth science, technology, engineering and mathematics attitudes. In: *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications*, Honolulu, Hawaii, 22-26 June 2009, 3331-3340. Chesapeake, Virginia: AACE (CD publication).

23. Barker, B., G. Nugent, N. Grandgenett, and **V. Adamchuk**. 2009. Scaling-up an educational robotics intervention for informal learning environments. In: *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications*, Honolulu, Hawaii, 22-26 June 2009, 3231-3236. Chesapeake, Virginia: AACE (CD publication).

24. Barker, B., Grandgenett, N., Nugent, G., and **V. Adamchuk**. 2008. The short-term benefits of educational robotics when paired with geospatial technologies in informal learning environments. In*: Proceedings of the E-Learn 2008 World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education*, Las Vegas, Nevada, 17-21 November 2008. Chesapeake, Virginia: AACE (CD publication).

25. Kerby, A., D. Marx, A. Samal, and **V. Adamchuck**. 2008. Spatial clustering using the likelihood function. In: *Proceedings of the Kansas State University Conference on Applied Statistics in Agriculture*, Manhattan, Kansas, 27-29 April 2008. Manhattan, Kansas: Kansas State University.

26. **Adamchuk, V.I.** 2008. Development of on-the-go soil sensor systems. In: *Proceedings of the First Global Workshop on High Resolution Digital Soil Sensing and Mapping*, Volume I, Sydney, Australia, 5-8 February 2008. Sydney, Australia: University of Sydney (12 pages).

27. Kerby, A., D. Marx, A. Samal, and **V. Adamchuk**. 2007. Spatial clustering using the likelihood function. In: *Proceedings of Seventh IEEE International Conference on Data Mining – Workshops (ICDMW 2007),* Omaha, Nebraska, 28-31 October 2007, eds. K. Anthony, H. Tung, and Q. Zhu, 637-642. Washington, DC: IEEE Computer Society.

28. **Adamchuk, V.I.**, D.B. Marx, A.T. Kerby, A.K. Samal, L.K. Soh, R.B. Ferguson, and C.S. Wortmann. 2007. Guided soil sampling for enhanced analysis of georeferenced sensor-based data. In: *Proceedings of the Ninth International Conference on Geocomputation 2007 Conference*, Maynooth, Ireland, 3-5 September 2007, ed. U. Demsar. Maynooth, Ireland: NCG - National University of Ireland (E-proceedings, 4 pages).

29. **Adamchuk, V.I.**, R.M. Hoy, G.E. Meyer, and M.F. Kocher. 2007. GPS-based auto-guidance test program development. In: *Precision Agriculture: Papers from the Sixth European Conference on Precision Agriculture*, Skiathos, Greece, 3-6 June 2007, ed. J. Stafford, 425-432. Wageningen, The Netherlands: Wageningen Academic Publishers.

30. Ferguson, R.B., T. Kyaw, **V.I. Adamchuk,** D.D. Tarkalson, and D.L. McCalister. 2007. Site-specific management of pH-induced iron chlorosis of maize. In: *Precision Agriculture: Papers from the Sixth European Conference on Precision Agriculture*, Skiathos, Greece, 3-6 June 2007, ed. J. Stafford, 151-156. Wageningen, The Netherlands: Wageningen Academic Publishers.

31. **Adamchuk, V.I.** and P.T. Christenson. 2005. An integrated system for mapping soil physical properties on-the-go: the mechanical sensing component. In: *Precision Agriculture: Papers from the Fifth European Conference on Precision Agriculture*, Uppsala, Sweden, 9-12 June 2005, ed. J. Stafford, 449-456. Wageningen, The Netherlands: Wageningen Academic Publishers.

32. Lund, E.D., **V.I. Adamchuk**, K.L. Collings, P.E. Drummond, and C.D. Christy. 2005. Development of soil pH and lime requirement maps using on-the-go soil sensors. In: *Precision Agriculture: Papers from the Fifth European Conference on Precision Agriculture*, Uppsala, Sweden, 9-12 June 2005, ed. J. Stafford, 457-464. Wageningen, The Netherlands: Wageningen Academic Publishers.

33. Dobermann, A., B.S. Blackmore, S.E. Cook, and **V.I. Adamchuk**. 2004. Precision farming: challenges and future directions. In: *New Directions for a Diverse Planet: Proceedings of the Fourth International Crop Science Congress*, Brisbane, Australia, 26 September – 1 October 2004, eds. T. Fischer et al. Gosford, NSW, Australia: The Regional Institute Ltd (invited CD publication, 19 pages).

34. **Adamchuk, V.I.**, E. Lund, A. Dobermann, and M.T. Morgan. 2003. On-the-go mapping of soil properties using ion-selective electrodes. In: *Precision Agriculture: Papers from the Fourth European Conference on Precision Agriculture*, Berlin, Germany, 15-19 June 2003, eds. J. Stafford and A. Werner, 27-33. Wageningen, The Netherlands: Wageningen Academic Publishers.

35. Dobermann, A., J.L. Ping, G.C. Simbahan, and **V.I. Adamchuk**. 2003. Processing of yield map data for delineating yield zones. In: *Precision Agriculture: Papers from the Fourth European Conference on Precision Agriculture*, Berlin, Germany, 15-19 June 2003, eds. J. Stafford and A. Werner, 177-185. Wageningen, The Netherlands: Wageningen Academic Publishers.

36. **Adamchuk, V.I.**, M.T. Morgan, and H. Sumali. 2000. Estimation of soil resistance using a strain gauge array. In: *Proceedings of the Adaptive Structures and Materials Systems Symposium*, AD-Vol. 60, eds. J. Redmond and J. Main, 261-267. New York, New York: ASME.

37. Heber, A.J., R.K. Duggirala, J. Ni, M.L. Spence, B.L. Haymore, **V.I. Adamchuk**, D.S. Bundy, A.L. Sutton, D.T. Kelly, and K.M. Keener. 1997. Manure treatment to reduce gas emissions from large swine houses. In: *Proceedings. Volume 1. Ammonia and Odor Emissions from Animal Production Facilities*, eds. J.A.M. Voermans and G.J. Monteny, 449-457. Vinkeloord, The Netherlands.

NON-REFEREED CONFERENCE PROCEEDINGS

1. Rello Rincon, A., **V. Adamchuk**, and M.O. Gasser. 2024. Determining soil particle size distribution and organic matter content using a dual image machine vision approach. In: *Proceedings of the 6th Global Workshop on Proximal Soil Sensing*, Ghent, Belgium, 14-17 October 2024, ed. A. Mouazen, 62-67. Ghent, Belgium: Ghent University.

2. Karp, F.H.S., **V. Adamchuk**, P. Dutilleul, A. Melnitchouck, and A. Biswas. 2024. Predicting soil chemical properties using proximal soil sensing technologies and topography data: A

case study. In: *Proceedings of the 16th International Conference on Precision Agriculture*, Manhattan, Kansas, USA, 21-24 July 2024. Monticello, Illinois, USA: International Society of Precision Agriculture.

3. Saifuzzaman, M., **V. Adamchuk**., and M. Leduc. 2022. Stem characteristics and local environmental variables for assessment of alfalfa winter survival. In: *Proceedings of the 15th International Conference on Precision Agriculture*, Minneapolis, Minnesota, USA, 26-29 June 2022. Monticello, Illinois, USA: International Society of Precision Agriculture.

4. Yari, A., C.A. Madramootoo, S.A. Woods, and **V.I. Adamchuk**. 2020. Using variable-rate irrigation for water and energy conservation and crop productivity: A case study in Southern Alberta, Canada. In: Proceedings of the 6th ASABE Decennial National Irrigation Symposium, San Antonio, Texas, USA, 30 November – 4 December 2020. ASABE Paper No. 20-078. St. Joseph, Michigan: ASABE (https://doi.org/10.13031/irrig.2020-078).

5. Karp, F.H.S., **V. Adamchuk**, A. Melnitchouck, and P. Dutilleul. 2022. Optimization of batch processing of high-density anisotropic distributed proximal soil sensing data for precision agriculture purposes. In: *Proceedings of the 15th International Conference on Precision Agriculture*, Minneapolis, Minnesota, USA, 26-29 June 2022. Monticello, Illinois, USA: International Society of Precision Agriculture.

6. A. Lachgar, D. J. Mulla and **V. Adamchuk**. 2020. Implementation of proximal soil sensing, data fusion and machine learning to improve phosphorous management at a field scale. In: *Proceedings of the 1st African Conference on Precision Agriculture*, Marrakesh, Morocco, 8-10 December 2020. Ben Guerir, Morocco: University Mohammed VI Polytechnic (10 pages).

7. Leksono, E., **V. Adamchuk**, M. Leclerc, R. Buelvas, C. Miller, and J. Park. 2019. Development of an on-the-spot proximal soil sensing platform for subsurface measurement of soil properties. In: *Proceedings of the 5th Global Workshop on Proximal Soil Sensing*, Columbia, Missouri, USA, 27-31 May 2019, eds. K.A. Sudduth, N.R. Kitchen, and K.S. Veum, 205-210. Columbia, Missouri, USA: USDA-ARS.

8. Debbagh, M., **V. Adamchuk**, C. Madramootoo, A. Mawof, J. Whalen, and S. Prasher. 2019. Development of a low-cost wireless sensing system for rapid *in situ* assessment of soil CO_2 emission. In: *Proceedings of the 5th Global Workshop on Proximal Soil Sensing*, Columbia, Missouri, USA, 27-31 May 2019, eds. K.A. Sudduth, N.R. Kitchen, and K.S. Veum, 217-222. Columbia, Missouri, USA: USDA-ARS.

9. Ji, W., J. Wetterlind, K. Piikki, B. Stenberg, M. Soderstrom, **V. Adamchuk**, and A. Biswas. 2019. Proximal sensor data fusion for 3D mapping of SOC: from Canada to Sweden. In: *Proceedings of the 5th Global Workshop on Proximal Soil Sensing*, Columbia, Missouri, USA, 27-31 May 2019, eds. K.A. Sudduth, N.R. Kitchen, and K.S. Veum, 267-271. Columbia, Missouri, USA: USDA-ARS.

10. Fontenelli, J.V., P.S.G. Magalhaes, **V.I. Adamchuk**, and J.A.M. Dematte. 2018. Comparison of conventional, deterministic, and digital methods in the mapping of soil properties (in Portugal: Comparação de métodos convencionais, determinísticos e digitais no mapeamento de propriedades do solos). In: Proceedings of 2018 Brazilian Congress on Precision Agriculture. Piracicaba, SP, Brazil: AsBraAP (8 pages).

11. Huang, H.H., **V. Adamchuk**, A. Biswas, W. Ji, and S. Lauzon. 2018. Analysis of soil properties predictability using different on-the-go soil mapping systems. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 11 pages).

12. Shinde, S., **V. Adamchuk**, R. Lacroix, N. Tremblay, and Y. Bouroubi. 2018. Development of an online decision-support infrastructure for optimized fertilizer management. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal,

Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 16 pages).

13. Buelvas, R.M. and **V.I. Adamchuk**. 2018. Laser triangulation for crop canopy measurements. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 14 pages).

14. Saifuzzaman, M., **V. Adamchuk**, H.H. Huang, W. Ji, N. Rabe, and A. Biswas. 2018. Data clustering tools for understanding spatial heterogeneity in crop production by integrating proximal soil sensing and remote sensing data. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 14 pages).

15. Boatswain Jacques, A.A., **V.I. Adamchuk**, G. Cloutier, J.J. Clark, and C. Miller. 2018. Development of a machine vision yield monitor for shallot onion harvesters. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 13 pages).

16. Marmette, M.C., **V. Adamchuk**, J. Nault, S. Tabatabai, and R. Cocciardi. 2018. Comparison of the performance of two vis-NIR spectrometers in the prediction of various soil properties. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 12 pages).

17. Leksono, E., **V. Adamchuk**, W. Ji, and M. Leclerc. 2018. Development of a soil EC_a inversion algorithm for topsoil depth characterization. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 11 pages).

18. Johnston, A., **V. Adamchuk**, A. Cambouris, A. Biswas, J. Lafond, and I. Perron. 2018. Integration of proximal and remote sensing data for site-specific management of wild blueberry. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 13 pages).

19. Ji, W., A. Biswas, **V. Adamchuk**, I. Perron, A, Cambouris, and B. Zebarth. 2018. Proximal soil sensing-led management zone delineation for potato fields. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 14 pages).

20. **Adamchuk, V.I.** and N. Tremblay. 2017. New developments in proximal soil sensing. In: *Proceedings of the 7th Asian-Australasian Conference on Precision Agriculture*, Hamilton, New Zealand, (published on-line at https://zenodo.org/record/1001807#.WfzdrXZrzAU, 4 pages).

21. Leksono, E. and **V.I. Adamchuk**. 2016. Development of a portable multiple ion-selective electrodes apparatus for rapid soil nitrate measurement. In: *Proceedings of the 1st International Conference on the Role of Agricultural Engineering of Sustainable Agriculture Production (AESAP)*, Bogor, Indonesia, 13-14 December 2016,153-164. Bogor, Indonesia: Bogor Agricultural University.

22. Dhawale, N., **V. Adamchuk**, H. Huang, W. Ji, S. Lauzon, A. Biswas, and P. Dutilleul. 2016. Integrated analysis of multilayer proximal soil sensing data. In: *Proceedings of the 13th International Conference on Precision Agriculture*, St. Louis, Missouri, 31 July - 4 August 2016. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 10 pages).

23. Huang, H.H., **V.I. Adamchuk**, C. Madramootoo, and A. Yari. 2015. Economic optimization of the levels of control in variable rate irrigation (VRI). In: *Proceedings of 2015 ASABE/IA Irrigation Symposium: Emerging Technologies for Sustainable Irrigation*, Long Beach, California, 10-12 November 2015, ASABE Publication No. 701P0415. St. Joseph, Michigan: ASABE.

24. **Adamchuk, V.**, N. Dhawale, B. Sudarsan, J. Kaur, and A. Biswas. 2015. Automated on-the-spot analysis of physical, chemical, and biological soil properties. In: *Proceedings of the 4th Global Workshop on Proximal Soil Sensing*, Hangzhou, China, 12-15 May 2015, ed. Z. Shi, 1-8. Hangzhou, China: Zhejiang University.

25. Ji, W., **V.I. Adamchuk**, A. Biswas, A.S. Mat Su, N. Dhawale, and Z. Shi. 2015. Simultaneous measurement of multiple soil properties through proximal sensor fusion. In: *Proceedings of the 4th Global Workshop on Proximal Soil Sensing*, Hangzhou, China, 12-15 May 2015, ed. Z. Shi, 20-26. Hangzhou, China: Zhejiang University.

26. Biswas, A., B. Sudarsan, W. Ji, and **V. Adamchuk**. 2015. Characterizing soil particle size distribution from images using continuous wavelet transform. In: *Proceedings of the 4th Global Workshop on Proximal Soil Sensing*, Hangzhou, China, 12-15 May 2015, ed. Z. Shi, 90-95. Hangzhou, China: Zhejiang University.

27. **Adamchuk, V**. 2015. Precision agriculture. In: *Proceedings of the 16th Annual Eastern Ontario Crop Conference*, Kemptville, Ontario, 10 February 2015, 38-40. Guelph, Ontario: OMAFRA.

28. **Adamchuk, V.I.** 2014. Integrated tools for agriculture today and tomorrow (in French: Les outils de l'agronome d'aujourd'hui et de demain). In: *Proceedings of CRAAQ Symposium on Fertilization, Precision Agriculture and Agro-Meteorology*, Victoriaville, Quebec, Canada, 25 November 2014, CRAAQ (published on-line at http://www.craaq.qc.ca/EAPG1301, 3 pages).

29. **Adamchuk, V.**, N. Dhawale, and F. Rene-Laforest. 2014. Development of an on-the-spot analyzer for measuring soil chemical properties. In: *Proceedings of the 12th International Conference on Precision Agriculture*, Sacramento, California, 20-23 July 2014. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 10 pages).

30. Mat Su, A.S. and **V.I. Adamchuk**. 2014. Evaluation of the temporal and operational stability of apparent soil electrical conductivity measurements. In: *Proceedings of the 12th International Conference on Precision Agriculture*, Sacramento, California, 20-23 July 2014. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 11 pages).

31. Dhawale, N., **V. Adamchuk**, S. Prasher, A. Ismail, and R.A. Viscarra Rossel. 2013. Analysis of the repeatability of soil spectral data obtained using different measurement techniques. In: *Proceedings of the 3rd Global Workshop on Proximal Soil Sensing*, Potsdam, Germany, 26-29 May 2013, eds. R. Gebbers, E. Luck, and J. Ruhlmann, 161-165. Potsdam, Germany: ATB Leibniz-Institut fur Agratechnik Potsdam-Bornim.

32. **Adamchuk, V.I.** and I.I. Boiko. 2012. Analysis of spatial variability of key soil attributes in North-Central Ukraine. In: *Proceedings of the Eleventh International Conference on Precision Agriculture*, Indianapolis, Colorado, 15-18 July 2012, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 6 pages).

33. **Adamchuk, V.I.**, L.S. Shiratsuchi, C.C. Lutz, and R.B. Ferguson. 2012. Integrated crop canopy sensing system for spatial analysis of in-season crop performance. In: *Proceedings of the Eleventh International Conference on Precision Agriculture*, Indianapolis, Colorado, 15-18 July 2012, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 3 pages).

34. Pan, L., **V.I. Adamchuk**, and R. Ferguson. 2012. An approach to selection of soil water content monitoring locations within fields. In: *Proceedings of the Eleventh International*

Conference on Precision Agriculture, Indianapolis, Colorado, 15-18 July 2012, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 8 pages).

35. Ferguson, R., T. Shaver, N. Ward, S. Irmak, S. Van Donk, D. Rudnick, B. Wienhold, M. Schmer, V. Jin, D. Francis, **V. Adamchuk**, and L. Hendrickson. 2012. Landscape influences on soil nitrogen supply and water holding capacity for irrigated corn. In: *Proceedings of the Eleventh International Conference on Precision Agriculture*, Denver, Colorado, 15-18 July 2012, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 12 pages).

36. **Adamchuk, V.I.** 2011. On-the-go proximal soil sensors – Are we there yet? In: *Proceedings of the Second Global Workshop on Proximal Soil Sensing*, Montreal, Quebec, Canada, 15-18 May 2011, eds. V.I. Adamchuk and R.A. Viscarra Rossel, 160-163. Montreal, Quebec, Canada: McGill University.

37. **Adamchuk, V.I.**, L. Pan, D.B. Marx, and D.L. Martin. 2010. Locating soil monitoring sites using spatial analysis of multilayer data. In: *Proceedings of 19th World Congress of Soil Science*, Brisbane, Australia, 1-6 August 2010. IUSS (DVD publication, 4 pages).

38. **Adamchuk, V.I.** and R.B. Ferguson. 2010. Precision agriculture education program in Nebraska. In: *Proceedings of the Tenth International Conference on Precision Agriculture*, Denver, Colorado, 18-21 July 2010, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 6 pages).

39. Pan, L., **V.I. Adamchuk**, D.L. Martin, M.A. Schroeder, and R.B. Ferguson. 2010. Analysis of water use efficiency using on-the-go soil sensing and a wireless network. In: *Proceedings of the Tenth International Conference on Precision Agriculture*, Denver, Colorado, 18-21 July 2010, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 13 pages).

40. Jonjak, A.K., **V.I. Adamchuk**, C.S. Wortmann, R.B. Ferguson, and C.A. Shapiro. 2010. A comparison of conventional and sensor-based lime requirement maps. In: *Proceedings of the Tenth International Conference on Precision Agriculture*, Denver, Colorado, 18-21 July 2010, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 15 pages).

41. Shiratsuchi, L.S., R.B. Ferguson, J.F. Shanahan, and **V.I. Adamchuk**. 2010. Comparison of spectral indicies derived from active crop canopy sensors for assessing nitrogen and water status. In: *Proceedings of the Tenth International Conference on Precision Agriculture*, Denver, Colorado, 18-21 July 2010, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 11 pages).

42. Roberts, D.F., J.F. Shanahan, R.B. Ferguson, **V.I. Adamchuk**, and N.R. Kitchen. 2010. A crop and soil strategy for sensor-based variable-rate nitrogen management. In: *Proceedings of the Tenth International Conference on Precision Agriculture*, Denver, Colorado, 18-21 July 2010, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 15 pages).

43. **Adamchuk, V.I.** 2010. Application of integrated proximal sensing technologies to recognize spatial variability of soils and crop performance. In: Proceedings of the 23rd Annual Workshop on Farming's Future: Minimising Footprints and Maximising Margins, Palmerston North, New Zealand, 10-11 February 2011, eds. L.D. Currie and C.L. Christensen, 365-369. Fertilizer and Lime Research Centre, Massey University, Palmerston North, New Zealand.

44. Easterly, D.R., **V.I. Adamchuk**, M.F. Kocher, and R.M. Hoy. 2010. Testing of RTK-level satellite-based tractor auto-guidance using a visual sensor system. In: *Proceedings of the Second International Conference on Machine Control and Guidance*, Bonn, Germany, 9-11 March 2010, eds. S. Lammers and H. Kuhlmann, 29-36. Bonn, Germany: University of Bonn.

45. Shiratsuchi, L.S., R.B. Ferguson, **V.I. Adamchuk**, J.F. Shanahan, and G.P. Slater. 2009. Integration of ultrasonic and active canopy sensors to estimate the in-season nitrogen

content for corn. In: *Proceedings of the 39th North Central Extension-Industry Soil Fertility Conference*, Des Moines, Iowa, 18-19 November 2009. Norcross, Georgia: International Plant Nutrition Institute.

46. **Adamchuk, V.I.**, R.A. Viscarra Rossel, D.B Marx, and A.K. Samal. 2008. Enhancement of on-the-go soil sensor data using guided sampling. In: *Proceedings of the Ninth International Conference on Precision Agriculture*, Denver, Colorado, 20-23 July 2008, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 13 pages).

47. Roberts, D.F., **V.I. Adamchuk**, J.F. Shanahan, R.B. Ferguson, and J.S. Schepers. 2008. Optimization of active canopy sensor spacing for directing mid-season N application in corn. In: *Proceedings of the Ninth International Conference on Precision Agriculture*, Denver, Colorado, 20-23 July 2008, ed. R. Kholsa. Fort Collins, Colorado: Colorado State University (CD publication, 13 pages).

48. Hemmat, A., **V.I. Adamchuk**, and P. Jasa. 2007. On-the-go soil strength sensing using an instrumented disc coulter. In: *Proceedings of the International Agricultural Engineering Conference (IAEC-2007)*, Bangkok, Thailand, 3-6 December 2007. Pathumthani, Thailand: Asian Association for Agricultural Engineering (CD publication, 8 pages).

49. **Adamchuk, V.I.** 2006. On-the-go sensing technology for improved crop nutrient management. In: *Proceedings of the 36th North Central Extension-Industry Soil Fertility Conference*, Des Moines, Iowa, 7-8 November 2006, 18-25. Brookings, South Dakota: Potash and Phosphate Institute.

50. Lund, E.D. and **V.I. Adamchuk**. 2006. On-the-go mapping of soil pH and other properties using solution-based electrochemical measurements. In: *Proceedings of the Eights International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, Minnesota, 23-26 July 2006, ed. D.J. Mulla. Madison, Wisconsin: ASA-CSSA-SSSA (CD publication in press, 8 pages).

51. **Adamchuk, V.I.** 2005. The philosophy of on-the-go soil sensing (technology update). In: *Proceedings of the First Asian Conference on Precision Agriculture*, Toyohashi, Japan, 4-6 August 2005, ed. S. Shibusawa, 49-58. Fuchu, Tokyo, Japan: Tokyo University of Agriculture and Technology (CD publication).

52. **Adamchuk, V.I.**, C. Wang, D.B. Marx, R.K. Perrin, and A. Dobermann. 2004. Assessment of soil mapping value: Part II. Potential profitability. In: *Proceedings of the Seventh International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, Minnesota, 27-30 July 2004, ed. D.J. Mulla, 819-833. Madison, Wisconsin: ASA-CSSA-SSSA (CD publication).

53. Lund, E.D., K.L. Collings, P.E. Drummond, C.D. Christy, and **V.I. Adamchuk**. 2004. Managing pH variability with on-the-go pH mapping. In: *Proceedings of the Seventh International Conference on Precision Agriculture and Other Precision Resources Management, Minneapolis, Minnesota*, 27-30 July 2004, ed. D.J. Mulla, 120-132. Madison, Wisconsin: ASA-CSSA-SSSA (CD publication).

54. **Adamchuk, V.I.** and R.B. Ferguson. 2004. Fiction and reality of on-the-go soil mapping. In: *Proceedings of the First Brazilian Congress on Precision Agriculture*. eds. J.P. Molin and C.A. Vettorazzi. Piracicaba, Sao Paulo, Brazil: ESALQ/USP (CD publication, 13 pages).

55. **Adamchuk, V.I.**, D.B. Marx, and M.T. Morgan. 2002. Numeric assessment of soil mapping value: Part I. Error evaluation. In: *Proceedings of the Sixth International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, Minnesota, 14-17 July 2002, ed. P.C. Robert, 818-832. Madison, Wisconsin: ASA-CSSA-SSSA (CD publication).

56. Filippov, A., and **V. Adamchuk**. 1996. Power control by individual cycle cut-off for multicylinder gasoline engines. In: *Proceedings of the Second International Conference on Sustainable Development: System Analysis in Ecology*, 47-48. Sevastopol, Ukraine.

PROFESSIONAL SOCIETY CONFERENCE PAPERS

1. Lan, J., **V.I. Adamchuk**, K. Geddes, B. Kvezereli, F.H.S. Karp, and S. McGuire. 2024. Development of an Automated System for *In Situ* Measurements of Soil health Indicators. Paper No. 2401135. St. Joseph, Michigan: ASABE.
2. Buelvas, R., **V. Adamchuk**, B. de Leener, and G. Mangeat. 2021. Development of a semi-automated in-situ soil sensor using vis-NIR spectroscopy. Paper No. 2000052. St. Joseph, Michigan: ASABE.
3. Dias Carlson, P. A., **V.I. Adamchuk**, B. Kvezereli, and C. Madramootoo. 2021. Development of an integrated sensor system for automated on-the-spot measurement of physical soil properties. Paper No. 2001444. St. Joseph, Michigan: ASABE.
4. Buelvas, R., **V. Adamchuk**, A. Pouliot, M. Stromvik, and A. Whitmore. 2019. Development of a quick-install rapid phenotyping system. Paper No. 1900130. St. Joseph, Michigan: ASABE.
5. Boatswain Jacques, A.A., **V.I. Adamchuk**, G. Cloutier, J.J. Clark, and M. Leclerc. 2019. A machine vision yield monitor for vegetable crops. Paper No. 1701104. St. Joseph, Michigan: ASABE.
6. Leksono, E., **V. Adamchuk**, H. Akbarzadeh, M. Leclerc, and R. Buelvas. 2018. Development of a subsoil manual electrical conductivity probe. Paper No. 18-201. Orleans, Ontario: CSBE.
7. Buelvas, R. and **V. Adamchuk**. 2017. Crop canopy measurement using laser and ultrasonic sensing integration. Paper No. 1701002. St. Joseph, Michigan: ASABE.
8. Mat Su, A.S., **V.I. Adamchuk**, J.K. Whalen, C.A. Madramootoo, H.H. Huang, K. Tam, and H. Benslim. 2016. Predicting changes in greenhouse gas emissions in muck soil using physical observations. Paper No. 141898760. St. Joseph, Michigan: ASABE.
9. Rene-Laforest, F., **V.I. Adamchuk**, M.A. Mastorakos, N.M. Dhawale, and Y. Su. 2014 Variable depth planting of corn. Paper No. 141912822. St. Joseph, Michigan: ASABE.
10. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, R.A. Viscarra Rossel, A.A. Ismail, J.K. Whalen, and M. Louargant. 2014. Comparing visible/NIR and MIR hyperspectrometry for measuring soil physical properties. Paper No. 141909453. St. Joseph, Michigan: ASABE.
11. Stanhope, T., **V. Adamchuk**, and J. Desperrier Roux. 2014. Computer vision guidance of field cultivation for organic row crop production. Paper No. 141909498. St. Joseph, Michigan: ASABE.
12. Huang, H.H., **V.I. Adamchuk**, E.D. Lund, and C. Maxton. 2014. Site-specific calibration of a two-channel soil optical reflectance sensor. Paper No. 141909753. St. Joseph, Michigan: ASABE.
13. Edwards, K.P., C.A. Madramootoo, J.K. Whalen, **V.I. Adamchuk**, A.S. Mat Su, and H. Benslim. 2014. Greenhouse gas emissions from drip irrigated fields. Paper No. 141899456. St. Joseph, Michigan: ASABE.
14. Dhawale, N.M., **V.I. Adamchuk**, R.A. Viscarra Rossel, S.O. Prasher, J.K. Whalen, and A.A. Ismail. 2013. Predicting extractable soil phosphorus using visible/near-infrared hyperspectral soil reflectance measurements. Paper No. 13-047. Orleans, Ontario: CSBE.
15. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, P.R.L. Dutilleul, and R.B. Ferguson. 2012. Spatial data clustering using neighbourhood analysis. Paper No. 121337939. St. Joseph, Michigan: ASABE.
16. Dhillon, R.S., **V.I. Adamchuk**, K.H. Holland, and C.R. Hempleman. 2010. Development of an integrated on-the-go sensing system for soil properties. Paper No. 10-9817. St. Joseph, Michigan: ASABE.
17. **Adamchuk V.I.**, L. Pan, D.B. Marx, and D.L. Martin. 2009. Site-specific calibration of multiple soil sensor data layers. Paper No. 09-5782. St. Joseph, Michigan: ASABE.

18. Kocher, M.F., **V.I. Adamchuk**, J.A. Smith, and R.M. Hoy. 2009. Verifying power claims of high-power tractors without a PTO at the Nebraska Tractor Test Lab. Paper No. 09-6019. St. Joseph, Michigan: ASABE.
19. Kitchen N.R., J.F. Shanahan, <u>D.F. Roberts</u>, K.A. Sudduth, P.C. Scharf, R.B. Ferguson, and **V.I. Adamchuk**. 2009. Economic and environmental benefits from canopy sensing for variable-rate nitrogen corn fertilization. Paper No. 09-6655. St. Joseph, Michigan: ASABE.
20. **Adamchuk, V.I.**, C.R. Hempleman, and <u>D.G. Jahraus</u>. 2009. On-the-go capacitance sensing of soil water content. Paper No. MC09-201. St. Joseph, Michigan: ASABE.
21. **Adamchuk, V.I.**, A. Hemmat, and A.M. Mouazen. 2008. Soil compaction sensor systems – current developments. Paper No. 08-3994. St. Joseph, Michigan: ASABE.
22. **Adamchuk, V.I.** and E.D. Lund. 2008. On-the-go mapping of soil pH using antimony electrodes. Paper No. 08-3995. St. Joseph, Michigan: ASABE.
23. <u>Easterly, D.R.</u> and **V.I. Adamchuk**. 2008. Auto-guidance error measurement using a visual sensor. Paper No. 08-3810. St. Joseph, Michigan: ASABE.
24. **Adamchuk, V.I.**, K.A. Sudduth, <u>T.J. Ingram</u>, and S.O. Chung. 2006. Comparison of two alternative methods to map soil mechanical resistance on-the-go. Paper No. 06-1057. St. Joseph, Michigan: ASABE.
25. <u>Sethuramasamyraja, B.</u> and **V.I. Adamchuk**. 2006. Agitated soil measurement method for integrated mapping of soil pH, potassium, and nitrate contents. Paper No. MC06-4106. St. Joseph, Michigan: ASABE.
26. <u>Sethuramasamyraja, B.</u>, **V.I. Adamchuk**, D.B. Marx, and A. Dobermann. 2005. Evaluation of ion-selective electrode methodology for integrated on-the-go mapping of soil chemical properties (pH, K & NO_3). Paper No. 05-1036. St. Joseph, Michigan: ASAE.
27. **Adamchuk, V.I.**, R.D. Grisso, and M.F. Kocher. 2004. Machinery performance assessment based on records of geographic position. Paper No. 04-1149. St. Joseph, Michigan: ASAE.
28. <u>Christenson, P.T.</u>, **V.I. Adamchuk**, and M.F. Kocher. 2004. Instrumented blade for mapping soil mechanical resistance. Paper No. 04-1038. St. Joseph, Michigan: ASAE.
29. <u>Sethuramasamyraja, B.</u>, **V.I. Adamchuk**, and M.T. Morgan. 2004. Dynamic analysis of ion-selective electrode response for mapping soil properties on-the-go. Paper No. MC04-206. St. Joseph, Michigan: ASAE.
30. **Adamchuk, V.I.**, A.V. Skotnikov, <u>J.D. Speichinger</u>, and M.F. Kocher. 2003. Instrumentation system for variable depth tillage. Paper No. 03-1078. St. Joseph, Michigan: ASAE.
31. **Adamchuk, V.I.**, A. Dobermann, M.T. Morgan, and S.M. Brouder. 2002. Feasibility of on-the-go mapping of soil nitrate and potassium using ion-selective electrodes. Paper No. 02-1183. St. Joseph, Michigan: ASAE.
32. Grisso, R.D., P.J. Jasa, M.A. Schroeder, M.F. Kocher, and **V.I. Adamchuk**. 2002. Field efficiency influences from steering adjustments using analysis of traffic patterns. Paper No. 02-1009. St. Joseph, Michigan: ASAE.
33. **Adamchuk, V.I.**, M.T. Morgan, and J.M. Lowenberg-DeBoer. 2001. Agroeconomic evaluation of intense soil pH mapping. Paper No. 01-1045. St. Joseph, Michigan: ASAE.
34. **Adamchuk, V.I.**, M.T. Morgan, and H. Sumali. 2001. Mapping of spatial and vertical variation of soil mechanical resistance using a linear pressure model. Paper No. 01-1019. St. Joseph, Michigan: ASAE.
35. **Adamchuk, V.I.** and M.T. Morgan. 1999. Evaluation of automated soil pH mapping. Paper No. 99-1100. St. Joseph, Michigan: ASAE.
36. Ni, J., A.J. Heber, T.T. Lim, C.A. Diehl, A.L. Sutton, R.K. Duggirala, B.L. Haymore, and **V.I. Adamchuk**. 1999. Effect of a manure additive on the reduction of ammonia emission from large swine finishing buildings. Paper No. 99-4032. St. Joseph, Michigan: ASAE.
37. **Adamchuk, V.I.**, M.T. Morgan, and D.R. Ess. 1998. Rapid determination of soil pH for precision farming. Paper No. 98-3094. St. Joseph, Michigan: ASAE.

EXTENSION CIRCULARS

1. Barker, B., R.L. Mahacek, S.M. Worker, A. Mahacek, C. Nelson, D. Leong, D. Gobson, E. Mora, K. Chico, L.R. Horn, M. Reese, M. Kreibiel, N. Grandgenett, P. Clark, S.W. Frerichs, T.G. Ewers, and **V.I. Adamchuk**. 2011. *4-H Robotics: Engineering for today and tomorrow*. Chevy Chase, Maryland: National 4-H Council.
2. **Adamchuk, V.I.**, T.S. Stombaugh, and R.R. Price. 2008. GNSS-based auto-guidance in agriculture. *Site-Specific Management Guidelines* SSMG-46. Norcross, Georgia: International Plant Nutrition Institute.
3. **Adamchuk, V.I.**, M.L. Bernards, G.E. Meyer, and J. Mulliken. 2008. Weed targeting herbicide management. *Precision Agriculture Extension Circular* EC 708. Lincoln, Nebraska: University of Nebraska Extension.
4. **Adamchuk, V.I.** 2008. Satellite-based auto-guidance. *Precision Agriculture Extension Circular* EC 706. Lincoln, Nebraska: University of Nebraska Extension.
5. **Adamchuk, V.I.** 2006. Characterizing soil variability using on-the-go sensing technology. *Site-Specific Management Guidelines* SSMG-44. Norcross, Georgia: Potash and Phosphate Institute.
6. **Adamchuk, V.I.** and J. Mulliken. 2005. Site-specific management of soil pH (FAQ). *Precision Agriculture Extension Circular* EC 05-705. Lincoln, Nebraska: University of Nebraska Extension.
7. **Adamchuk, V.I.**, A. Dobermann, and J. Ping. 2004. Listening to the story told by yield maps. *Precision Agriculture Extension Circular* EC 04-704. Lincoln, Nebraska: University of Nebraska Cooperative Extension.
8. **Adamchuk, V.I.**, R.L. Perk, and J.S. Schepers. 2003. Application of remote sensing in site-specific management. *Precision Agriculture Extension Circular* EC 03-702. Lincoln, Nebraska: University of Nebraska Cooperative Extension.
9. **Adamchuk, V.I.** and P.J. Jasa. 2002. On-the-go vehicle-based soil sensors. *Precision Agriculture Extension Circular* EC 02-178. Lincoln, Nebraska: University of Nebraska Cooperative Extension.
10. **Adamchuk, V.I.** 2001. Untangling the GPS data string. *Precision Agriculture Extension Circular* EC 01-157. Lincoln, Nebraska: University of Nebraska Cooperative Extension.

PROFESSIONAL MAGAZINE ARTICLES

1. **Adamchuk, V.** 2017. A system of control with two levels. *AgriLab On-Line Articles* (in English, Russian and Ukrainian), *http://agrilab.com.ua/?p=9235*.
2. **Adamchuk, V.I.** 2015. A system approach – the key to successful adoption of new technologies. Quebec Farmer's Advocate, February 2015: 10.
3. **Adamchuk, V.** 2014. Future of soil sensing technology. *Ag Web*, May 9, 2014, *https://www.agweb.com/article/future_of_soil_sensing_technology_naa_university_news_release*
4. **Adamchuk, V.I.**, B.A. Allred, and R.A. Viscarra Rossel. 2012. Proximal soil sensing: global perspective. *Fast Times - EEGS*, 17(1): 13-17.
5. Boiko, I. and **V. Adamchuk**. 2011. Mapping electrical conductivity (in Ukrainian: Kartografuvannia elektroprovidnosti). *The Ukrainian Farmer*, May 2011: 80-82.
6. Boiko, I. and **V. Adamchuk**. 2010. In search of strategic solutions (in Ukrainian: U poshuku strategichnyh rishen'). *The Ukrainian Farmer*, December 2010: 80-82.
7. **Adamchuk, V.I.** 2010. Precision agriculture: Does it make sense? *Better Crops* 94(3): 4-6.
8. **Adamchuk, V.** 2008. Navigation for all (in Russian: Navigatsiya dlia vseh). *Zerno*, August 2008: 98-102.
9. **Adamchuk, V.** 2006. Auto-guidance offers cost, productivity benefits. *Farm Catalog*, January 2006: 4-6, 9-12.

10. **Adamchuk, V.** 2005. Automated soil mapping on-the-go. One way of making precision agriculture more precise. *ASAE Resource Magazine*, September 2005: 12-13.
11. **Adamchuk, V.** 2005. Precision farming tools: compatibility is coming. *Pioneer Growing Point Magazine* 4(7): 21.
12. **Adamchuk, V.,** I. Adamchuk, L. Bashford, and M. Kocher. 2003. Testing of tractors for agricultural applications (in Ukrainian: Vyprobuvannia traktoriv sil's'kogospodars'koho pryznachennia). *Tekhnika APK* 9-10 (2003): 29-31.
13. **Adamchuk, V.I.** 2003. Understanding the GPS data string. Part 2: Calculating distance between two points. *GPS User Magazine* 1(2): 33-34 (electronic publication).
14. **Adamchuk, V.I.** 2003. Understanding the GPS data string. Part 1: Viewing and interpreting the data. *GPS User Magazine* 1(1): 28-30 (electronic publication).
15. **Adamchuk, V.I.** and P.J. Jasa. 2002. On-the-go soil sensors for precision agriculture. In: *Sensors in Agriculture. From the Ground Up. Agronomy News* 22(5): 15-18. Fort Collins, Colorado: Colorado State University Cooperative Extension.

NON-PROFESSIONAL PUBLICATIONS
1. **Adamchuk V.** 2011. Poetic outlook (in Ukrainian: Virshovanyy svitohliad). Collection of Ukrainian, Russian and English poems 1992-2009, 110 pp. Kyiv, Ukraine: Chetverta Hvylia.

WEBSITE MATERIALS
1. **Adamchuk, V.**, S. Cole, and J. Harms. 2024. Tutorial on Application of ArcGIS Pro Software for Precision Agriculture - *http://adamchukpa.mcgill.ca/arcgispro*
2. **Adamchuk, V.I.**, H.H. Huang, M.C. Marmette and H. Husiani. 2018 (2020 revision). Tutorial on Application of QGIS Software for Precision Agriculture - *http://adamchukpa.mcgill.ca/qgis*
3. Shinde, S., **V. Adamchuk**, R. Lacroix, N. Tremblay, and Y. Bouroubi. 2017. NumericAg Decision Support System - *http://www.numericag.com*
4. **Adamchuk, V.I**., H.H. Huang, M. Saifuzzaman, and F. Karp. 2012-2022. Tutorial on Application of ArcGIS Software for Precision Agriculture - *http://adamchukpa.mcgill.ca/arcgis*
5. Viscarra Rossel, R.A. and **V.I. Adamchuk**. 2010. IUSS Working Group on Proximal Soil Sensing - *http://www.proximalsoilsensing.org*
6. Barker, B., **V. Adamchuk**, S. Thomas, and V. Marino. 2008. The Nebraska 4-H Robotics and GPS/GIS Curriculum - *https://adamchukpa.mcgill.ca/4H*
7. **Adamchuk, V.I.** A. Hemmat, and S. Thomas. 2007. Tutorial on Application of Manifold GIS Software for Precision Agriculture - *http://adamchukpa.mcgill.ca/manifold*
8. **Adamchuk, V.I.** 2000. Georeferenced Data Analysis Tutorial - *http://adamchukpa.mcgill.ca/web_ssm*

PUBLISHED ABSTRACTS
1. **Adamchuk, V.** 2025. Apport des technologies des capteurs en agriculture de précision pour le sol et les plantes (in French: Contribution of Sensor Technologies for Soil and Plants in Precision Agriculture). *Program of the 4th Annual Congress of Réseau québécois de recherche en agriculture durable (RQRAD)*, Quebec, Quebec, Canada, 11-13 February 2025, 25-26. Quebec, Quebec: RQRAD.
2. Rello Rincon, A., **V. Adamchuk**, and M.O. Gasser. 2024. Determining soil particle size distribution and organic matter content using a dual image machine vision approach. In: *Program of the 38th Annual Congress of the Association québécoise de spécialistes en sciences du sol (AQSSS)*, Chambord, Quebec, 28-30 May 2024, 76. AQSSS.
3. **Adamchuk, V.I.** 2024. System management for digital agriculture using two-level control. In: *Program of the 6th CIGR International Conference*, Jeju, South Korea, 19-23 May 2024, 52-53. Busan, South Korea: The PlanB Co., Ltd.

4. Boily, G., V. Sadrmanesh, M. Roberge, and **V. Adamchuk**. 2023. Simulation and validation of soil volume in wheel loader bucket using discrete-element method (DEM). Abstract No. 23-157. Orleans, Ontario: CSBE.

5. Boily, G., V. Sadrmanesh, M. Roberge, and **V. Adamchuk**. 2023. Volume prediction of soil in front of a bulldozer blade as function of various particles shapes in DEM. Abstract No. 23-156. Orleans, Ontario: CSBE.

6. **Adamchuk, V.I.** 2023. Precision agriculture and sensor systems research update. In: *Proceedings of the International On-Line Conference on Production of Agricultureal Products Based on Smart Technologies*, 30-31 March 2023, 112-117. Hlevaha, Kyiv Reg., Ukraine: Institute of Mechanics and Automation for Agricultural Production of the National Academy of Agrarian Sciences of Ukraine.

7. Lan, J., **V. Adamchuk**, P. Dias-Carlson, and S. McGuire. 2022. Autonomous mapping of shallow depth soil biological characteristics. Abstract No. 22-256. Orleans, Ontario: CSBE.

8. Boily, G., M. Roberge, and **V. Adamchuk**. 2022. Comparison of crushed-rock flow behavior simulation in front of a bulldozer blade using analytical, discrete-element method (DEM) and reduced-order models. Abstract No. 22-242. Orleans, Ontario: CSBE.

9. Karp, F.H.S., **V. Adamchuk**, A. Melnitchouck, and B. Allred. 2022. Towards digital soil characterization using proximal soil sensor data fusion: a case study. Abstract No. 22-243. Orleans, Ontario: CSBE.

10. Park, J., **V. Adamchuk**, M. Saifuzzaman, and M. Leclerc. 2021. 3D model construction of tire ruts shape by tractor traffic using SfM technique. Abstract No. 21-678. Orleans, Ontario: CSBE.

11. Spiers, J., **V. Adamchuk**, D. Stallard, and A. Biswas. 2021. Deep learning of soil texture at micron scale. Abstract No. 21-493. Orleans, Ontario: CSBE.

12. **Adamchuk, V.** 2021. Soil sensing using integrated sensor platforms. In: *Abstracts for Symposium on Applications of Proximal and Remote Sensing Technologies for Soil Investigations*, 16-19 August 2021, 5. Tulsa, Oklahoma, United States: Society of Exploration Geophysicists.

13. Lan, J., **V. Adamchuk**, R.M. Buelvas, P. Dias-Carlson, and J. Park. 2021. Mapping shallow depth apparent soil electrical conductivity. In: *Abstracts for Symposium on Applications of Proximal and Remote Sensing Technologies for Soil Investigations*, 16-19 August 2021, 46. Tulsa, Oklahoma, United States: Society of Exploration Geophysicists.

14. Karp, F.H.S., **V. Adamchuk**, A. Melnitchouck, B. Allred, and L.R. Martinez. 2021. Validation of soil survey maps using different proximal soil sensing methods. In: *Abstracts for Symposium on Applications of Proximal and Remote Sensing Technologies for Soil Investigations*, 16-19 August 2021, 71. Tulsa, Oklahoma, United States: Society of Exploration Geophysicists.

15. **Adamchuk, V.** 2019. Precision agriculture and sensor systems. In: *Proceedings of the 8th Asian-Australasian Conference on Precision Agriculture*, Ludhiana, Punjab, India, 14-17 October 2019, 21-22. Ludhiana, Punjab, India: Punjab Agricultural University.

16. Biswas, A., H.B. Vasava, Y. Fu, P. Taneja, S. Lin, W. Ji, **V. Adamchuk**, and P. Daggupati. 2019. Predicting soil organic matter from cellular phone images under varying soil moisture. In: *Book of Abstracts for the 8th Asian-Australasian Conference on Precision Agriculture*, Ludhiana, Punjab, India, 14-17 October 2019, 141. Ludhiana, Punjab, India: Punjab Agricultural University.

17. Saifuzzaman, M., **V. Adamchuk**, A. Biswas, and P.R.L Dutilleul. 2019. Soil prediction using high-density data for understanding field variability and crop management. In: *Abstracts from 2019 Annual Meeting of the Association of American Geographers*, Washington, DC, USA, 3-7 April *2019 (*CD publication*)*.

18. Marmette, M.C. and **V. Adamchuk**. 2019. Comparison and complementarity of color, Vis, NIR, MID and LIBS spectroscopic methods for soil analysis. In: *The Book of Abstracts for*

Pedometrics 2019 Conference, Guelph, Ontario, Canada, 2-6 June 2019, 45. Guelph, Ontario: The University of Guelph (published on-line).

19. Saifuzzaman, M., **V. Adamchuk**, A. Biswas, S. Prasher, N. Rabe. 2019. Geospatial data modelling by integrating sensor-fused data in agricultural field management. In: *The Book of Abstracts for Pedometrics 2019 Conference*, Guelph, Ontario, Canada, 2-6 June 2019, 89. Guelph, Ontario: The University of Guelph (published on-line).

20. Fontenelli, J.V., P.S.G. Magalhães, **V.I. Adamchuk**, J.A.M. Dematte, C.C.B Guimarães, A.B. Souza, and B.C. Gallo. 2018. Potential of synergy of multiple sensor data layers to predict soil properties. In: *Proceedings of the 21st World Congress of Soil Science*, Rio de Janeiro CEP, Brazil, 12-17 August 2018. Vicosa, MG, Brazil: Brazilian Society of Soil Science.

21. Leksono, E., **V. Adamchuk**, J. Whalen, and R. Buelvas. 2018. Development of a manual soil sensing system for measuring multiple chemical soil properties in the field. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 5 pages).

22. Debbagh, M., **V. Adamchuk**, C. Madramootoo, and J. Whalen. 2018. Development of a wireless sensor network for passive *in situ* measurement of soil CO_2 gas emissions in the agriculture landscape. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 4 pages).

23. Yari, A., C.A. Madramootoo, S.A. Woods, **V.I. Adamchuk**, and L. Gilbert. 2018. Application of variable-rate irrigation for potato productivity. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 4 pages).

24. Tikasz, P., R.M. Buelvas, M. Lefsrud, and **V. Adamchuk**. 2018. Implementation of a CAN bus system to monitor hydroponic systems. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 4 pages).

25. Cambouris, A.N., I. Perron, B. Zebarth, F. Vargas, K. Chokmani, A. Biswas, and **V. Adamchuk**. 2018. Delineation of soil management zones: comparison of three proximal soil sensor systems under commercial potato field in Eastern Canada. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada. 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 5 pages).

26. Lajili, A., A.N. Cambouris, K. Chokmani, I. Perron, B.J. Zebarth, A. Biswas, and **V.I. Adamchuk**. 2018. Use of proximal soil sensing to delineate management zones in a commercial potato field in Prince Edward Island, Canada. In: *Proceedings of the 14th International Conference on Precision Agriculture*, Montreal, Quebec, Canada, 24-27 June 2018. International Society of Precision Agriculture (published on-line at http://www.ispag.org, 3 pages).

27. Saifuzzaman, M., **V. Adamchuk**, H.H. Huang, and A. Biswas. 2018. Integration of proximal soil sensing and remote sensing data in agriculture. In: Proceedings of the 36th Canadian Symposium on Remote Sensing, Saskatoon, Saskatchewan, Canada, 19-21 June 2018. Canadian Remote Sensing Society (published on-line at https://crss-sct.ca).

28. **Adamchuk, V**. 2018. From new sensors to smart tractors (in French: Des noveaux capteurs aux tracteurs intelligents). In: *Proceedings of Colloquium on Numeric Agriculture and Agricultural Robotics*, 14 February 2018, 31. Quebec, Quebec, Canada: CRAAQ.

29. Cambouris, A.N., A. Biswas, F. Vargas, I. Perron, B. Zebarth, K. Chokmani, and **V. Adamchuk**. 2017. Delineation of soil management zones: comparison of two proximal soil sensor systems. In: *Proceedings of 2017 Annual Meeting on Managing Global Resources for a Secure Future*, Tampa, Florida, 22-25 October 2017, 269-9. Madison, Wisconsin: ASA-SSSA-CSSA.

30. **Adamchuk, V.**, A. Biswas, L. Qi, M. Leclerc, B. Sudarsan, and W. Ji. 2017. Using digital microscopy for rapid determination of soil texture and prediction of soil organic matter. In: *The Book of Abstracts for Pedometrics 2017 Conference*, Wageningen, the Netherlands, 26 June - 1 July 2017, 17.

31. **Adamchuk, V.**, W. Ji, L. English, J. Nault, Q. Gan, A. Ismail, A. Biswas, and S. Tabatabai. 2017. Analysis of complementarities of different spectral analytics to sense soil properties. In: *The Book of Abstracts for Pedometrics 2017 Conference*, Wageningen, the Netherlands, 26 June – 1 July 2017, 18.

32. Ji, W., **V. Adamchuk**, S. Lauzon, Y. Su, M. Saifuzzaman, and H. Huang. 2017. Pre-processing of on-the-go mapping data. In: *The Book of Abstracts for Pedometrics 2017 Conference*, Wageningen, the Netherlands, 26 June – 1 July 2017, 113.

33. Ji, W. **V. Adamchuk**, S. Chen, A. Biswas, M. Leclerc, and R. Viscarra Rossel. 2017. The use of proximal soil sensor data fusion and digital soil mapping for precision agriculture. In: *The Book of Abstracts for Pedometrics 2017 Conference*, Wageningen, the Netherlands, 26 June – 1 July 2017, 114.

34. Ji, W., E. Leksono, A. Biswas, **V. Adamchuk**, N. Dhawale, Z. Shi, and B. Stenberg. 2017. Effect of different soil compaction levels on prediction of soil properties using MIR spectra *in situ*. 2017. In: *The Book of Abstracts for Pedometrics 2017 Conference*, Wageningen, the Netherlands, 26 June – 1 July 2017, 115.

35. Huang, H.H. and **V.I. Adamchuk**. 2017. Sampling optimization for soil-nutrient mapping. In: *Abstracts from the Earth Observation Summit 2017*, Montreal Quebec, Canada, 20-22 June 2017. Ottawa, Ontario, Canada: Canadian Remote Sensing Society (published on-line at https://crss-sct.ca/conferences/csrs2017)

36. Saifuzzaman, M. and **V. Adamchuk**. 2017. Geospatial analysis of proximal soil sensing and remote sensing data in precision agriculture. In: *Abstracts from the Earth Observation Summit 2017*, Montreal Quebec, Canada, 20-22 June 2017. Ottawa, Ontario, Canada: Canadian Remote Sensing Society (published on-line at https://crss-sct.ca/conferences/csrs2017)

37. Ji, W., A. Biswas, **V. Adamchuk**, I. Perron, A. Cambouris, and B. Zebarth. 2017. Characterizing soil properties using vis-NIR spectroscopy for site-specific management of potato. In: *Proceedings of 2017 CSSS Annual Meeting*, Peterborough, Ontario, Canada, 10-14 June 2017, 68-69.

38. Ji, W., A. Biswas, **V. Adamchuk**, and A. Johnston. 2017. Assessment of soil organic carbon stocks in an organic field by 3D digital soil mapping and proximal sensor data fusion. In: *Proceedings of 2017 CSSS Annual Meeting*, Peterborough, Ontario, Canada, 10-14 June 2017, 71.

39. Johnston, A., **V. Adamchuk**, A. Biswas, A. Cambouris, J. Lafond, I. Perron. 2017. Characterization of soil variability in a cultivated wild blueberry field from Normandin, QC. In: Proceedings of 2017 CSSS Annual Meeting, Peterborough, Ontario, Canada, 10-14 June 2017, 104.

40. Saifuzzaman, M. and **V. Adamchuk**. 2017. Proximal soil sensing and remote sensing data processing for precision agriculture in Ontario, Canada. In: *Abstracts from 2017 Annual Meeting of the Association of American Geographers*, Boston, Massachusetts, USA, 5-9 April *2017, 1204-1205 (*CD publication*).

41. Adamchuk-Chala, N.I., V.O. Yatsenko, **V.I. Adamchuk**, and I.I. Boiko. 2016. Using rapid soil sensing to monitor heterogeneity of soil conditions for crop production (in Ukrainian:

Vykorystannia system ekspres-diahnostyky dlia monitorynhu henerohennosti gruntovykh umov vyroschuvannia sil's'kohospodars'koii produktsii). In: Proceedings of the 16th Ukrainian Conference on Space Research, 22-27 August 2016, Odesa, Ukraine, 185. Kyiv, Ukraine: State Space Agency of Ukraine.

42. **Adamchuk, V.**, N. Adamchuk-Chala, J. Kaur, J. Whalen, A. Biswas. 2015. Defining the spatial heterogeneity of soil biological activity. In: *Proceedings of IUSS/CSSS/AQSSS Soil Interfaces for Sustainable Development Conference*, Montreal, Quebec, Canada, 5-10 July 2015, 90. Montreal, Quebec, Canada: McGill University.

43. **Adamchuk, V.**, A. Mat Su, J. Whalen, C. Madramootoo, A. Biswas, F. Reumont, F. Ruiz De Le Macorra, and W. Ji. 2015. Using proximal soil sensing to optimize assessment of agricultural greenhouse gas emission. In: *Proceedings of IUSS/CSSS/AQSSS Soil Interfaces for Sustainable Development Conference*, Montreal, Quebec, Canada, 5-10 July 2015, 194. Montreal, Quebec, Canada: McGill University.

44. Biswas, A., W. Ji, Y. Zhang, and **V. Adamchuk**. 2015. Three-dimensional soil mapping using proximal soil sensors. In: *Proceedings of IUSS/CSSS/AQSSS Soil Interfaces for Sustainable Development Conference*, Montreal, Quebec, Canada, 5-10 July 2015, 87. Montreal, Quebec, Canada: McGill University.

45. **Adamchuk, V.,** R. Viscarra Rossel, R. Gebbers, M. Van Meirvenne, M. and A. Biswas. 2014. Practicality of using proximal soil sensing in agriculture and natural resource management. In *Proceedings of the 20th World Congress of Soil Science*, Jeju, South Korea, 8-13 June 2014.

46. Saminsky, M., S. Prasher, **V. Adamchuk**, and A. Biswas. 2014. Nutrient monitoring of shallow, eutrophic, small lakes. In: *Proceedings of 2014 Annual Water Resources Conference*, Tysons Corner, Virginia, 3-6 November 2014, Middleburg, Virginia: AWEA.

47. Adamchuk-Chala, N.I., I.I. Boiko, G.I. Iutynska, and **V.I. Adamchuk**. 2014 Assessing effects of soil additives on microbial activity in chernozem soil. In: *Proceedings of Ninth Meeting of Ukrainian Society of Soil Science and Agrochemistry*, Mykolaiv, Ukraine, 30 June - 4 July 2014, 330-331.

48. Mat Su, A.S., **V.I. Adamchuk**, C.A. Madramootoo, J.K. Whalen, and H.H. Huang. 2013. Estimating greenhouse gas emissions using experimental data. In: *Soil Science: The Centre of It All. Proceedings of CSSS/MSSS/CSAFM Joint Meeting*, Manitoba, Winnipeg, 22-25 July 2013, 70.

49. Dhawale, N.M., **V.I. Adamchuk**, S.O. Prasher, J.K. Whalen, L. Pan and A.S. Mat Su. 2013. Rapid measurement of nitrate ion activity using a direct soil sensing approach. In: *Soil Science: The Centre of It All. Proceedings of CSSS/MSSS/CSAFM Joint Meeting*, Manitoba, Winnipeg, 22-25 July 2013, 99.

50. Herzellah, S., N. Dhawale, H. He, J. Whalen, **V. Adamchuk**, S. Prasher, S. Rintoul, D. Pinchuk, J. Sedman, and A. Ismail. A. 2013. Comparative assessment of Visible/ Near-Infrared/Mid-Infrared reflectance techniques for the rapid analysis of soil texture. In: *Proceedings of 2013 Pittcon Conference and Expo*, Philadelphia, Pennsylvania, 17-21 March 2013. Pittsburgh, Pennsylvania: The Pittsburgh Conference.

51. Yatsenko, V.A. and **V.I. Adamchuk**. 2012. Active remote sensing of chemical and biological agents: optical devices, sensor networks, and risk assessment. In: *Proceedings of the Third All-Ukrainian Conference GEO-UA*, Yevpatoriya, AR Krym, Ukraine, 3-7 September 2012, 11-13. Kyiv, Ukraine: Kafedra.

52. **Adamchuk, V.I.** 2012. Opportunities and challenges with proximal soil sensing. 2012. In: *Scientific Program of AQSSS-CSSS Join Meeting*, Lac Beauport, Quebec, 3-8 June 2012, 50. Quebec, Quebec, AQSSS.

53. Pan, L., **V.I. Adamchuk**, and R.B. Ferguson. 2012. Analysis of information quality associated with an integrated use of spatial and temporal soil data. In: *Scientific Program of*

AQSSS-CSSS Join Meeting, Lac Beauport, Quebec, 3-8 June 2012, 118. Quebec, Quebec, AQSSS.

54. Dhawale, N., **V.I. Adamchuk**, and S.O. Prasher. 2011. Measuring near-surface soil organic matter content using an active optical crop canopy sensor. In: *Poster Abstracts for the Second Global Workshop on Proximal Soil Sensing*, Montreal, Quebec, Canada, 15-18 May 2011, ed. V.I. Adamchuk, 7. Montreal, Quebec, Canada: McGill University.

55. Pan, L., **V.I. Adamchuk**, D.L. Martin, M.A. Schroeder, R.B. Ferguson, S.O. Prasher. 2011. Combining on-the-go soil sensing and a wireless sensor network to analyze irrigation water use efficiency. In: *Poster Abstracts for the Second Global Workshop on Proximal Soil Sensing*, Montreal, Quebec, Canada, 15-18 May 2011, ed. V.I. Adamchuk, 11. Montreal, Quebec, Canada: McGill University.

56. **Adamchuk, V.I.**, A.S. Mat Su, R.A. Eigenberg, and R.B. Ferguson. 2011. Mapping vertical profiles of apparent electrical conductivity in soils using angular scanning approach. In: *Proceedings of the 2011 Symposium on the Application of Geophysics to Engineering and Environmental Problems*, Charlotte, North Carolina, 10-14 April, 2011. Denver, Colorado: EEGS (CD publication).

57. **Adamchuk, V.I.** 2011. On-the-go proximal soil sensing for agriculture. In: *Abstract Book of the International Symposium on Sensing in Agriculture*, 21-24 February 2011, 105. Haifa, Israel: Technion – Israel Institute of Technology.

58. Pan., L., **V.I. Adamchuk**, D.L. Martin, M.A. Schroeder, and R.B. Ferguson. 2010. Analysis of water use efficiency using on-the-go soil sensing and a wireless sensor network. In: *Handbook of the First International Symposium on Wireless Sensor Network in Agriculture*, Beijing, China, 18-21 November 2010, 21-23. Beijing, China: China Agricultural University.

59. Roberts, D., J. Shanahan, R. Ferguson, **V. Adamchuk**, and N. Kitchen. 2010. Integration of an active sensor algorithm with soil-based management zones for nitrogen management in corn. Abstract No. 316-7, *ASA-SSSA-CSSA International Annual Meeting*, Long Beach, California, 31 October – 4 November 2010. Madison, Wisconsin: ASA-SSSA-CSSA.

60. Krienke, B., R. Ferguson, J. Shanahan, **V. Adamchuk**, and L. Shiratsuchi. 2010. Evaluation of algorithm thresholds for crop canopy sensor-based in-season nitrogen application. Abstract No. 316-8, *ASA-SSSA-CSSA International Annual Meeting*, Long Beach, California, 31 October – 4 November 2010. Madison, Wisconsin: ASA-SSSA-CSSA.

61. Shanahan, J., R. Ferguson, **V.I. Adamchuk**, L. Shiratsuchi, and L. Hendrickson. 2009. Crop management zone delineation based on landscape position. Abstract No. 51-1, *ASA-SSSA-CSSA International Annual Meeting*, Pittsburg, Pennsylvania, 1-5 November 2009. Madison, Wisconsin: ASA-SSSA-CSSA.

62. Shiratsuchi, L.S., **V.I. Adamchuk**, R.B. Ferguson, J.F. Shanahan, and G.P. Slater. 2009. Integrated corn plant height and chlorophyll content measurements to estimate the in-season nitrogen requirement. Abstract No. 100-2, *ASA-SSSA-CSSA International Annual Meeting*, Pittsburg, Pennsylvania, 1-5 November 2009. Madison, Wisconsin: ASA-SSSA-CSSA.

63. Roberts, D.F., **V.I. Adamchuk**, J.F. Shanahan, R.B. Ferguson, and J.S. Schepers. 2009. Comparison of soil organic matter estimation using a ground-based active sensor and aerial imagery. Abstract No. 217-4, *ASA-SSSA-CSSA International Annual Meeting*, Pittsburg, Pennsylvania, 1-5 November 2009. Madison, Wisconsin: ASA-SSSA-CSSA.

64. Kitchen, N.R., **V.I. Adamchuk**, and K.A. Sudduth. 2009. Narrowing the soil-sample to fertilizer-application gap using soil sensors. Abstract No. 238-6, *ASA-SSSA-CSSA International Annual Meeting*, Pittsburg, Pennsylvania, 1-5 November 2009. Madison, Wisconsin: ASA-SSSA-CSSA.

65. **Adamchuk, V.I.**, J. Villa., and R. Serraj. 2009. Application of electromagnetic sensing to delineate spatially variable soil characteristics and drought susceptibility in field-managedscreening of rice under rainfed lowland conditions. In: *Proceedings of Pedometrics*

2009 Conference, Beijing, China, 26-28 August 2009, 73. Beijing, China: China Agricultural University (E-proceedings).

66. <u>Mat Su, A.</u>, **V. Adamchuk**, and R. Eigenberg. 2009. On-the-go vertical sounding of agricultural fields using EMI sensors. In: *Proceedings of the 22nd Symposium on the Application of Geophysics to Engineering and Environmental Problems*, Fort Worth, Texas, 29 March – 2 April 2009. Denver, Colorado: EEGS (CD publication).

67. <u>Roberts, D.</u>, **V. Adamchuk**, J. Shanahan, R. Ferguson, and J.S. Schepers. 2008. Effect of crop canopy sensor density on predictability of nitrogen stress in corn. Abstract No. 588-10, *GSA-SSSA-ASA-CSSA-GCAGS-HGS Joint Annual Meeting*, Houston, Texas, 5-9 October 2008. Madison, Wisconsin: ASA-SSSA-CSSA.

68. Kyaw, T.Z., R.B Ferguson, D.D Tarkalson, D.L McCallister, and **V.I. Adamchuk**. 2005. Site-specific hybrid management for pH-induced iron chlorosis. Abstract No. 936. *ASA-CSSA-SSSA International Annual Meeting*, Salt Lake City, Utah, 6-10 November 2005. Madison, Wisconsin: ASA-SSSA-CSSA.

69. **Adamchuk, V.** 1994. A method to determine economic effectiveness of crop production (in Ukrainian: Metodyka vyznachennia ekonomichnoi efectuvnosti vyrobnytstva produktsii roslynnytstva). In: *Tezy Dopovidej Naukovoi Konferentsii Vykladachiv, Naukovyh Spivrobitnykiv ta Aspirantiv, Prysviachenoi 65-richchiu Fakul'teta MSG,* 10. Kyiv, Ukraine: National Agricultural University of Ukraine.

STANDARDS DEVELOPMENT

1. **Adamchuk, V.I.** T.S. Stombaugh, and M. Demmel. 2012. ISO 12188-2. Tractors and machinery for agriculture and forestry – Test procedures for positioning and guidance systems in agriculture – Part 2: Testing of satellite-based auto-guidance systems during straight and level travel. Frankfurt, Germany: DIN.

2. Stombaugh, T.S., **V.I. Adamchuk**, and M. Demmel. 2010. ISO 12188-1. Tractors and machinery for agriculture and forestry – Test procedures for positioning and guidance systems in agriculture – Part 1: Dynamic testing of satellite-based positioning devices. Frankfurt, Germany: DIN.

3. Grisso, R.D. and **V.I. Adamchuk**. 2010. ASAE D497.7 Agricultural machinery management data. Clause 3.3 revision. St. Joseph, Michigan, ASABE.

CONFERENCE CHAIR

1. June 24-27, 2018. 14th International Conference on Precision Agriculture, Montreal, Quebec, Canada (co-chair).

2. January 18-20, 2016. UK-Canada Symposium on Smart Technologies for Agriculture, London, UK (co-chair).

3. July 10-12, 2014. UK-Canada Workshop on Smart Technologies for Agriculture, Montreal, Quebec, Canada.

4. October 5-6, 2012. The Second International Conference on System Approach to Implementing Information and Resource-Preserving Technologies in Crop Production, Varva, Chernihiv Reg., Ukraine.

5. July 8-9, 2011. International Seminar on a System Approach to the Modern Agricultural Production, Varva, Chernihiv Reg., Ukraine.

6. May 15-18, 2011. The Second Global Workshop on Proximal Soil Sensing, Montreal, Quebec, Canada.

INVITED AND KEYNOTE PRESENTATIONS

1. February 11, 2025. Apport des technologies des capteurs en agriculture de précision pour le sol et les plantes (in French: Contribution of Sensor Technologies for Soil and Plants in Precision Agriculture). Presented at the 4th Annual Congress of Réseau québécois de

recherche en agriculture durable (RQRAD), Quebec, Quebec, Canada (keynote presentation in French).

2. November 22, 2024. System approach to precision agriculture. Presented at the 36th Postgraduate Institute of Agriculture (PGIA) Annual Congress, University of Peradeniya, Sri Lanka (recorded keynote presentation).

3. July 17, 2024. System approach to precision agriculture adoption. Presented at the CropTech Connect: Webinar on AgTech Innovations for Canada (over Zoom).

4. May 20, 2024. System management for digital agriculture using two-level control. Presented at the 6th CIGR International Conference, Jeju, South Korea.

5. November 8, 2022. Systèmes de détection pour le sol et les plantes (in French: Sensing Systems for Soil and Plants). Presented at the CRAAQ precision agriculture webinar, Zoom.

6. September 14, 2022. Agriculture 4.0. Presented at the Innovation, Engineering and Program Delivery (IEPD) Meeting, Woodstock, Ontario, Canada (over Teams).

7. February 18, 2022. Precision agriculture and sensor systems. Presented at the International Seminar on Digital Agriculture, Seoul National University, Seoul, South Korea (over Zoom).

8. October 12, 2021. Agriculture de précision - attentes versus réalités (in French: Precision Agriculture – Anticipation versus Reality). Presented at the CRAAQ precision agriculture webinar, Zoom.

9. August 16, 2021. Soil sensing using integrated sensor platforms. Presented at the Symposium on Applications of Proximal and Remote Sensing Technologies for Soil Investigations, Society of Exploration Geophysicists, Zoom.

10. November 10, 2020. Integration approach to proximal plant sensing. Presented at the 2020 DigiCrop conference, Zoom.

11. December 5, 2019. Innovations in precision agriculture and system approach (in French: Innovations dans l'agriculture de précision et approche système). Presented at Les Journées Horticoles et Grandes Cultures conference, Saint-Remi, Quebec, Canada.

12. October 15, 2019. Precision agriculture and sensor systems. Presented at the 8th Asian-Australasian Conference on Precision Agriculture, Ludhiana, Punjab, India.

13. June 27, 2019. Proximal soil sensing: global perspective. Presented at the Institute for Data Valorization (IVADO) Data Science in Agriculture seminar, Montreal, Quebec Canada.

14. March 21, 2019. Precision agriculture and sensor systems – establishment of smart infrastructure for food production. Presented at the 4 O'Clock Forum Seminar Series, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada.

15. July 24, 2018. Engineering for intelligent food production. Presented at the Canadian Society for Bioengineering Annual General Meeting, Guelph, Ontario, Canada (keynote presentation).

16. March 8, 2018. Using precision agriculture technologies wisely - site-specific management of agricultural inputs - sensors, data, and decisions. Presented at the PEI Soil and Crop Annual Conference, Summerside, PEI, Canada.

17. February 20-21, 2018. Proximal sensing for precision agriculture. Practicing precision agriculture. Presented (two topics) at the 2018 PREGA Conference, Budapest, Hungary (keynote presentation).

18. February 14, 2018. From new sensors to smart tractors. Presented at the Colloquium on Numeric Agriculture and Agricultural Robotics, Drummondville, Québec, Canada.

19. October 12, 2017. Smart technologies for agriculture and natural resource management. Presented as a Cutting-Edge Lectures in Science seminar at McGill University, Montreal, Quebec, Canada.

20. February 1, 2017. Precision soil information & how to use it. Presented at the 4th Precision Agriculture Conference and Trade Show, London, Ontario, Canada.

21. October 4, 2016. Precision agriculture and sensor systems - the state of the art. Presented at 2016 Brazilian Congress on Precision Agriculture, Goiania, Goias, Brazil (keynote presentation).
22. March 29, 2016. The state of the art in agricultural sensors. Presented at the Workshop on Precision Agriculture: Sensors for Agriculture, Santiago, Chile (keynote presentation).
23. October 28, 2015. Smart agriculture: today and tomorrow. Presented at the Conference on Global Food Security, Montreal, Quebec.
24. March 11, 2015. A system approach to modern farming. Presented at the Soil Compaction Workshop, Grand Falls, New Brunswick (keynote presentation).
25. February 10, 2015. Precision agriculture. The world of common sense. Presented at the 16th Annual Eastern Ontario Crop Conference, Kemptville, Ontario.
26. November 25, 2014. Integrated tools for agriculture today and tomorrow. Presented at the CRAAQ Symposium on Fertilization, Precision Agriculture and Agro-Meteorology, Victoriaville, Quebec.
27. November 4, 2014. Precision agriculture. Presented at the special seminar at the National University of Colombia, Bogota, Colombia.
28. February 18, 2014. Proximal soil sensing complimentary to geophysics. Presented at the First Agricultural Geophysics Webinar, on-line.
29. July 5, 2013. Precision agriculture and food security. Presented at the World Economic Forum Workshop on Bringing Space Down to Earth, Montreal, Quebec.
30. May 15, 2013. Sensing technologies and economic benefits. Presented at an International Seminar on Precision Agriculture, Talca, Chile.
31. November 1, 2012. Precision agriculture sensors. Presented at an Agriculture and Agri-Food Canada Seminar, Quebec, Quebec.
32. October 5, 2012. Information technologies in crop production – strategies of development. Presented at the Second International Conference on System Approach to Implementing Information and Resource-Preserving Technologies in Crop Production, Varva, Chernihiv Reg., Ukraine (in Ukrainian).
33. February 23, 2012. Precision agriculture – the world of common sense. Presented at the International Workshop on Opportunities for Precision Agriculture, Truro, Nova Scotia (keynote presentation).
34. September 15, 2011. Sensors to increase soil productivity. Presented at the IdeasLab with McGill University, World Economic Forum Annual Meeting of the New Champions, Dalian, China.
35. July 18, 2011. Systems approach in proximal sensing of soils and crops. Presented at the Second Sino-German Cooperation Symposium, Bonn, Germany (keynote presentation).
36. July 9, 2011. Sensing technologies and precision agriculture. Presented at the International Seminar on a System Approach to the Modern Agricultural Production, Varva, Chernihiv Reg., Ukraine (in Russian).
37. February 21, 2011. On-the-go proximal soil sensing for agriculture. Presented at the International Symposium on Sensing in Agriculture: Agri-Sensing 2011, Haifa, Israel.
38. February 11, 2010. Application of integrated proximal sensing technologies to recognize spatial variability of soils and crop performance. Presented at the Fertilizer and Lime Research Center Workshop "Farming's Future: Minimizing Footprints and Maximizing Profits", Palmerstone North, New Zealand (keynote presentation).
39. February 6, 2008. Development of on-the-go soil sensor systems. Presented at the First Global Workshop on High-Resolution Soil Sensing and Digital Soil Mapping, Sydney, Australia (keynote presentation).
40. November 7, 2006. On-the-go sensing technology for improved crop nutrient management. Presented at the 36th North Central Extension-Industry Soil Fertility Conference, Des Moines, Iowa.

41. May 2, 2006. On-the-go soil sensing technology. Presented at the 21st Annual Agricultural Machinery Conference, Cedar Rapids, Iowa.
42. August 5, 2005. The philosophy of on-the-go soil sensing (technology update). Presented at the First Asian Conference on Precision Agriculture, Toyohashi, Japan (keynote presentation).
43. July 19, 2005. Teaching precision agriculture concepts. Presented at the 2005 ASAE Annual International Meeting, Tampa, Florida.
44. May 18, 2004. Fiction and reality of on-the-go soil mapping. Presented at the First Brazilian Congress on Precision Agriculture, Piracicaba, Sao Paulo, Brazil (keynote presentation).
45. February 10, 2003. Using ion-selective electrodes to map soil properties. Presented at the ASAE Agricultural Equipment Technology Conference (AETC) / International Conference on Crop Harvesting and Processing (ICCHP), Louisville, Kentucky.
46. January 10, 2003. Mapping soil properties on-the-go. Presented at the Annual NCR-180 Site-Specific Management Committee Meeting, Davis, California.

SELECTED PRESS RELEASES
1. Kinnard, N. 2020. New technology to measure soil CO_2. (In French: Nouvelle technologie pour mesurer le CO_2 du sol). *La Terre de chez nous*, June 24, 2020, A19.
2. Tribune News Service. 2019. Modern farming is the future: Experts. *The Tribune*, October 16, 2019 (on-line).
   https://www.tribuneindia.com/news/ludhiana/modern-farming-is-the-future-experts/847774.html
3. Kinnard, N. 2019. Invasion of sensors in the fields. (In French: Invasion de capteurs aux champs). *La Terre de chez nous*, September 9, 2019 (on-line).
   https://www.laterre.ca/du-secteur/formation/invasion-de-capteurs-aux-champs
4. Kinnard, N. 2019. A robot boat to "scan" the health of lakes. (In French: Un bateau-robot pour «scanner» la santé des lacs). *La Terre de chez nous*, August 20, 2019 (on-line).
   https://www.laterre.ca/du-secteur/formation/un-bateau-robot-pour-scanner-la-sante-des-lacs
5. Kinnard, N. 2019. A tool to fertilize better. (In French: Un outil pour mieux fertiliser). *La Terre de chez nous*, May 21, 2019 (on-line).
   https://www.laterre.ca/actualites/cultures/un-outil-pour-mieux-fertiliser
6. International Society for Precision Agriculture. 2019. ISPA forms official definition of 'Precision Agriculture'. *PrecisionAg*, July 11, 2019 (on-line).
   https://www.precisionag.com/market-watch/ispa-forms-official-definition-of-precision-agriculture
7. Ayers, K. 2018. Sensing your soil's potential. *Better Farming*, September 2018, pp. 25-32.
   https://www.betterfarming.com/flippingbook/betterfarming/2018/september/#24
8. Hopkins, M. 2018. 25 Best Colleges for Precision Agriculture. *PrecisionAg*, Market Intelligence, March 21, 2018 (on-line)
   https://www.precisionag.com/market-watch/25-best-colleges-for-precision-agriculture/#Tinsel/60708/14
9. Ruen, J. 2016. Sensors drive greater data value. *Corn & Soybean Digest*, October 13, 2016.
   http://www.cornandsoybeandigest.com/input-costs/sensors-drive-greater-data-value
10. King, C. 2016. Sensing soil variations. *Top Crop Manager*, February 2016, pp. 5-8.
11. Bickis, I., 2016. Betting the farm on big data. Lethbridge Herald, February 14, 2016.
    https://actionsurfacerights.ca/2016/02/
12. Bickis, I. 2016. The family farm is going high-tech. *The Canadian Press*, February 10, 2016.
    http://www.cbc.ca/news/technology/farming-technology-1.3442023
13. Rivero-Huguet, M. Smart farming: agriculture for the future. GOV.UK Blogs, July 9, 2015.
    https://agritech.blog.gov.uk/2015/07/09/smart-farming-agriculture-for-the-future
14. Palus, S. 2015. Smart farming. *McGill Headway*, Spring 2015, p. 30.
15. Mesly, N. 2013. New technologies form a new agricultural planet (In French: La technologie façonne une nouvelle planète agricole). *Le Coopérateur Agricole*, 42(7), September 2013.

http://www.lacoop.coop/cooperateur/articles/2013/09/p46.asp

16. Lund, E. 2013. Sensing a need… for public-sector R&D in soil sensors. *Soil Matters* 1(4), Winter 2013, p. 3.
    http://www.veristech.com/pdf_files/soil-matters/Winter2013_vs2_web.pdf

17. Mesly, N. 2012. Technology for less polluting agriculture. (In French: La technologie pour une agriculture moins polluante). *Quebec Science* (on-line).
    http://www.quebecscience.qc.ca/50_defis/36

18. Ruen, J. 2012. New sensor technology is the next management frontier sensored soils boost agronomics. *Corn and Soybean Digest*, October 19, 2012.
    http://cornandsoybeandigest.com/precision-ag/sensored-soils-boost-agronomics-new-sensor-technology-next-management-frontier

19. Wehrspann, J. and K. McMahon. 2011. 20 technologies changing agriculture. *Farm Industry News*. March 9, 2011.
    http://farmindustrynews.com/precision-farming/20-technologies-changing-agriculture

20. Latzke, J.M. 2010. Precision agriculture moves farming forward. *High Plains/Midwest Ag Journal*, January 25, 2010.
    http://www.hpj.com/journal/search/index_testissue2.cfm?wk=5&year=2010

21. Klochko, I. 2009. Technologii dlia agroholdingu (In Ukrainian: Technologies for an agroholding). *The Ukrainian Farmer*, August 2009.

22. Vogt, W. 2009. Taking stock of a field's performance. Prairie Farmer, June 2009, p. 18.
    http://magissues.farmprogress.com/PRA/PF06Jun09/pra018.pdf

23. Haag, S. 2008. Testing on the go. *Midwest Producers*, February 2008.
    http://www.midwestproducer.com/articles/2008/02/27/news/top_stories/top01.txt

24. Reichenberger, L. 2007. Space age war on weeds. *The Furrow*, March 2007, pp. 22-23.

25. Pocock, J. 2007. Crop Sensor: Q & A. *Apply*, January 2007, p. 22.
    http://www.apply-mag.com/mag/farming_article_3/index.html

26. Vogt, W. 2006. Pick the biggest payback punch. *Nebraska Farmer*, April 2006, p. 26.

27. Erickson, B. 2006. Equipped to succeed. *Crop Life*, March 2006, pp. 19-20.

28. Wnzel, W. 2006. GPS troubleshooting. *Farm Journal*, March 2006, pp. 5-7.

29. Erickson, B. 2006. Precision tech trends. *Precision Ag*. Meister Media Worldwide, March 8, 2006.

30. DeYoung, J. 2005. Soil sensors. New technology would let farmers measure on the go. *Iowa Farmer Today*, July 16, 2005, 21(45): 8.

31. Stalcup, L. 2006. Affordable auto-steer. *The Corn and Soybean Digest*, February 15, 2006, pp. 28j, 28l, 28n.

32. Pocock, J. 2006. Automated farmhands. *The Corn and Soybean Digest*, February 1, 2006, pp. 17-18, 20.

33. Alswager, S.S. 2004. Sensors should reveal soil differences. *Endeavors*. Highlights of University of Nebraska-Lincoln ARD Research, 2004-05, p. 7.

34. Pfeifer, L. 2005. Precision agriculture tools focus of UNL engineer. *Ag Scope (Aurora News Register)*, January 26, 2005, 28(1): 8.

35. Alswager, S.S. 2004. Crop management winter programs provide precision ag training. *Midwest Ag Journal*, November 1, 2004, p. 10-B.

36. Alswager, S.S. 2004. Use soil sensors, improve profits. *Crop Production*, October 2004, p. 26.

37. Alswager, S.S. 2004. On-the-go, vehicle-based sensors map soil characteristics across fields. *Nebraska Research*. University of Nebraska-Lincoln Agricultural Research Division, Fall/Winter 2004, p. 9.

38. Pocock, J. 2004. Pay dirt from pH. Automated soil sensor holds promise for high returns from variable-rate inputs. *The Corn and Soybean Digest*, February 2004, pp. 21-22.

39. Myers, C. 2004. Veris update. Soil conductivity and pH give clues to variable soils. *Farm Industry News*, February 2004, pp. 22-24.
40. Lowenberg-DeBoer, J. 2004. Instant gratification. A new pH sensor makes it possible to sample more, and more efficiently. *Crop Life*, February 2004, pp. 33-34.
41. Nicholls, H. 2003. It's clever, but is it useful? *BioMedNet*, Elsevier Limited, 2 June 2003.
    http://news.bmn.com/news/story?day=030602&story=1
42. Miller, V. 2002. Mapping on the go. *Nebraska Research*, University of Nebraska-Lincoln Agricultural Research Division, September 2002.
    http://ard.unl.edu/rn/0902/notebook.html
43. Campbell, D.Q. 2002. Creating an accurate pH map. *Implement and Tractor*, March/April 2002, p. 18.
44. McCabe, D. 2002. Map as you go. Soil sensors pinpoint size, depth of compaction. *Nebraska Farmer*, Second March 2002, p. 20.
45. Liska, J. 2002. Cost/benefit ratio critical in ag. technology. Agriculture: Changing with the time. *Supplement to the Seward County Independent*, February 20, 2002, p. 2.
46. Wilcox, J. 2001. A Precision Ag. Plan. Three Nebraska farmers put high-tech management to the test. Special Bonus Page *Successful Farming*, October 2001.
47. Bechman, T.J. 2001. Moving target. Just how variable is soil pH? *Nebraska Farmer*, April 2001, pp. 28-29.
48. Burchett, A. 2001. pH on the go. *Farm Journal*, Mid-January 2001, pp. 5-6.

VIDEO PRESENTATIONS
1. February 11, 2025. 4th Annual Congress of RQRAD
    https://www.youtube.com/watch?v=wqQ0b1aXDM4&list=PLp-PVpJeuCjRM2brCJb9l9EMk64vqjtCV (in French)
2. July 17, 2024. Croptech Connect: Agtech Innovations for Canada Webinar
    https://www.youtube.com/watch?v=rpIi3mTUuRI&t=738s
3. November 8, 2022. CRAAQ Precision Agriculture Webinar on Sensor Systems
    https://www.youtube.com/watch?v=IKQpHyPVk_k (in English)
    https://www.youtube.com/watch?v=gPLFRkeZooY (in French)
4. October 12, 2021. CRAAQ Precision Agriculture Webinar
    https://www.youtube.com/watch?v=MfBclhpHCvs (in English)
    https://www.youtube.com/watch?v=O16i6ugjgag (in French)
5. October 20,2020. DigiCrop Conference
    https://www.youtube.com/watch?v=RYRa1jZZIcM
6. October 22, 2019. Macdonald Campus Food for Thought Public Event
    https://www.facebook.com/McGillMacCampus/videos/1470180003132805/
7. November 21, 2018. CRAAQ Colloquium on Numeric Agriculture and Agricultural Robotics
    https://www.youtube.com/watch?v=kAO1sL-9Oag
8. October 12, 2017. Cutting Edge Lecture by TVMTelevision
    https://www.youtube.com/watch?v=tcJwpBFQdnw
9. November 3, 2015. Interview by FarmsTV during SmartZone Field Event
    https://www.youtube.com/watch?v=fLsY-DoIIUM
10. January 31, 2014. Webinar by AgGeophysics
    https://www.youtube.com/watch?v=5kEqisJ_1Sg

CURRENT SUPERVISION
1. Buisard, P. 2025. Graduate Certificate in Business Management.
2. Cole, S. 2024-. BEng in Bioresource Engineering.
3. Etezadi, H. 2023-. PhD in Bioresource Engineering.
4. Leblond, P. 2023-. BEng in Bioresource Engineering.

COMPLETED GRADUATE STUDIES SUPERVISION

Doctor of Philosophy (PhD)

1. Karp, F.H.S. 2025. Analysis of multi-layer spatial data to increase the accuracy of thematic soil maps for agriculture. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs, Telus).

2. Boily, G. 2024. Application of real-time numerical terramechanics and discrete element method to simulate work of earth-moving equipment. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs, CNH).

3. Buelvas, R.M. 2021. Development of vehicle-mounted phenotyping and envirotyping mapping platforms. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs, NSERC).

4. Leksono, E. 2020. Development of equipment to characterize soil attributes in different agricultural settings. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Fellowship (Indonesia Endowment Fund for Education).

5. Saifuzzaman, M. 2020. Optimization of geospatial data modelling for crop production by integrating proximal soil sensing and remote sensing data. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (OMAFRA, FRQNT).

6. Huang, H.H. 2017 Leveraging geospatial data to improve soil characterization for precision agriculture. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

7. Mat Su, A.S. 2016. Application of proximal soil sensing for environmental characterization of agricultural land. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Malaysian government sponsorship and grant funding (AGGP).

8. Dhawale, N. 2015. Advances in proximal soil sensing through integrated systems approach. *PhD Dissertation*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC, AGGP). Co-supervisor: S. Prasher.

9. Pan, L. 2013. Means to optimize soil water management through monitoring spatial and temporal variability of geophysical soil attributes. *PhD Dissertation*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (WEAS, NSF and NSERC).

10. Sethuramasamyraja, B. 2006. Development of on-the-go soil sensing technology for mapping soil pH, potassium and nitrate contents. *PhD Dissertation*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (AGPT).

Master of Science

1. Sun, K. 2024. Rapid assessment of stomata density using digital microscopy and machine learning approach. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

2. Rello Rincon, A. 2024. Dual image-based deep learning system for predicting soil texture and soil organic matter content. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

3. Lan, J. 2024. Development of an automated system for *in situ* measurements of soil health indicators. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs, NSERC).

4. Abdalla, K. 2024. Development of subsurface carbon dioxide sensing instrumentation for monitoring soil health indicators. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs, NSERC).

5. Jiang, X. 2023. Mapping spinach yield using UAV-based multispectral imagery data. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (AgriRisk). Co-supervisor: S. Sun.

6. Dias Carlson, P. 2021. Development of an integrated sensor system for automated on-the-spot measurement of physical soil properties. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs).

7. Spiers, J. 2020. DeepSoil: A deep-learning framework for rapid low-cost estimation of soil particle size distributions from digital microscope images. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

8. Leclerc, M. 2020. Development of willow tree yield-mapping technology. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

9. Marmette, M.C. 2019. Comparison of laser-induced breakdown spectroscopy and color, visible, near-infrared, and mid-infrared spectroscopy to predict various soil properties. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

10. Debbagh, M. 2019. Development of a low-cost wireless sensor network for passive *in situ* measurement of soil greenhouse gas emissions. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (AGGP).

11. Boatswain Jacques, A. 2019. Development of a machine vision-based yield monitoring system for vegetable crops. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Mitacs).

12. Johnston, A. 2018. Analysis of prediction maps and data separation methods for site-specific management of wild blueberry. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. External funding (AAFC). Co-supervisor: A. Biswas.

13. Buelvas, R.M. 2018. Crop canopy measurements using a low-cost laser for biomass estimation. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

14. Shinde, S. 2018. Development of a numeric on-line decision support system for crop fertilizer optimization. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (AAFC, Fertilizer Canada).

15. Su, Y. 2017. Development of proximal sensing systems for crop biomass determination. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (John Deere).

16. Pouliot, A. 2016. Development of a quick-install auto-steering system for agricultural vehicles. MSc Thesis. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC).

17. Reumont, F. 2016. Development of a portable instrumentation system for *in situ* assessment of soil respiration. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (AGGP).

18. Stanhope, T. 2016. Applications of low-cost computer vision for agricultural implement feedback and control. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC, Agri-Fusion 2000).

19. Henry, E. 2016. Precision apiculture: development of a wireless sensor network for honeybee hives. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (Bayer Crop Science).

20. Sudarsan, B. 2015. Assessment of soil properties using microscope-based computer vision. MSc Thesis. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC, Bayer Crop Science).
21. Saminsky M.W. 2015. Water quality monitoring in freshwater bodies with high-density spatial mapping. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (NSERC). Co-supervisor: S. Prasher.
22. Rene-Laforest, F. 2015. Real-time variable control technologies for precision agriculture. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (John Deere).
23. Kaur, J. 2015. Development of an NDIR CO_2 sensor-based system for assessing soil toxicity using substrate-induced respiration. *MSc Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Grant funding (AGGP, NSERC).
24. Jonjak, A.K. 2011. Analysis of site-specific adjustment applied to on-the-go soil sensing data for agronomic use. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (Nebraska Soybean Board).
25. Dhillon, R.S. 2010. Development of an integrated soil properties mapping system. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (NSF).
26. Mat Su, A.S. 2010. Mapping vertical profiles of apparent soil electrical conductivity using an angular scanning approach. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Government of Malaysia funding.
27. Easterly, D.R. 2009. Development of a visual sensor system for performance testing of satellite-based tractor auto-guidance. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Teaching appointment.
28. Reed, T.M. 2009. Evaluation of on-the-go soil pH and lime requirement mapping. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (SBIR).
29. Ingram, T.J. 2006. On-the-go mapping of soil mechanical resistance assumed to change linearly with depth. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Internal funding.
30. Speichinger, J.D. 2006. Development of an instrumented subsoiler for variable depth tillage. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (John Deere).
31. Christenson, P.T. 2004. Development of an instrumented blade system for mapping soil mechanical resistance as a second order polynomial. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Scholarship funding.
32. Sifken, R.J. 2003. Mapping soil mechanical resistance with a multiple blade system. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Grant funding (AGPT).

COMPLETED GRADUATE STUDIES CO-SUPERVISION/CO-AUTHORSHIP
  Doctor of Philosophy (PhD)
1. Zeitoun, R. 2021. Development of an electrochemical sensor for quantification of soil phosphorus. *PhD Thesis*. Guelph, Ontario, Canada: University of Guelph, Department of Environmental Sciences. Supervisor: A. Biswas.
2. Tikasz, P. 2019. Development of a manure-based nutrient supply for hydroponic crop production using ion-selective monitoring. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering. Supervisor: M. Lefsrud.

3. Yari, A. 2016. Application of variable-rate irrigation technology to conserve water and improve crop productivity. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Supervisor: C. Madramootoo.
4. Shiratsuchi, L.S. 2011. Integration of plant-based canopy sensors for site-specific nitrogen management. *PhD Dissertation*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture. Supervisor: R. Ferguson.
5. Kerby, A.T. 2009. Spatial clustering using likelihood function. *PhD Dissertation*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Statistics. Supervisor: D. Marx.
6. Roberts, D.F. 2009. An integrated crop- and soil-based strategy for variable-rated nitrogen management in corn. *PhD Dissertation*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture. Supervisor: R. Ferguson.

Master of Science
1. Harms, J.Z. 2024. Development of a generative AI-based model for guiding grape variety selection under contemporary climate dynamics. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Supervisor: J.F. Adamowski.
2. Zhang, Y. 2016. Optimization of sampling designs for validating digital soil maps. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Natural Resource Science. Supervisor: A. Biswas.
3. Edwards, K.P. 2014. Greenhouse gas emissions from drip irrigated tomato fields. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Supervisor: C. Madramootoo.
4. Ramaswamy, K. 2012. Precision application of herbicides in corn fields. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec: McGill University, Department of Bioresource Engineering. Supervisor: S. Prasher.
5. Krienke, B.T. 2011. Evaluation of sensor-based application of nitrogen to corn affected by imposed SI value thresholds. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture. Supervisor: R. Ferguson.
6. Janousek, G.S. 2010. Evaluation of ethanol and water introduction via fumigation on efficiency and emissions of a compression ignition engine using an atomization technique. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Biological Systems Engineering. Supervisor: R. Hoy.
7. Kyaw, T.Z. 2006. Site-specific hybrid management for pH-induced iron chlorosis for corn. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture. Supervisor: R. Ferguson.

POSTDOCTORAL ASSOCIATES
1. Saifuzzaman, M. 2020-2024. Postdoctoral Assistant (grant funding).
2. Park, J. 2018-2020. Research Associate (external funding).
3. Lacroix, R. 2016-2018. Part-time Research Associate (grant funding).
4. Huang, H.H. 2017-2018. Postdoctoral Assistant (grant funding).
5. Ji, W. 2015-2017. Postdoctoral Associate (scholarship and grant funding).
6. Fu, Y. 2015-2016. Postdoctoral Associate (scholarship funding).
7. Dhawale, N. 2015-2016. Postdoctoral Associate (grant funding).
8. Pan, L. 2013-2014. Postdoctoral Associate (grant funding).

VISITING SCHOLARS AND GRADUATE RESEARCH TRAINEES
1. Sangphanta, P. 2024. Visiting Scholar, Agricultural Engineering Research Institute (Bangkok, Thailand)
2. Mbah, J.T. 2024. Graduate Research Trainee, Wroclaw University of Environmental and Life Sciences (Wroclaw, Poland)

3. Bönecke, E. 2023. Visiting Scholar, Leibniz Institute of Vegetable and Ornamental Crops (Grossbeeren, Germany)
4. Tremblay, P. 2023. Undergraduate Research Trainee, Sainte-Anne International College (Lachine, Quebec, Canada)
5. Qi, J. 2017-2018. Assistant Professor, Jilin University (Changchun, Jilin, China)
6. Fontenelli, J. 2017. PhD student, University of Campinas (Campinas, Sao Paulo, Brazil)
7. Tabatabai, S. 2017. PhD student, Aarhus University (Tjele, Denmark)
8. Fadel, M. 2016. Associate Professor, United Arab Emirates University (Al Ain, UAE)
9. Qi. L. 2015-2016. Associate Professor, South China Agricultural University (Guangzhou, Guangdong, China)
10. Claustre, M. 2016. MS student. ISARA – Lyon University (Lyon, France)
11. Behera S.K. 2013. Researcher, Directorate of Oil Palm Research (Andhra Pradesh, India).
12. Potz, G. 2013. PhD student, University of Sao Paulo (Piracicaba, Sao Paulo, Brazil)
13. Louargant, M. 2012. BS student, School of Bordeaux Sciences Agro (Gradignan, France).
14. Chen, X. 2012. BS student, South China Agricultural University (Guangzhou, China).
15. Freulon, M. 2008. BS student, National Institute of Agronomy of Dijon (Dijon, France).
16. Hemmat, A. 2006-2007. Associate Professor, Isfahan University of Technology (Isfahan, Iran).

OTHER GRADUATE-LEVEL SUPERVISION
1. Langella, M. 2017. Project employee, MS in Food Science and Agricultural Chemistry, McGill Univewrsity.
2. Lauzon, S. 2016. Uncompleted MS in Bioresource Engineering, McGill University.
3. Mastorakos, M. 2012-2014. Uncompleted PhD in Bioresource Engineering, McGill University.
4. Thomas, S.S. 2007-2009. Robotics and GPS/GIS in 4-H curriculum development, NSF project staff, University of Nebraska-Lincoln.
5. Maheshwari, A. 2003-2004. Temporary help, MS in Industrial Engineering, University of Nebraska-Lincoln.
6. Cole, T. 2003. Temporary help, MS in Mechanized Systems Management, University of Nebraska-Lincoln.
7. Wang, C. 2002-2003. Project employee, MS in Statistics, University of Nebraska-Lincoln.
8. Schepers, A.R. 2002. Project employee, MS in Agronomy, University of Nebraska-Lincoln.
9. Major, M.B. 2001. Temporary help. Evaluation of nitrate ion-selective electrodes for soil measurements. Project employee, MS in mechanized systems management.

UNDERGRADUATE STUDENT SUPERVISION
1. Cole, S. 2024. Summer project. BEng in Bioresource Engineering, McGill University.
2. Geddes, K. 2023-2024. Temporary help. BEng in Bioresource Engineering, McGill University.
3. Leblond, P. 2023 and 2024. Summer project. BEng in Bioresource Engineering, McGill University.
4. Cardenas, N. 2021-2022. Temporary help. BEng in Bioresource Engineering, McGill University.
5. Lan, J. 2021. Summer project and work study. BEng in Bioresource Engineering, McGill University.
6. Csisztu, T. 2021. Summer project and work study. BEng in Bioresource Engineering, McGill University.
7. Simpson, K. 2020. Temporary help. BEng in Bioresource Engineering, McGill University.
8. Dalton, S. 2018-2019. Temporary help. BEng in Bioresource Engineering, McGill University.

9. Miller, C. 2017-2019. Summer project and work study. BEng in Bioresource Engineering, McGill University.
10. Leclerc, M. 2016-2018. Work study and internship. BEng in Bioresource Engineering, McGill University.
11. Ngadi, E. 2016. Summer project. BEng in Mechanical Engineering, McGill University.
12. Bennett, B. 2015-2016. Work study and internship. BEng in Bioresource Engineering, McGill University.
13. Lauzon, S. 2015-2016. Summer project. BEng in Bioresource Engineering, McGill University.
14. Ruiz de la Macorra, F. 2014-2015. Work study and internship. BEng in Bioresource Engineering, McGill University.
15. Brun, M. 2014. Work study. BS in Agricultural Economics, McGill University.
16. Tawil, S. 2013-2014. Temporary help. BEng in Bioresource Engineering, McGill University.
17. Stanhope, T.T. 2013-2015. Internship. BEng in Bioresource Engineering, McGill University.
18. Rene-LaForest, F.F. 2012-2013. Work study and internship. BEng in Bioresource Engineering, McGill University.
19. Burke Anderson, Q. 2012. Temporary help. BEng in Bioresource Engineering, McGill University.
20. Huang, H.H. 2011-2013. Internship. BEng in Bioresource Engineering, McGill University.
21. Chan, I.I. 2012. Temporary help. BS in Agricultural Economics, McGill University.
22. Swan, K.K. 2011-2012. Temporary help. BEng in Bioresource Engineering, McGill University.
23. Lutz, C. 2009-2010. Independent research project. BS in Electrical Engineering, University of Nebraska-Lincoln.
24. Landgraf, A.L. 2009-2010. Temporary help. BS in Agricultural Engineering, University of Nebraska-Lincoln.
25. Hulme, R. 2008-2009. Independent research project. BS in Agricultural Engineering, University of Nebraska-Lincoln.
26. Jahraus, D. 2007-2008. Independent research project. BS in Mechanized Systems Management, University of Nebraska-Lincoln.
27. Kohles, M. 2006. Temporary help. BS in Agricultural Engineering, University of Nebraska-Lincoln.
28. Moore, R. 2008. Temporary help. BS in Biological Systems Engineering, University of Nebraska-Lincoln.
29. Zhang, Y.Z. 2009. Temporary help. BS in Biological Systems Engineering, University of Nebraska-Lincoln.
30. Dodson, J.E. 2005-2007. Two independent research projects. BS in Biological Systems Engineering, University of Nebraska-Lincoln.
31. Person, T.M. 2003-2004. Independent research project. BS in Mechanized Systems Management, University of Nebraska-Lincoln.
32. Steinkraus, A.F. 2002-2003. Temporary help. BS in Agricultural Engineering, University of Nebraska-Lincoln.
33. Bray, T.B. 2002-2003. Temporary help. BS in Agricultural Engineering, University of Nebraska-Lincoln.
34. Reed, T.M. 2001-2003. Two independent research projects. BS in Mechanized Systems Management, University of Nebraska-Lincoln.
35. Coelho, I.R. 2001-2002. Temporary help. BS in Agronomy, University of Nebraska-Lincoln.

COMPLETED GRADUATE STUDIES EXAMINING COMMITTEES

1. Hitti, Y. 2025. Towards integrating plant behavior with technology: a design case study on light stimuli. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
2. Chen, H. 2024. Energy harvesting and energy absorbing/dissipating triboelectric mechanical metamaterials. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
3. Alizadeh, M.R., 2022. Development of a multi-scenario multi-objective analysis framework to explore optimal, resilient and robust solutions in coupled human-water systems. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
4. Inamdar, D. 2022. Raster end products misrepresent remotely sensed hyperspectral imaging data: preserving spectral and spatial integrity with a novel point cloud data format. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Geography.
5. Kelly, K. 2022. On the potential of metal-organic framework chemistry: A new pathway to develop phosphate adsorbents. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
6. van't Veen, K.M. 2022. Exploring the data foundation for calculating water flow and nitrate leaching. *PhD thesis*. Viborg, Denmark: Aahrus University, Department of Agroecology.
7. Triven Koganti. 2021. Mapping of agricultural subsurface drainage systems using proximal and remote sensors. *PhD thesis*. Viborg, Denmark: Aahrus University, Department of Agroecology.
8. Hung, C.Y. 2020. Nitrous oxide emissions from agricultural soil receiving manure in a changing climate. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Natural Resource Sciences.
9. Niknam, H. 2020. Graded cellular structures: A strategy to tune the structural performance of cellular materials. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
10. Bahadi, M. 2020. Expanding the potential of infrared spectroscopy as a tool of precision dairy farming: From on-site infrared milk analysis to spectral data mining for indicators of animal well-being. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Food Science and Agricultural Chemistry.
11. Ihuoma, S.O. 2020. The use of spectral reflectance data to assess plant stress and improve irrigation water management. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
12. Wang, J. 2020. Effects of novel food processing methods on allergenic and nutritional attributes of kiwifruit components. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
13. Ellis, E. 2020. Consumer-food security nexus framework for understanding agri-food value chains. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
14. Hmaissia, A. 2020. Développement d'une approche adaptative pur l'estimation des composantes de la texture du sol et son contenu en matière organique par spectroscopie visible-proche infrarouge. *MS Thesis*. Quebec, Quebec, Canada: University of Quebec, INRS.
15. Eslamain, F.A. 2019. Evaluation and development of lime-based products to reduce phosphorus loss from agricultural soils. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.

16. McGuire, S. 2019. Design and testing of a high frequency hydraulic mechanical jackhammer. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
17. Kheng, T.Y. 2019. Strategies in precision cocoa management. University Putra Malaysia *PhD Thesis*. Serdang, Selangor, Malaysia: University Putra Malaysia.
18. Moreno García, L. 2019. Microalgae biomass production in wastewaters as feedstock for biorefinery systems. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
19. Adegbenjo, A.O. 2019. Non-destructive assessment of chicken egg fertility using hyperspectral imaging technique. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
20. Prinds, C. 2019. Remote and proximal sensing of the geology and shallow hydrology in riparian lowlands. *PhD thesis*. Viborg, Denmark: Aahrus University, Department of Agroecology.
21. Rakhra, A.K. 2018. Design and evaluation of the user interface for tractor air-seeder systems. *PhD thesis*. Winnipeg, Manitoba, Canada: The University of Manitoba, Department of Biosystems Engineering.
22. Quilty, J.M. 2018. An ensemble wavelet-based stochastic data-driven framework for addressing nonlinearity, multiscale change, and uncertainty in water resources forecasting. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
23. Jiang, Q. 2018. Mitigating greenhouse gas emissions in subsurface-drained fields in Eastern Canada. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
24. Taghia, J. 2018. Path following of farming vehicles. *PhD Thesis*. Sydney, Australia: University of New South Wales, School of Mechanical and Manufacturing Engineering.
25. Folarin-ottun, O. 2018. Non-destructuve methods for aflatoxin B1 detection in maine beans. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
26. Takishita, Y. 2017. Pseudomonas entomophila 23S, a PGPR with potential for control of bacterial canker disease in tomato (*Solanum lycopersicum L.*) against *Clavibacter michiganensis* subsp. *michiganensis*. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Plant Science.
27. Li, J. 2017. Hollow core photonic bragg fibers for industrial sensing applications. *PhD Dissertation*. Montreal, Quebec: Montreal Polytechnique, Department of Engineering Physics.
28. Baig, A. 2016. Development of a group built coupled physical – socio-economic modeling framework for soil salinity management in agricultural watersheds in developing countries. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
29. Md Salim, N.S. 2016. Dried broccoli stalk through application of osmotic dehydration and microwave-assisted hot air drying. *PhD Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
30. Crézé, C. 2015. Greenhouse gas emissions from an intensively cropped field under various water and fertilizer management practices. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
31. Zang, F. 2015. Evaluation of drying behavior of broccoli (Brassica oleracea L.) in hot air and microwave drying systems. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.
32. Rudnick, D.R. 2013. Impact of nitrogen and water management on maize actual evapotraspiration, soil water extraction, and crop water productivity in South Central

Nebraska, USA. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture.

33. Ruan, Q. 2013. Effect of time and rate of nitrogen, sulfur and boron application on canola growth in southwestern Quebec. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Plant Science.

34. Islam, M.M. 2012. Evaluating the ability of a non-invasive sensor to improve soil management of paddy rice fields. *PhD thesis*. Gent, Belgium: Gent University, Department of Soil Management.

35. Dias, K.E.M. 2012. Proteomic comparison of Arabidopsis Thaliana under high and low nitrogen fertilization. *MS Thesis*. Ste-Anne-de-Bellevue, Quebec, Canada: McGill University, Department of Bioresource Engineering.

36. Bereuter, A.M. 2011. Management zone delineation techniques on irrigated corn in Nebraska. *MS Thesis*. Lincoln, Nebraska: University of Nebraska-Lincoln, Department of Agronomy and Horticulture.

37. Lobsey, C. 2010. Proximal soil nutrient sensing using electrochemical sensors. *PhD Dissertation*. Sydney, Australia: University of Sydney, Faculty of Agriculture, Food and Natural Resources.

COMPREHENSIVE EXAMINATIONS
1. Tavcar, I. 2025. Department of Food Science and Agricultural Chemistry, McGill University.
2. Dash, S.S. 2024. Bioresource Engineering Department, McGill University.
3. Boothman, R. 2023. Natural Resource Science Department, McGill University.
4. Arumugagounder, N. 2022. Bioresource Engineering Department, McGill University.
5. Flores-Anderson, A. 2022. Natural Resource Science Department, McGill University.
6. Seyedkanani, A. 2021. Bioresource Engineering Department, McGill University.
7. Ekwunife, K. 2019. Bioresource Engineering Department, McGill University.
8. Ihuoma, S.O. 2018. Bioresource Engineering Department, McGill University.
9. Kucha, C. 2018. Bioresource Engineering Department, McGill University.
10. Tikasz, P. 2017. Bioresource Engineering Department, McGill University.
11. Vidana Gamage, D. 2017. Natural Resource Science Department, McGill University.
12. Wu, B.S. 2016. Bioresource Engineering Department, McGill University.
13. Yari, A. 2014. Bioresource Engineering Department, McGill University.
14. Boluwade, A. 2012. Bioresource Engineering Department, McGill University.
15. Shiratsuchi, L. 2011. Agronomy and Horticulture Department, University of Nebraska-Lincoln.
16. Roberts D. 2008. Agronomy and Horticulture Department, University of Nebraska-Lincoln.

PRO-DEAN
1. Huang, K. 2024. Department of Food Science and Agricultural Chemistry, McGill University.
2. Loboda, S. 2020. Natural Resource Science Department, McGill University.
3. Leila, M. 2017. Natural Resource Science Department, McGill University.
4. Thomas, B.W. 2015. Natural Resource Science Department, McGill University.
5. Abail, Z. 2015. Natural Resource Science Department, McGill University.
6. Cofie, A.N. 2013. School of Dietetics and Human Nutrition, McGill University.