

SARA SADRI, Ph.D., P.Eng.
Canada Research Chair in Remote Sensing and Water Security

Associate Professor, School of Climate Change and Adaptation
Cross-Appointed to the Faculty of Sustainable Design Engineering
University of Prince Edward Island
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Education

University of Waterloo, Canada Ph.D. in Civil Engineering
Department of Civil and Environmental Engineering
Advisor: Prof. Donald Burn
Dissertation: *Frequency Analysis of Drought Using Stochastic and Soft Computing Techniques*

University of Manitoba, Canada M.Sc. in Biosystems Engineering
Department of Biosystems Engineering
Advisor: Prof. Nazim Çiçek
Thesis: *Aerobic Treatment of Landfill Leachate Using a Submerged Membrane Bioreactor*

University of Tehran, Iran B.Sc. in Agricultural and Irrigation Engineering
Department of Irrigation and Drainage Engineering

Appointments

University of Prince Edward Island (UPEI), Canada 09/2023–Present
Associate Professor
Canada Research Chair (CRC) in Water Security and Remote Sensing
School of Climate Change and Adaptation; Faculty of Sustainable Design Engineering

United Nations University (UNU), Dresden, Germany 10/2022–08/2023
Senior Research Scientist (Part-time, Remote)

Global Institute for Water Security (GIWS), University of Saskatchewan, Canada 05/2020–09/2022
Research Scientist

Princeton University, USA 03/2012–04/2020
Associate Professional Specialist, Civil and Environmental Engineering (2016–2020; based at UCLA, USA)
Postdoctoral Research Associate, Civil and Environmental Engineering (2012–2014)
Mentors: Dr. Justin Sheffield; Prof. Eric F. Wood

University of Southern California (USC), USA 08/2014–04/2016
Scientist-in-Residence and Science Advisor

Cole Engineering Consultants, Greater Toronto Area, Canada 07/2011–02/2012
Project Manager and R&D Developer

World Meteorological Organization (WMO), Geneva, Switzerland 11/2010–06/2011
Consultant, Department of Water and Climate

Selected Research Funding, Contracts, and Awards

Competitive Research Funding and Training Awards

2026 **Canada Impact+ Postdoctoral Award:** Faculty Sponsor and Proposal Lead: S. Sadri;
Postdoctoral Fellow: H. G. Abdo. *Real-Time Farm-Scale Drought Forecasting to Support
Irrigation Planning, Crop Yields, and Climate-Resilient Agriculture in Canada.*

- 2026 **Science Undergraduate Research Award (SURA):** Faculty Supervisor and Proposal Lead: S. Sadri; Student Award Recipient: M. Maaz (Computer Science Honours). *Mapping Agricultural Resilience and Drought Risk Zones in Atlantic Canada through a Scalable Geospatial Framework.*
- 2026 **Mitacs:** PI: J. Taylor; Co-supervisor: S. Sadri. *The Producer's Perspective on Improving Food Access and Food Security on Prince Edward Island.*
- 2024 **NSERC Discovery Grant:** PI: S. Sadri. *Advancing the Science of the Food-Energy-Water Nexus under Climate Change: A Holistic Model for Agricultural Drought and Household Food Security Monitoring.*
- 2024 **NSERC Early Career Researcher Award:** PI: S. Sadri. *Advancing the Science of the Food-Energy-Water Nexus under Climate Change.*
- 2023 **Canada Research Chairs Program:** Chairholder: S. Sadri. *Modeling the Regional Water-Food Nexus.*
- 2023 **Canada Foundation for Innovation (CFI):** PI: S. Sadri. *Science of the Water-Food Nexus.*

Institutional Research Support

- 2023 **University of Prince Edward Island Start-up Fund:** Award Holder: S. Sadri. *Establishing a Research Team and Graduate Student Support.*

Research Contracts and Funded Collaborative Projects

- 2026 **Agriculture and Agri-Food Canada (AAFC):** PI: M. Mesbah; Collaborator: S. Sadri. *Next-Generation Canadian Crop Forecasting System.*
- 2023 **Open Geospatial Consortium (OGC), Disaster Pilot 2023:** Lead Engineering Reviewer and Contributing Scientist: S. Sadri. *Engineering Report Review, Summary Editorship, and Drought Severity Indicator Workflow Development.*
- 2022–2023 **Natural Resources Canada (NRCan), Government of Canada:** Contract Research Scientist and Project Lead: S. Sadri. *Geospatial Standards Development for Drought and Disaster Management in Canada.*
- 2020 **Global Water Futures, University of Saskatchewan:** Funding PI: J. S. Famiglietti; Project Originator and Scientific Lead: S. Sadri. *Farm-Level Remote-Sensing-Based Irrigation Optimization and Advisory System (FarmCan).*
- 2018 **NASA Soil Moisture Active Passive (SMAP) Mission, Princeton University:** Funding PI: E. F. Wood; Project Scientific Lead and Lead Developer: S. Sadri. *Global Near-Real-Time Soil Moisture Index for Food Security.*
- 2016 **NASA Soil Moisture Active Passive (SMAP) Mission, Princeton University:** Funding PI: E. F. Wood; Project Scientific Lead and Lead Developer: S. Sadri. *Drought Monitoring Index for the Contiguous United States.*
- 2012–2014 **U.S. Geological Survey and National Oceanic and Atmospheric Administration, Princeton University:** Funding PI: J. Sheffield; Research Scientist: S. Sadri. *Statistical Modeling of Nonstationarity in Low Flows and Their Timing in the Eastern United States.*

Earlier Competitive Funding, Scholarships, and Awards

- 2014 **Princeton University Art of Science Competition:** First Prize for *Watermarks.*
- 2013 **UNESCO Research and Outreach Support:** Contributor through the documentary film *The River of Muddy Water.* The film contributed to the interdisciplinary research and outreach activities for which the Princeton research group received UNESCO support.
- 2011–2012 **Natural Sciences and Engineering Research Council of Canada (NSERC) Industrial R&D Fellowship:** Applicant and Fellowship Recipient: S. Sadri. *Development of an Antecedent Moisture Condition Model for Predicting Rainfall-Derived Inflow and Infiltration.*
- 2011 **Canadian Water Network National Short-Film Competition:** First Prize, Artistic Category.

2008–2010	University of Waterloo Graduate Scholarship: Scholarship Recipient: S. Sadri.
2008	Prairie Adaptation Research Collaborative Graduate Scholarship: Scholarship Recipient: S. Sadri.
2005–2007	University of Waterloo International Doctoral Student Award: Award Recipient: S. Sadri.
2005	University of Waterloo Provost Doctoral Entrance Award for Women: Award Recipient: S. Sadri.
2005	Solid Waste Association of North America Montenay/Terrence L. Guest Memorial Scholarship: Scholarship Recipient: S. Sadri. Recognized research addressing solutions to North American municipal-waste management challenges.

Proposals Under Review

2026	Environment and Climate Change Canada: PI: S. Sadri; Collaborator: A. Berg. <i>CESO – Research – Advancing the Integration of AI for Operational Hydro-Meteorological and Environmental Services.</i>
2026	NSERC CREATE: PI: H. Kheyrollah Pour; Co-applicant: S. Sadri. <i>Northern Lakes Stewardship Science (LAKE-NORTH).</i>
2026	Global Affairs Canada: PI: A. Alfarra; Collaborator: S. Sadri. <i>From Data to Decision: AI-Assisted Agricultural Impact Assessment and Ecosystem Valuation for Lake Basins in Türkiye.</i>
2026	Agriculture and Agri-Food Canada (AAFC): PI: C. Champagne; Co-applicant: S. Sadri. <i>Landscape Modelling of Climate Resiliency Using Earth Observation and Artificial Intelligence.</i>
2026	Canada Excellence Research Chairs Program: PI: M. Murray; Collaborator: S. Sadri. <i>One Health in Rural Environments.</i>
2026	American Institute of Mathematics SQuaREs Program: Research Team Member: S. Sadri. <i>Developing an Applied Category-Theoretic Framework for Multiscale Multimodel Data Fusion.</i>

Selected Research Contributions

Refereed Publications

- [1] Li Xu, David Ferris, Xander Huggins, Jefferson S. Wong, Chinchu Mohan, **Sara Sadri**, Hrishikesh A. Chandanpurkar, Palash Sanyal, and James S. Famiglietti (2023). *From Coarse Resolution to Practical Solution: GRACE as a Science Communication and Policymaking Tool for Sustainable Groundwater Management.* Journal of Hydrology, 623, 129845. <https://doi.org/10.1016/j.jhydrol.2023.129845>.
- [2] **Sara Sadri**, James S. Famiglietti, Ming Pan, Hylke Beck, Aaron A. Berg, and Eric F. Wood (2022). *FarmCan: A Physical, Statistical, and Machine Learning Model to Forecast Crop Water Deficit for Farms.* Hydrology and Earth System Sciences, 26, 5373–5390. <https://doi.org/10.5194/hess-26-5373-2022>.
- [3] Shisong Wang, Debajyoti Mondal, **Sara Sadri**, Chanchal K. Roy, James S. Famiglietti, and Kevin A. Schneider (2022). *SET-STAT-MAP: Extending Parallel Sets for Visualizing Mixed Data.* Proceedings of the IEEE Pacific Visualization Symposium (PacificVis), 151–160. <https://computer.org/csdl/proceedings-article/pacificvis/2022/233500a151/1E2wfuqTfMY>.
- [4] Noemi Vergopolan, Nathaniel W. Chaney, Ming Pan, Justin Sheffield, Hylke Beck, Craig Ferguson, Laura Torres-Rojas, **Sara Sadri**, and Eric F. Wood (2021). *Satellite-Based Soil Moisture at 30-m Resolution Reveals the Drivers of Spatial Variability Across the U.S.* Scientific Data, 8, 264. <https://doi.org/10.1038/s41597-021-01050-2>.
- [5] **Sara Sadri**, Ming Pan, Yoshihide Wada, Noemi Vergopolan, Justin Sheffield, James S. Famiglietti, Yann Kerr, and Eric F. Wood (2020). *A Global Near-Real-Time Soil Moisture Index Monitor for Food Security Using Integrated SMOS and SMAP.* Remote Sensing of Environment, 246, 111864. <https://doi.org/10.1016/j.rse.2020.111864>.

- [6] **Sara Sadri**, Eric F. Wood, and Ming Pan (2018). *Developing a Drought Monitoring Index for the Contiguous U.S. Using SMAP*. Hydrology and Earth System Sciences, 22, 6611–6626. <https://doi.org/10.5194/hess-22-6611-2018>.
- [7] **Sara Sadri**, Jonghun Kam, and Justin Sheffield (2016). *Nonstationarity of Low Flows and Their Timing in the Eastern United States*. Hydrology and Earth System Sciences, 20(2), 633–649. <https://doi.org/10.5194/hess-20-633-2016>.
- [8] Justin Sheffield, Eric F. Wood, Nathaniel Chaney, Kaiyu Guan, **Sara Sadri**, Xing Yuan, Laban Olang, Abdou Ali, Siegfried Demuth, and Laban Ogallo (2014). *A Drought Monitoring and Forecasting System for Sub-Saharan African Water Resources and Food Security*. Bulletin of the American Meteorological Society, 95(6), 861–882. <https://doi.org/10.1175/BAMS-D-12-00124.1>.
- [9] **Sara Sadri** and Donald H. Burn (2014). *Copula-Based Pooled Frequency Analysis of Droughts in the Canadian Prairies*. Journal of Hydrologic Engineering, 19(2), 277–289. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000603](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000603).
- [10] **Sara Sadri** and Donald H. Burn (2012). *Nonparametric Methods for Drought Severity Estimation at Ungauged Sites*. Water Resources Research, 48, W12505. <https://doi.org/10.1029/2011WR011323>.
- [11] **Sara Sadri** and Donald H. Burn (2011). *A Fuzzy C-Means Approach for Regionalization Using a Bivariate Homogeneity and Discordancy Approach*. Journal of Hydrology, 401(3–4), 231–239. <https://doi.org/10.1016/j.jhydrol.2011.02.027>.
- [12] **Sara Sadri**, Henrik Madsen, Peter Steen Mikkelsen, and Donald H. Burn (2009). *Analysis of Extreme Rainfall Trends in Denmark*. Proceedings of the 33rd IAHR Congress, 1731–1738. <https://www.iahr.org/library/infor?pid=23841>.
- [13] **Sara Sadri**, Nazim Çiçek, and Jamie Van Gulck (2008). *Aerobic Treatment of Landfill Leachate Using a Submerged Membrane Bioreactor*. Environmental Technology, 29(8), 899–907. <https://doi.org/10.1080/09593330802015456>.

Research Software and Decision-Support Platforms

- [14] **Sara Sadri** (2026). *Livelihood and Food Security Dashboard for Prince Edward Island*. https://sara-sadri.shinyapps.io/my_shiny_app_fs/.
- [15] **Sara Sadri** (2025). *Interactive Flood-Risk Mapping for Prince Edward Island*.
- [16] **Sara Sadri** (2020–Present). *Farm-Specific Crop Water-Stress Prediction Platform*. <https://sara-sadri.shinyapps.io/app-1/>.
- [17] **Sara Sadri** (2019–2020). *Global Soil Moisture Index Monitor (GSMIM)*. Previously hosted on Princeton University servers; archived.
- [18] **Sara Sadri** (2016–2018). *U.S. Drought Index Monitor*. Previously hosted on Princeton University servers; archived.

Technical Reports

- [19] **Sara Sadri** (Lead Editor and Contributing Author) (2023). *Engineering Report for OGC Disaster Pilot 2023*. Open Geospatial Consortium, 175 pages.
- [20] **Sara Sadri** and Ryan Ahola (2023). *Availability and Characteristics of Geospatial Drought Data and Systems in Manitoba*. Natural Resources Canada, 22 pages.

Manuscripts in Preparation

- [21] **Sara Sadri**, Hazem Gh. Abdo, Catherine Champagne, Kel N. Markert, and Aaron Berg. *Forecasting Canadian Drought Monitor Categories One Month Ahead Using Multisource Earth Observation and Hydroclimate Data*. Manuscript in preparation.
- [22] Muhammad Maaz, **Sara Sadri**, and Dania Tamayo-Vera. *Monitoring Agricultural Resilience to Hydroclimatic Stress in Prince Edward Island Using Earth Observation Data*.
- [23] **Sara Sadri**. *An Integrated Earth Observation–Socioeconomic Framework for Assessing Spatial Disparities in Food-Security-Related Livelihood Vulnerability: A Case Study in Canada*.
- [24] Parsa Golchin and **Sara Sadri**. *Respondent-Reported Livelihood Vulnerability and Environmental Experience Across Prince Edward Island: Development of the LVI-Survey*.

Conference Publications and Presentations (Selected)

- [25] **Sara Sadri**, Hazem Gh. Abdo, Catherine Champagne, Kel N. Markert, and Aaron Berg (2026). *Forecasting Canadian Drought Monitor Categories One Month Ahead Using Multisource Earth Observation and Hydroclimate Data*. American Geophysical Union Annual Meeting 2026, San Francisco, CA, USA, #H44C-04 [Oral].
- [26] Nathaniel K. Newlands, Saeed Valadbaygi, and **Sara Sadri** (2026). *Digital Agriculture and AI-Based Solutions to Enhance Agroecosystem Resilience and Long-Term Sustainability*. Third United Nations World Geospatial Information Congress, Jeddah, Saudi Arabia [Forthcoming].
- [27] **Sara Sadri** (2025). *Toward a Multidimensional Livelihood Index for Targeting Food Insecurity: A Case Study from Prince Edward Island, Canada*. American Geophysical Union Annual Meeting 2025, New Orleans, LA, USA, #GC14D [Oral].
- [28] **Sara Sadri**, Hylke Beck, Ming Pan, Aitazaz Farooque, and Xander Wang (2023). *Leveraging Planet and Google Earth Engine in Near-Real-Time Satellite Data for Water Management at Field Scales*. American Geophysical Union Annual Meeting 2023, San Francisco, CA, USA, #H31S-1731 [Poster].
- [29] Li Xu, James S. Famiglietti, David Ferris, Xander Huggins, Chinchu Mohan, **Sara Sadri**, Palash Sanyal, and Jefferson S. Wong (2022). *From Coarse Resolution to Realistic Resolution: GRACE as a Science Communication and Policymaking Tool for Sustainable Groundwater Management*. European Geosciences Union General Assembly 2022, Vienna, Austria, #10542 [Oral].
- [30] **Sara Sadri**, Ming Pan, James S. Famiglietti, Eric F. Wood, Hylke Beck, Noemi Vergopolan, and Aaron A. Berg (2020). *Water Resources Optimization and Irrigation Advisory Based on Farm-Level Remote Sensing and Crop Water Demand*. American Geophysical Union Fall Meeting 2020, Virtual Meeting, #H046-05 [Oral].
- [31] Noemi Vergopolan, Nathaniel W. Chaney, Hylke Beck, Ming Pan, **Sara Sadri**, Justin Sheffield, and Eric F. Wood (2020). *Hyper-Resolution Land Surface Modeling Enables Hydrologically Consistent 30-m SMAP-Based Soil Moisture Retrievals over Continental Scales*. American Geophysical Union Fall Meeting 2020, Virtual Meeting, #A041-0002 [Poster].
- [32] **Sara Sadri**, Eric F. Wood, Ming Pan, Yoshihide Wada, and Yann Kerr (2019). *A Global Near-Real-Time Soil Moisture Index Monitor for Food Security Using Integrated SMOS and SMAP*. American Geophysical Union Fall Meeting 2019, San Francisco, CA, USA, #H54E-01 [Oral].
- [33] **Sara Sadri**, Eric F. Wood, and Ming Pan (2019). *Global Near-Real-Time Drought Monitor Using Integrated SMOS-SMAP Soil Moisture Data*. 3rd International Surface Working Group, Montréal, Canada [Oral].
- [34] **Sara Sadri**, Eric F. Wood, and Ming Pan (2019). *Global Near-Real-Time Agricultural Drought Monitor Using Integrated SMOS-SMAP Soil Moisture Data*. European Geosciences Union General Assembly, Vienna, Austria, #10332 [Oral].

Selected Invited Presentations and Research Seminars

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|------------|---|
| 19/05/2026 | University of California, Los Angeles (UCLA), Los Angeles, CA, USA
Invited Research Seminar: <i>Satellite-Based Tools for Decision-Making: From Socioeconomic Vulnerability to Water Management</i> . |
| 07/04/2026 | Meals on Wheels, Charlottetown, PE, Canada
Invited Presentation: <i>Integrating Satellite and Socioeconomic Data for Food Security in Canada: A Case Study from Prince Edward Island</i> . |
| 04/02/2026 | Government of Canada, Charlottetown, PE, Canada
Invited Presentation: <i>Advancing Drought Resilience in Agriculture: From Monitoring to Impact Assessment</i> . |
| 28/01/2026 | University of Prince Edward Island, Charlottetown, PE, Canada
Keynote Address: <i>A Multidimensional Livelihood Index for Food Security: A Case Study from Prince Edward Island</i> . |
| 27/08/2025 | Google, New York, NY, USA
Invited Presentation: <i>Using Google Earth Engine for Drought Monitoring and Food Security Applications</i> . |

15/03/2024	NASA Headquarters, USA Invited Briefing: <i>Summary of OGC's 2023 Disaster Pilot Engineering Report on Earth Action Wildland Fire Workflows.</i>
29/06/2023	Open Geospatial Consortium and Government of Canada, Winnipeg, MB, Canada Invited Presentation: <i>Interoperable Drought Management Workflow Models.</i>
13/03/2023	United Nations University, Dresden, Germany Invited Presentation: <i>Water and Food Security under Climate Change.</i>
01/09/2022	Farmers Edge, Winnipeg, MB, Canada Invited Presentation: <i>FarmCan: A Physical, Statistical, and Machine Learning Model to Forecast Crop Water Deficit at Farm Scales.</i>
15/02/2022	City University of New York (CUNY), New York, NY, USA Invited Research Seminar: <i>Water and Food Security under Climate Change.</i>
09/11/2021	University of Prince Edward Island, Charlottetown, PE, Canada Invited Research Seminar: <i>Climate Change and Adaptation for Prince Edward Island.</i>
22/03/2021	Global Scientific Congress on Geology and Earth Science, Virtual Meeting Invited Conference Presentation: <i>A Global Near-Real-Time Soil Moisture Index Monitor for Food Security Using Integrated SMOS and SMAP.</i>
20/01/2020	Cardiff University, Cardiff, Wales, UK Invited Research Seminar: <i>Applications of Remote Sensing Data in Environmental Science and Sustainability.</i>
16/01/2020	Agriculture and Agri-Food Canada, Research and Development Centre, Manitoba, Canada Invited Research Seminar: <i>Remote Sensing for Cold-Climate Hydrological Processes and Model Representation.</i>
29/04/2019	University of Prince Edward Island, Charlottetown, PE, Canada Invited Research Seminar: <i>Hydrological Analysis in Precision Agriculture: From Modeling to Irrigation Advisory and Food Security.</i>
04/11/2018	Texas A&M University, College Station, TX, USA Invited Research Seminar: <i>Hydrological Risk Reduction and Resilience Building under Climate Change: From Extreme-Event Modeling to Decision Support and Policy.</i>
04/10/2015	NASA Jet Propulsion Laboratory, Pasadena, CA, USA Invited Presentation: <i>Scientific Approaches to Science Communication and Film.</i>

Research Leadership and Program Management

2023–Present	University of Prince Edward Island (UPEI), Canada Established and lead the Canada Research Chair program in Remote Sensing and Water Security; supervise postdoctoral, graduate, and undergraduate researchers; and coordinate research planning, project delivery, partnerships, and knowledge mobilization.
2023	Open Geospatial Consortium (OGC), Disaster Pilot 2023 Coordinated contributions from a multidisciplinary team representing 13 international governmental and nongovernmental organizations. Served as Lead Engineering Reviewer and final editor of the OGC Disaster Pilot 2023 Engineering Report.
2022–2023	United Nations University (UNU), Dresden, Germany Led program development for the Analytics, Informatics, and Data Programme, supervised staff, and aligned interdisciplinary content with the United Nations Sustainable Development Goals.
2022–2023	Natural Resources Canada (NRCan), Government of Canada As Contract Research Scientist and Project Lead, defined and led projects on interoperable geospatial drought-data systems supporting provincial drought monitoring and preparedness in Manitoba.

- 2020–2022 **Global Institute for Water Security, University of Saskatchewan, Canada**
 Originated and led the scientific development of FarmCan, a farm-scale crop-water-deficit forecasting and irrigation-advisory platform; coordinated interagency collaboration and co-supervised graduate researchers.
- 2018–2020 **Princeton University, Princeton, NJ, USA**
 Assumed primary responsibility for the scientific leadership, coordination, and delivery of NASA-supported research; led development of a global near-real-time soil-moisture index and web-based drought-monitoring platform.
- 2013 **Mpala Research Centre, Kenya**
 Managed budgets, personnel, contractors, and hydrological field installations; supervised an undergraduate researcher and laboratory staff; and directed and produced the documentary film *The River of Muddy Water*.

Professional Service, Policy Engagement, and Scientific Leadership

- 12/2026 **Co-Convener, American Geophysical Union (AGU) Annual Meeting.** San Francisco, CA, USA.
 Co-convening two sets of paired oral and poster sessions: “Satellite Solutions for Agricultural Monitoring, Drought, and Water Management” (GC32C; GC33K), with NASA Harvest and the University of Maryland; and “Advancing Climate Attribution Science: Extreme Events, Associated Impacts, and Applications for Climate Justice” (GC34A; GC31K), with collaborators from the University of California, Merced, Florida State University, Climate Central, and the Union of Concerned Scientists.
- 12/2025 **Convener and Session Chair, American Geophysical Union (AGU) Annual Meeting.** New Orleans, LA, USA.
 Primary Convener and Chair for paired oral and poster sessions on “Advances in Drought Monitoring and Risk Management” (#H008); Co-Convener of “Equity and Justice in Water Systems” (#SY047).
- 10/2025 **Google Earth Engine Summit — Invited Participant.** New York, NY, USA.
 Selected through a competitive international process to participate in a summit for researchers and practitioners working in Earth observation, geospatial analytics, and environmental applications.
- 09/2025 **Science Meets Parliament, Parliament of Canada — Selected Participant.** Ottawa, ON, Canada.
 Selected through a competitive national process to engage with Members of Parliament and Senators on climate change, water security, food security, and evidence-informed policymaking.
<https://sciencepolicy.ca/programs/science-meets-parliament/smp-2025/smp-federal-2025/smp-2025-delegates-selected/>
- 09/2024 **Mentor, World Food Forum Global Youth Hackathon.** Rome, Italy.
 Mentored international youth teams developing approaches to food security, sustainable agriculture, and environmental resilience.
- 03/2024 **Panel Member, Hessian Teaching Merit Award Committee.** University of Prince Edward Island, Canada.
 Evaluated candidates for institutional recognition of teaching excellence.
- 03/2023 **Delegate, United Nations University at UN-Water.** New York, NY, USA.
 Represented the United Nations University in discussions on drought, water security, food security, and sustainable development.
- 05/2021 **Panelist, NSF Convergence Accelerator Conference.**
 Contributed to discussions on food and water security in extreme environments and food deserts.
- 04/2019 **Judge, European Geosciences Union Outstanding Student Poster Award.** Vienna, Austria.
 Evaluated student research presentations and contributed to award selection.

- 12/2017 **Primary Convener and Session Chair, American Geophysical Union (AGU) Fall Meeting.** New Orleans, LA, USA.
 Convened oral and poster sessions on “Achieving Water Security under Climate Change: From Cloud Computing and Extreme-Event Modeling to Decision Support and Policy” (#H14H).
- 11/2017 **Peer Review Panel Member, NASA Headquarters.** USA.
 Served on a federal proposal-review panel evaluating research in hydrology and remote sensing.

Teaching and Mentorship

- 2023–Present **Research Supervision and Mentorship.**
 Supervise and mentor a Canada Impact+ postdoctoral fellow, an M.Sc. researcher, and a Computer Science Honours student transitioning to doctoral research. Serve on doctoral advisory committees at the University of Guelph
- Fall 2026 **ACC-1010 Introduction to Climate Change and Living Lab,** University of Prince Edward Island.
 Undergraduate course covering climate processes, attribution, extreme events, adaptation, mitigation, climate finance, international negotiations, and evidence-based decision-making. Developed and delivered lectures, interactive activities, assessments, case studies, and geospatial learning exercises.
- Fall 2026 **ACC-3050 Renewable Energy and Clean Technology,** University of Prince Edward Island.
 Upper-level undergraduate course covering energy fundamentals, renewable-energy systems, clean technologies, and climate solutions. Integrated quantitative exercises, guest speakers, industry engagement, and experiential site visits.
- Fall 2025 **ACC-1040 Introduction to Climate Change,** University of Prince Edward Island.
 Developed and delivered the complete undergraduate curriculum, including lectures, assessments, interactive activities, guest presentations, and experiential learning components.
- Fall 2025 **ACC-3050 Renewable Energy and Clean Technology,** University of Prince Edward Island.
 Developed and delivered an upper-level undergraduate course on renewable-energy systems, clean technologies, energy transitions, and climate solutions.
- Fall 2023 **ESC-8900 Academic Seminar in Environmental Sciences,** University of Prince Edward Island.
 Graduate seminar focused on scientific communication, research methods, and professional development.

STEM Outreach and Community Engagement

- 2025 **Techsploration Program.** University of Prince Edward Island, Charlottetown, PE, Canada.
 Served as mentor and host for a full-day university visit by young women from Kinkora Regional High School. Organized activities on science, engineering, Earth observation, climate change, drone operations, LiDAR, and geospatial career pathways.
- 2022–2023 **Community STEM Outreach.**
 Co-organized and delivered hands-on educational activities for elementary-school students on climate change, drought, environmental stewardship, composting, recycling, and sustainability.

Peer Review and Editorial Service

- 2026 **External Proposal Reviewer, National Science Foundation (NSF).**
- 2018 **External Proposal Reviewer, NASA.**

2011–Present **Journal Peer Review.**
 Reviewer for *Advances in Meteorology*; *Hydrological Sciences Journal*; *Journal of Hydrology*; *Scientific Data*; *Water Resources Research*; *Journal of Hydrology and Hydromechanics*; *Asia-Pacific Journal of Atmospheric Sciences*; *Journal of Hydrologic Engineering*; *Journal of Geosciences*; and *Remote Sensing of Environment*.

Selected Media Engagement and Creative Science Communication

2025 **CTV News — Expert Interview.** Prince Edward Island, Canada.
 Provided scientific commentary on drought conditions, water security, and climate resilience in Atlantic Canada.
<https://www.ctvnews.ca/climate-and-environment/article/from-streams-to-supper-tables-the-work-to-protect-fish-farms-and-families-in-pe/>

2025 **The Canadian Press — Expert Interview.** Canada.
 Provided scientific commentary on drought impacts, water-supply challenges, and climate resilience in Atlantic Canada.
https://www.thecanadianpressnews.ca/business/newfoundland-towns-water-supply-runs-dry-and/article_fe1d3624-561a-5d71-89cb-5e10303f83f7.html

2021 **Let’s Talk About Water Film Festival — Filmmaker.** Saskatchewan, Canada.
Pachamama — Short science documentary exploring Indigenous perspectives on water, environmental change, and resilience.
https://www.youtube.com/watch?v=r-2p-C69_EQ

2014 **Princeton University Art of Science Competition.** Princeton, NJ, USA.
Watermarks — Science photography. Recipient of First Prize for communicating the science and aesthetics of water.
<https://www.newscientist.com/gallery/2014-art-science/>

2014 **Princeton University Materials Academy.** Princeton, NJ, USA.
PUMA — Educational science video introducing materials-science concepts to high-school students.
<https://www.youtube.com/watch?v=eoHGIGseuYo>

2013 **NewFilmmakers New York — Filmmaker.** New York, NY, USA.
The River of Muddy Water — Documentary examining water insecurity and gendered vulnerability along Kenya’s Ewaso Ng’iro River. Official selection of NewFilmmakers New York; also screened at Ghent University, Planet in Focus Film Festival, UNESCO Youth Workshops, and Princeton University.
 Trailer: <https://www.princeton.edu/news/2013/07/09/river-muddy-water-trailer>

2013 **Princeton University — Filmmaker.**
Coffee Roasters — Short science-communication film examining resource transformation and production through the coffee supply chain.
<https://www.youtube.com/watch?v=0KtiAxJAn04>

Professional Memberships and Credentials

2011–Present **Licensed Professional Engineer (P.Eng.),** Professional Engineers Ontario, Canada.

2017–Present **Lifetime Member,** American Geophysical Union (AGU).

2017–2021 **Member,** AGU Hydrology Remote Sensing Technical Committee.