Stanford



Nitish Ranjan Sarker

Postdoctoral Scholar, Civil and Environmental Engineering

Bio

BIO

Nitish Ranjan Sarker is a Postdoctoral Scholar at Stanford University, where he contributes to the design, execution, and evaluation of an Industrial, Agricultural, and Water FlexHub Demonstration Pilot Project. His current research focuses on developing data-driven decision-support tools for sustainable water and energy systems, integrating experimental and pilot-scale data with technoeconomic analysis (TEA) to guide system design, deployment strategies, and policy recommendations.

Nitish earned his Ph.D. in Mechanical and Industrial Engineering from the University of Toronto, where his work combined laboratory-to-pilot experimentation, systems modeling, and field validation to advance resilient and affordable water technologies. Prior to that, he completed his M.Sc. in Mechanical Engineering at the University of Alberta and his B.Sc. in Mechanical Engineering at the Bangladesh University of Engineering and Technology (BUET). His research portfolio spans off-grid solar desalination, oil-water separation and spill response technologies, and distributed water quality monitoring tools for decentralized systems. Beyond research, Nitish has engaged in interdisciplinary training and global capacity-building initiatives in Canada, Mexico, Kenya, Bangladesh, India, and France, advancing the water#energy#health nexus and sustainable technology adoption from lab to field. He also co-founded FRODO, a venture translating foam-based oil-water separation research into deployable spill response and produced water treatment solutions, bridging lab innovation and early commercialization.

HONORS AND AWARDS

- Mortension Center Outstanding Global Engineering Student, Mortenson Center in Global Engineering & Resilience, UC Boulder (2022)
- Mitacs Policy Fellowship, Mitacs (2022)
- Bert Wasmund Graduate Fellowships in Sustainable Energy Research, University of Toronto (2021, 2020)
- Ontario Graduate Scholarship, Government of Ontario-Canada/ University of Toronto (2021)
- Queen Elizabeth II/ DuPont Canada Scholarship in Science and Technology, Government of Ontario-Canada/ University of Toronto (2020, 2019)
- Jeanne F. Goulding Fellowship, University of Toronto (2019)
- Hatch Graduate Scholarship for Sustainable Energy Research, University of Toronto/ Hatch (2018)
- Paul Cadario Doctoral Scholarship in Global Engineering, CGEN/ University of Toronto (2018)
- Dean's List/ Merit Scholarships, Bangladesh University of Engineering and Technology (2009-2012)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Peer Reviewer, Desalination and Water Treatment, International Journal of Climate Change Strategies and Management, IWA World Water Congress and Exhibition (2023 - present)
- Technical Advisor, Engineers without Borders - University of Toronto (2023 - 2025)

- Program Director, International Water Association Young Water Professionals Canada (2021 - 2023)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, University of Toronto (2022)
- Master of Science, University of Alberta (2016)
- Bachelor of Science, Bangladesh Universityof Engineering&TechnologyBUET (2012)

STANFORD ADVISORS

- Meagan Mauter, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Improved scaling laws for infrastructure: planning increased access to water and sanitation networks in low- and middle-income countries** *ROYAL SOCIETY OPEN SCIENCE*
  Assad, F., Marega, G., Sarker, N., Meyer, D. D. J.
  2025; 12 (7)
- **Can UVC-LEDs mitigate biofouling in community-scale photovoltaic-powered reverse osmosis systems?** *Water Supply*
  Karim, N. S., Sarker, N., Dalal, A., Hatton, B., Bilton, A. M.
  2025; 25 (4): 13
- **End-of-the-day rinsing for improved maintainability of intermittently operated small-scale photovoltaic-powered reverse osmosis systems** *DESALINATION*
  Sarker, N., Cherukupally, P., Sodhi, R., Bilton, A.
  2025; 599
- **Multi-scale visualization of incipient CaCO3 scaling on the polyamide layer of reverse osmosis membranes** *DESALINATION*
  Sarker, N. R., Cherukupally, P., Gourevich, Wilbur, J., Jons, S. D., Bilton, A. M.
  2022; 539
- **Characterization of the hydrodynamics within a toroid wear tester** *CANADIAN JOURNAL OF CHEMICAL ENGINEERING*
  Adedeji, O. E., Zhang, L., Sarker, N. R., Breakey, D. E. S., Sanders, R.
  2022; 100 (8): 1941-1953
- **Real-time computational imaging of reverse osmosis membrane scaling under intermittent operation** *JOURNAL OF MEMBRANE SCIENCE*
  Sarker, N., Bilton, A. M.
  2021; 636
- **Performance and hydrodynamics analysis of a Toroid Wear Tester to predict erosion in slurry pipelines** *WEAR*
  Sarker, N. R., Breakey, D. S., Islam, M. A., Sun, S., Fleck, B. A., Sanders, R. S.
  2020; 450