Faisal Ahmed

Ph.D. Student

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ResearchGate ; Google Scholar; LinkedIn

Education

Ph.D. (Running) Department of Civil Engineering at University of North Dakota (Fall 2023 –Present)

Academic program: Environmental Engineering

Research focus: PFAS removal through adsorption using soybean-based adsorbents and the development of soybean hull-coated membranes as part of a North Dakota Soybean Council project.

Advisor: Mahmut S. Ersan, Ph.D.

M.S. GIScience and Geo-environment at Western Illinois University (2021- 2023)

Thesis title: A Comparative Study of Environmental Education in Conventional versus Alternative Schools in Bangladesh: A Case Study.

Advisor: Christopher Sutton, Ph.D.

M.S. Environmental Sciences, Jahangirnagar University, Bangladesh (2010-2012)

Thesis title: Sanitation and environmental status of nearby village around the industrial activities of Dhaka Export Processing Zone (DEPZ), Bangladesh.

Advisor: Abdu Kadir Ibne Kamal, Ph.D.

B.S. Environmental Sciences, Jahangirnagar University, Bangladesh (2005-2010)

Research Interests

PFAS, Water treatment, Membrane distillation, Nano-material synthesis, Pharmaceutical pollution, Waste valorization, Environmental monitoring with GIS.

Awards

- **Fresh Ideas Poster Competition 2025, First Place** in ND Water & Pollution Control Conference (NDWPCC) 2025, Fargo, ND, United States.
- **Poster Presentation Award**, Surface Water Treatment Workshop, North Dakota Section of the American Water Works Association (AWWA), April 22–24, 2025, West Fargo, ND, United States.
- **Dennis Lubbs Memorial Geography Scholarship**, Department of Earth, Atmospheric, and GIS, Western Illinois University, 2022–2023.
- **President Huang International Scholarship**, Western Illinois University Foundation, 2022–2023.
- **International Commitment Scholarship**, Western Illinois University Foundation, 2021–2022 & 2022–2023.
- **UND Angel Fund Scholarship**, University of North Dakota, Fall 2023.
- **UND Open Door Scholarship**, University of North Dakota, Fall 2023.

Publication

- Ali, M. E., **Ahmed, F.,** & Ersan, M. S. (2025). The interplay between per-and polyfluoroalkyl substances removal and flux in direct contact membrane distillation. *Desalination*, 119578. https://doi.org/10.1016/j.desal.2025.119578
- **Ahmed, F**., Bayazid, A.Z.M., Islam, M.M., Rahaman, M.Z., & Al Muntasir, M.F. (2024). The terrible air pollution in Dhaka city is getting worse. *GSC Advanced Research and Reviews*, 19, 42–52. https://doi.org/10.30574/gscarr.2024.19.1.0133
- Idrish, M.H.B., & **Ahmed, F.** (2024). Deconstructing the nexus between the influx of Rohingya refugees and the economy (Labor) in Cox's Bazar, Bangladesh. *GSC Advanced Research and Reviews*, 18, 290–298. https://doi.org/10.30574/gscarr.2024.18.1.0016
- **Ahmed, F.**, Idrish, M.H.B., & Kamal, A.K.I. (2023). A review of current water governance in Bangladesh: A Case study on administrative and performance of water policy. *Scientific Research Journal (Scirj)*, XI(12), 1–10. https://www.scirj.org/dec-2023-paper.php?rp=P1223973
- **Ahmed, F.**, Bahauddin, K.M., & Kamal, A.K.I. (2023). Exploring health problems among lead acid storage battery workers in Dhaka city, Bangladesh. *American Journal of Pure and Applied Sciences*, 5(1), 1–12. https://doi.org/10.34104/ajpab.023.001012
- Hasnat, M.F., & **Ahmed, F.** (2023). The history of the Rohingya crisis: origin and uprising. *British Journal of Arts and Humanities*, 5(4), 192–208. https://doi.org/10.34104/bjah.02301920208
- Sufian, M.A., Rahaman, M.Z., **Ahmed, F.**, & Dewan, H.A. (2023). Analysis of rejection data in the lasting section of the footwear industry. *Australian Journal of Engineering, Innovation and Technology*, 5(2), 35–57. https://doi.org/10.34104/ajeit.023.035057
- **Ahmed, F.**, Ahmed, F., Alam, M., Islam, M.R., & Kamal, A.K.I. (2015). Sanitation and environmental status of nearby village around the industrial activities of Dhaka Export Processing Zone (DEPZ), Bangladesh. *International Science Community Association Journal of Environmental Sciences*, 4(5). Available at: http://www.isca.in/IJENS/Archive/v4/i5/1.ISCA-IRJEvS-2015-009.pdf

Research Paper Under Review

- **Ahmed, F.**, & Ersan, M.S. (2025). Cutting-Edge Advancements in Membrane Distillation for Organic and Inorganic Contaminants Removal: A Comprehensive Review. *Journal of Membrane Science.*
- **Ahmed, F.**, Gaber, M.S., Ersan, G., Garcia-Segura, S., & Ersan, M.S. (2025). Pharmaceutical Adsorption and Electro-Regeneration Performance of Magnetically Modified Activated Carbon. *Environmental Science and Pollution Research.*
- **Ahmed, F.**, & Ersan, M.S. (2025). Occurrence and Control Technologies for Unknown Per- and Polyfluoroalkyl Substances (PFAS): A Comprehensive Review. *(Internal Review).*

Conference Proceedings and Presentation

Proceedings

- **Ahmed, F**., Ali, M.E.A., & Ersan, M.S. (2025). *Salinity-Driven Dynamics of PFAS Separation Using Direct Contact Membrane Distillation.* 2025 North Dakota Water and Pollution Control Conference, October 14, Fargo, ND, United States.
- Tabish, F.N.U., Mamaghani, I.H.P., Khalid, R.A., & **Ahmed, F.** (2025). *Integrating GIS and Machine Learning for Seismic Damage Assessment of Liquid Storage Tanks in California.* Proceedings of the 10th International Conference on Civil Structural and Transportation Engineering (ICCSTE 2025), July, Imperial College London Conference Center, London, United Kingdom. Paper No. 347. https://avestia.com/ICCSTE2025_Proceedings/files/paper/ICCSTE_347.pdf
- **Ahmed, F.**, Ali, M.E.A., & Ersan, M.S. (2025). *Efficient PFAS Removal in Hypo/Hyper Saline Waters via Direct Contact Membrane Distillation.* 2025 Surface Water Treatment Workshop, April 22–24, West Fargo, ND, United States.
- **Ahmed, F.** & Ersan, M.S. (2025). *Can Direct Contact Membrane Distillation Be the Solution to Efficient Per- and Polyfluoroalkyl Substances Removal?* 2025 RRV-ACS Research Conference, February 20–21, University of North Dakota, Grand Forks, ND, United States.
- **Ahmed, F**., Ersan, G., Garcia-Segura, S., & Ersan, M.S. (2024). *Does Magnetization of Carbonaceous Adsorbents Facilitate Pharmaceutical Removal?* ACS Fall 2024 National Meeting & Exposition, August 18–22, Denver, CO, United States.
- **Ahmed, F.** & Ersan, M.S. (2024). *Adsorption of Ciprofloxacin and Ibuprofen on Magnetic Iron-Doped Powdered Activated Carbon (PAC).* North Dakota Academy of Science Proceedings of the 115th Annual Meeting, March, University of North Dakota, Grand Forks, ND, United States.

Poster

- **Ahmed, F**., Ali, M.E.A., & Ersan, M.S. (2025). *High Efficiency PFAS Removal and Water Recovery Using Direct Contact Membrane Distillation.* 2025 North Dakota Water and Pollution Control Conference, October 14, Fargo, ND, United States.
- **Ahmed, F.** & Ersan, M.S. (2025). *Efficient Removal of Per- and Polyfluoroalkyl Substances Using Direct Contact Membrane Distillation.* Graduate Research Achievement Day, February 26–27, University of North Dakota, Grand Forks, ND, United States.
- **Ahmed, F**., Ersan, G., & Ersan, M.S. (2024). *Removal of Ibuprofen and Ciprofloxacin Using Magnetized versus Non-Magnetized Powdered Activated Carbon.* South Dakota Student Water Conference, October 14–16, South Dakota State University, Brookings, SD, United States.

- **Ahmed, F.** & Ersan, M.S. (2024). *Adsorption of Ciprofloxacin and Ibuprofen on Magnetic Iron-Doped Powdered Activated Carbon.* Graduate Research Achievement Day, February 28–29, University of North Dakota, Grand Forks, ND, United States.
- **Ahmed, F.**, Ersan, G., & Ersan, M.S. (2024). *Adsorption of Pharmaceutical Contaminants on Magnetic Iron-Doped Powdered Activated Carbon.* 2024 RRV-ACS Research Conference, February, Bemidji State University, Minnesota, United States.

Seminar

- Ciprofloxacin and Ibuprofen Adsorption on Magnetic Iron-doped Powdered Activated Carbon (Spring 2024), Department of Civil Engineering, University of North Dakota.
- Direct Contact Membrane Distillation for Efficient Per- and Polyfluoroalkyl substances (PFAS) Removal and Water Recovery (Fall 2024), Department of Civil Engineering, University of North Dakota.

Research Project

- Upcycling Soybean Hulls into Activated Carbon for Effective Removal of PFAS in Water Treatment. ND Soybean Council grant (July 1st 2025, to June 30, 2026). PI: Dr. Mahmut Selim Ersan.
- Novel, Stable, and Efficient PFAS Removal by Nanostructure and Porous Carbon-Titanium Ceramic Electrodes (Spring 2025). PI: Dr. Mahmut Selim Ersan and Dr. Jiale Xu, Assistant Professor, NDSU.
- Efficient removal of perfluorooctanoic acid (PFOA) using magnetic biomass-derived carbon quantum dots in water treatment. (Fall 2024) (Funded by – Early Career Award Program, UND
  PI: Dr. Mahmut Selim Ersan, Co-PI: Dr. Mariia Goriacheva-Morrell, Project Mentor: Dr. Alena Kubatova
- Evaluation of regeneration efficiency of PFAS-laden IX media by brine solutions. Funded by - DeNORA Water Technologies. (Spring 2024) PI: Dr. Mahmut Selim Ersan

Research Experience

- **Ersan Research Lab** (**Fall 2023 – Present)**, Department of Civil Engineering, University of North Dakota
  Post: **Graduate Research Assistant**, Lab Head – Dr. Mahmut Selim Ersan
  Responsibility:
  - **Synthesis of Carbon-Based Materials**: Develop bio-waste–derived activated carbon and carbon quantum dots for advanced environmental remediation applications.
  - **Membrane Science & Engineering**: Conduct membrane separation experiments, including fabrication, surface modification, and performance evaluation for water treatment processes.

- **Advanced Instrumentation & Analysis**: Operate and maintain state-of-the-art laboratory equipment, including HPLC, ion chromatography (IC), total organic carbon (TOC) analyzer, thermogravimetric analyzer (TGA), tube furnace, ozone generator, BET surface area analyzer, and UV-Vis spectrophotometer.
- **Experimental Design & Execution**: Collaborate with research teams to plan experimental workflows, execute protocols, and evaluate test results with precision.
- **Data Management & Reporting**: Record, analyze, and interpret experimental data; prepare technical reports, publications, and grant proposals to support ongoing research projects.
- **Collaboration & Best Practices**: Work in close coordination with multidisciplinary researchers while maintaining strong laboratory safety and good lab practices (GLP).
- **Technical & Computational Skills**: Apply advanced computer and scientific tools for data analysis, documentation, and report preparation, ensuring accuracy and organization in research outputs.

- **Graduate Student (2021 – 2023), WIU GIS Lab, GIScience and Geo-environment, Western Illinois University**

  Conducted advanced ArcGIS analyses to generate a wide range of spatial data visualizations and maps under the mentorship of Dr. Christopher Sutton. Collaborated with the Adams County Health Department and Blessing Health System to develop applied GIS solutions, including the construction of the **Story Map of Quincy, IL (2022)** Link. This project demonstrated practical applications of GIS in public health and urban planning.

- **Graduate Researcher (2006 – 2012), Environmental Science Lab, Jahangirnagar University, Bangladesh**
  - Led field-based environmental health assessments in Savar, Dhaka under the supervision of Dr. Abdul Kadir Ibne Kamal.
  - Conducted monitoring and removal studies of pollutants in industrial wastewater under the supervision of Dr. ANM Fakhruddin. Acquired hands-on expertise in water quality assessment, pollution analysis, and remediation strategies, contributing to the early foundation of sustainable industrial wastewater management in Bangladesh.

Teaching Experiences

- **Graduate Teaching Assistant (Fall 2023 – Spring 2025**), Department of Civil Engineering, University of North Dakota

  Responsibility: Grading assignments or papers

  • Assisting faculty with classroom instruction, records, and assignments

  • Meeting with students during office hours

  • Providing feedback on assignments

- Proctoring examinations
- Obtaining and distributing course materials

- **Lecturer**, **Department of Geography and Environment,** Mirpur Girl's Ideal Laboratory Institute, Dhaka, Bangladesh **(**January 2017, to March 2019)

  Responsibility: Taking classes on Geography and Environmental aspects (especially environmental aspects including pollution and degradation of the environment and their mitigation)

  - Maintain students' attendance records, grades, and other required records
  - Prepare course materials like syllabus, homework assignments, and hand notes
  - Plan, evaluate, and revise curriculum, content, materials, methods of instruction
  - Supervise students for fieldwork on different geological and environmental issues.
  - Initiate, facilitate, and moderate classroom discussions and publish 'Wallpaper'.

Technical Skills

- Proficient in MS office, and SPSS, Origin.
- Proficient in ArcGIS Pro to analyze GIS data and produce maps.
- Proficient in Adobe Photoshop and Illustrator.

Special Certification

- Certified Lecturer (Geography & Environmental Science, 2014), Non-Government Teachers' Registration & Certification Authority (**NTRCA**) Ministry of Education, Bangladesh

Language Skills

- Proficient in Bengali and English and a moderate user of Hindi and German.

Daily Newspaper Coverage

- The Daily Star (October 4, 2024), Dhaka's air pollution reaches alarming level: research available at: (https://www.thedailystar.net/environment/pollution/air-pollution/news/dhakas-air-pollution-reaches-alarming-level-research-3719646)

Other Working Experiences

Alumni Engagement Associate (March 2023 to May 2023), Western Illinois University

Responsibilities: Promote awareness of the organization's mission and work

- Cultivate a network of dedicated donors
- Spot new fundraising opportunities
- Plan fundraising initiatives to financial goals
- Form strong relationships with internal and external stakeholders
- Ensure major donors are satisfied and kept in the loop.

Vice Chairman (January 2012 to July 2015), Sunmoon International School

Responsibilities: Preparing the yearly academic plan.

- Assisting with the preparation of the yearly budget.
- Implement financial policies and procedures.
- Organizing meetings with parents and Local stakeholders.

Internship

FCI BD Group and Talisman Group at "DEPZ'', Dhaka, Bangladesh (January 2011 to March 2011)

- Support to maintain the Environmental Sustainability Plan
- Assist in maintaining Ethical and Environmental Standards
- Assist in waste audit to identify types and volumes of waste generated and reduction and recycling.

Membership

- American Water Works Association
- The Illinois Geographical Society
- Bangladesh Student Association UND
- Bangladesh Environmental Scientist Society

Outreach Activities

- T4/ND Energy Education program (NDEE), November 7, 2025. Hosted by Northland Technical College, East Grand Forks, Grand Forks–East Grand Forks school district.
- UND BrainSTEM Event, October 9, 2025, Organized by the joint venture of the University of North Dakota and ASCE North Dakota Section.
- Environment Camp, August 20, 2025. Department of Civil Engineering, University of North Dakota.
- Young Scientists and Engineers Academy (YSEA) Camp. July 29, 2025. Department of Civil Engineering, University of North Dakota.
- 2nd Admit Day for the Spring Semester, April 4, 2025. Hosted by College of Engineering & Mines, University of North Dakota.
- Engineering Saturday (Spring), Saturday March 1, 2025. Hosted by College of Engineering & Mines, University of North Dakota.
- Grand Forks Middle School Career Exploration Fair, April 2024.
- Sustainable Concrete Infrastructure and Environmental Camp, (Summer Camp) August 21-22, 2024, Department of Civil Engineering, University of North Dakota.
- UND BrainSTEM Event, October 10, 2024, Organized by the joint venture of the University of North Dakota and ASCE North Dakota Section.
- Recruitment Week Program for prospective students, October 18, 2023, exhibiting the Environment Engineering program under the Department of Civil Engineering, University of North Dakota.

- Northern Valley Career Expo, October 25, 2023, as an exhibitor from the Department of Civil Engineering, University of North Dakota.
- Cultural exchange program for one year in Sydney, Australia by the government of the People's Republic of Bangladesh in 2015.

Volunteerism

- Treasure (Current Position), AWWA UND College Chapter.
- Volunteered with PetroNd (https://petrond.com/) in water treatment initiatives, supporting sustainable clean water solutions and community engagement.
- Mentor at Young's Organization for Urban Research (YOUR)
- Organized a free 'blood donation' campaign (March 2014) at Sunmoon International School campus, Mirpur, Dhaka, Bangladesh.
- Organized a day for the 'tree plantation' campaign on June 6, 2011, at Mirpur, Dhaka, Bangladesh.

Invited Reviewer for Journals

American Journal of Environmental Science and Engineering

References

- **Mahmut Selim Ersan, Ph.D.**
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  University of North Dakota,
  Grand Forks, ND, USA
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- **Daba S. Gedafa, Ph.D., P.E., ENV SP, F. ASCE**
  Chair and Professor
  Michael & Sitney Lodoen Endowed Professor of Civil Engineering
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