Mahsa Payami

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Education

University of Houston, Houston, USA
Doctor of Philosophy in Atmospheric Sciences — Jun 2022 – Present

Amirkabir University of Technology (AUT), Tehran, Iran
Master of Science in Environmental Engineering — Sep 2016 - Jan 2019

Sharif University of Technology (SUT), Tehran, Iran
Bachelor of Science in Civil Engineering — Sep 2011 - July 2016

Experiences

Department of Earth and Atmospheric Sciences, University of Houston
Graduate Research Assistant — Jun 2022 - Present

- Designed an emulator of the Community Multiscale Air Quality model for predicting NO_2 concentration using Deep Learning
- Performed well-to-wheel data analysis on different vehicle electrification scenarios using the GREET model

Environmental Engineering Lab, Amirkabir University of Technology
Graduate Research Assistant — Sep 2017- Dec 2018

- Designed a plexiglass reactor for conducting electrocoagulation experiments.
- Conducted over 120 experiments using aluminum and iron electrodes with alternating and direct current and used Response Surface Methodology for energy and electrode optimization.

Mentor for the Incoming Student — Sep 2018- Oct 2018

Trained the new master student on how to set up the experiments and work with different lab instruments including UV–Vis spectrophotometer.

Center for Sustainable Development, Amirkabir University of Technology
Researcher in a joint project by EPFL and AUT — Summer 2017

- Studied the Environmental Impact Assessment (EIA) Of Azad Dam.
- Collected data from Azad Dam as part of a field visit and quantified the environmental impact of the constructed dam using the ICOLD and Leopold Matrix method.
- Research findings were presented at the HYDRO 2018 Conference in Gdansk, Poland.

Publications

- **M. Payami**, Y. Choi, A. Salman, A. Mousavinezhad, J. Park, A. Pouyaie, "A 1D CNN-based emulator of CMAQ: Predicting NO_2 concentration over the most populated urban regions in Texas", *Artif. Intell. Earth Syst.*, 3, e230055, 2024. https://doi.org/10.1175/AIES-D-23-0055.1
- A.K. Salman, Y. Choi, J. Park, A. Mousavinezhad, **M. Payami,** M. Momeni, and M. Ghahremanloo. "Deep learning based emulator for simulating CMAQ surface NO_2 levels over the CONUS". *Atmos. Env.*, 316, p.120192, 2024. https://doi.org/10.1016/j.atmosenv.2023.120192
- AR. Arabameri, MRA. Moghaddam, AR. Azadmehr, **M. Payami**, "Less energy and material consumption in an electrocoagulation system using AC waveform instead of DC for nickel removal: Process optimization through RSM", *Chem. Eng. Process.: Process Intensif.*, vol. 174, 108869, 2022. https://doi.org/10.1016/j.cep.2022.108869.
- **M. Payami**, MRA. Moghaddam, E. Karamati Niaragh, "Evaluation of energy and electrode consumption of Acid Red 18 removal using electrocoagulation process through RSM: Alternating and direct current", *Environ Sci Pollut Res*, 28, 67214–67223, 2021. https://doi.org/10.1007/s11356-021-15345-9
- M. Nikravan, M. Azizi, **M. Payami**, M. Sadeghi, A. R. Zarrati, A. Amini, Y. Fessler, J. Martin, L. Müller, A. Sauvin, N. Schmid, A. Schleiss, "Improvement of EIA methods for large reservoirs by using network thinking

analysis approach: a case study of Azad dam, Iran", *Proc. HYDRO 2018*, vol. 1, no. 17.02, p. 12, 2018.

Awards & Achievements

- Received the "NSM Graduate Student Conference Travel Award" at UH 2024
- Received the "Outstanding Graduate Work in Atmospheric Sciences" award at UH 2024
- Received the "Best Visiting Team" award at Rice University's Datathon 2024
- Awarded 2nd Place Prize for Outstanding Poster Presentation at 25th Sherrif Lecture 2023
- Awarded 3rd Place Prize for Outstanding Poster Presentation at UH Student Research Conference (SRC) 2023
- University of Houston Presidential Fellowship 2021

Technical Skills

- **Programming:** Python, R, MATLAB
- **Deep Learning Tools:** PyTorch, TensorFlow, Keras, Scikit-learn, W&B

Standard Tests

- GRE: **320** Sep 2020
  Verbal reasoning: **151**, Quantitative reasoning: **169**
  Analytical writing: **4**
- TOEFL iBT: **102** Nov 2019
  Reading: **28**/30, Listening: **27**/30, Speaking: **23**/30, Writing: **24**/30