

CURRICULUM VITAE – Seyedeh Reyhaneh Shams

ACADEMIC QUALIFICATIONS

PhD. in Atmospheric Sciences and Meteorology Aug 2022 - present

University of Houston, Houston, USA

GPA: 3.833/4.00

M.Sc. in Environmental Engineering (Environmental Pollution) Sep 2015 - Dec 2017

College of Environment, Karaj, Iran

Thesis: Forecasting of Air Quality Index (AQI) changes using artificial neural network (Case study: Tehran)

GPA: 3.74/4.00

B.Sc. in Fisheries and Aquatic (Aquatic reproduction and breeding) Sep 2011 - Jul 2015

Sari Agricultural Sciences and Natural Resource University, Sari, Iran

B.Sc. Project: Biological evaluation of the main branches of Tajan river using communities of benthic macroinvertebrate.

GPA: 3.17/4.00

WORK EXPERIENCE

- Position: Research Assistant Aug 2022 - Current
Location: University of Houston, Houston, USA
Project: “Realtime Station-based and Grid-based Ozone Forecasting and explainable AI System Using Deep Learning”
- Position: Research Assistant Jan 2018 – Jun 2022
Location: College of Environment, Karaj, Iran
Project: “Monitoring and forecasting of air pollutants and unpleasant odor compound”

TEACHING EXPERIENCE

- Position: Teacher Sep 2018 – May 2021
Location: Sadaf primary school, Karaj, Iran
Experience: Teaching some lessons, for instance, Science and Math

HONORS AND AWARDS

Ranked 2nd in Selected researcher of the College of Environment in the field of student and scientific and research achievements, Karaj, Iran. **2019**

RESEARCH INTERESTS

- Air and water pollution
- Novel technologies for air and water quality
- Data analytics for environment and health
- Renewable energy
- Environmental toxicology
- Ecology and conservation biology
- Climate change

JOURNAL PUBLICATIONS

- 1) **Seyedeh Reyhaneh Shams.**, Choi, Y., Singh, D., Ghahremanloo, M., Momeni, M., & Park, J.. Innovative approaches for accurate ozone prediction and health risk analysis in South Korea: The combined effectiveness of deep learning and AirQ+. **Science of The Total Environment, 2024.**
- 2) **Seyedeh Reyhaneh Shams.**, Kalantary, S., Jahani, A., Shams, S. M. P., Kalantari, B., Singh, D., ... & Choi, Y. Assessing the effectiveness of artificial neural networks (ANN) and multiple linear regressions (MLR) in forecasting AQI and PM10 and evaluating health impacts through AirQ+ (case study: Tehran). **Environmental Pollution, 2023.**
- 3) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Saba Kalantary., Mazaher Moeinaddini., Nematollah Khorasani., The evaluation on artificial neural networks (ANN) and multiple linear regressions (MLR) models for predicting SO₂ concentration, **Urban Climate, 2021.**
- 4) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Saba Kalantary., Mazaher Moeinaddini., Nematollah Khorasani., Artificial intelligence accuracy assessment in NO₂ concentration forecasting of metropolises air, **Scientific Reports, 2021.**
- 5) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Mazaher Moeinaddini., Nematollah Khorasani., Saba Kalantari., Forecasting Ozone Density in Tehran Air Using a Smart Data-Driven Approach, **Journal of Health and Safety at Work, 2021.**
- 6) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Mazaher Moeinaddini., Nematollah Khorasani., Air carbon monoxide forecasting using an artificial neural network in comparison with multiple regression, **Modeling Earth Systems and Environment, 2020.**

CONFERENCE PUBLICATIONS

- 1) **Seyedeh Reyhaneh Shams.**, Khadijeh Esmaeli Damavandi Motlagh. Ali Jahani., Mazaher Moeinaddini., Modeling Forecast of Ozone Density in Tehran Air Using Regression Method, 8th National Conference on Air and Noise Pollution Management, Tehran, Iran, 2020.
- 2) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Mazaher Moeinaddini., Nematollah Khorasani., Presenting a model for forecasting the concentration of carbon monoxide in the urban air level, a solution to achieve sustainable development and urban management in the country, 12th Congress of the pioneers of progress, Tehran, Iran, 2018 .
- 3) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Mazaher Moeinaddini., Nematollah Khorasani., Evaluation of the accuracy of multiple regression models in forecasting CO concentrations in Tehran's airspace, International Conference on Society and the Environment, Tehran, Iran, 2018.
- 4) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Evaluation of the validity of multiple regression models in forecasting the air quality index (AQI) of Tehran, International Conference on Modern Research in Civil Engineering, Architecture, Urban and Environmental Management, 2018.
- 5) **Seyedeh Reyhaneh Shams.**, Ali Jahani., Model of forecasting changes in urban air pollution A solution to achieve sustainable development and progress of urban management in the country, 11th Congress of the pioneers of progress, Tehran, Iran, 2017 .

SELECTED COURSES

- GIS in Environmental Science (4/4) **2016**
- Management of vertebrates and protected areas (4/4) **2016**
- Wastewater Treatment (4/4) **2016**
- Atmospheric physics(4/4) **2022**

SKILLS

- **Research Skills**

Artificial Neural Network (ANN), Multiple Linear Regressions (MLR), Sensitivity analysis, Grey relational analysis, AI DNN weather and air quality modeling, Risk assessment

- **Computer Skills**

MATLAB, Python, Benmap, AirQ+, SAS, SPSS, Google Earth, Microsoft Office, AERMOD, CALPUFF, Crystal Ball

- **Language Skill**

Duolingo Overall: **105** Literacy: **100** Comprehension: **110** Conversation: **95** Production: **90**

REFERENCES

- 1) (MSc. advisor) **Ali Jahani, associate professor**, College of Environment, Karaj, Iran, Email: ajahani@ut.ac.ir
- 2) (MSc. advisor) **Nematollah Khorasani, professor**, Department of Environment, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran, Email: khorasan@ut.ac.ir
- 3) (Advisor) **Mazaher Moeinaddini, associate professor**, Department of Environment, College of Agriculture & Natural Resources, University of Tehran, Karaj, Iran, Email: moeinaddini@ut.ac.ir
- 4) (PhD. advisor) **Yunsoo Choi, associate professor**, Department of Earth and Atmospheric Sciences, University of Houston, Houston, USA, Email: ychoi6@uh.edu

ResearchGate: <https://www.researchgate.net/profile/Reyhaneh-Shams>

Google Scholar: <https://scholar.google.com/citations?user=qeZYiL0AAAAJ&hl>

Linkedin: <https://www.linkedin.com/in/reyhaneh-shams-7b3359213/>