

Farshad Hesamfar

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A Civil Engineering Ph.D. student in civil and environmental engineering, specializing in simulation-based multi-objective optimization, multi-dimensional management, and meta-heuristic algorithms, seeking to attain high levels of scientific and professional expertise to optimize complex systems and multi-dimensional problems, as well as explore and develop new approaches to make the development more sustainable.

Education

2019 - 2022

Master's Student of Environmental Engineering, School of Civil and Environmental Engineering, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.

Grade: 19.1 / 20 (GPA: 4 / 4)

Thesis title: "Equity-based optimal management of groundwater using a decision-making approach based on combined simulation-optimization"

2014 - 2018

Bachelor of Civil Engineering, K. N. Toosi University of Technology, Tehran, Iran.

Grade: 15.16 / 20 (GPA: 3 / 4)

Project title: "Optimal design of a four-story steel building"

2012

High School Diploma in Mathematics and Physics, Mofid High School, Tehran, Iran.

Grade: 19.62 / 20 (GPA: 4 / 4)

Publications and Research Experiences

- Two submitted Q1 journal articles under review (The first one is published):
 1. “Simulation-based multi-objective optimization framework for sustainable management of coastal aquifers in semi-arid regions,” published in Elsevier Journal of Environmental Management (Impact Factor: 8.91). (2023)
<https://doi.org/10.1016/j.jenvman.2023.117785>

Link: <https://www.sciencedirect.com/science/article/pii/S030147972300573X>

2. “Multi-dimensional management of coastal aquifers (Case study: Kish Island, Iran)” submitted in Elsevier Journal of Environmental Management (under minor revision).

* I am the first author of these two articles, with Dr. Hamed Ketabchi and Dr. Taghi Ebadi (my supervisors).

- Gathering data for the accepted Elsevier journal article “Cross sectional study of the top research topics in environmental science and engineering” published in Elsevier Journal of Results in Engineering. (2022)

<https://doi.org/10.1016/j.rineng.2022.100465>

- Two presented conference papers at the 20th national hydraulic conference (in Persian):
 1. A system dynamic model for freshwater lens evaluation in small islands (2021)
 2. A review of simulation models for groundwater resource management (2021)
- Final revisions of writing a book on seawater intrusion subject with my supervisor.

Educational Achievements

- The first rank among those admitted to AUT’s M.Sc. program in Civil and Environmental Engineering
- Course project of choice aimed at the grey water reuse of AUT sports complex for the Office of Sustainable Development to expand the campus green spaces
- Teaching assistant experience in Groundwaters
- Ranked 98th among more than 30,000 participants in M.Sc.

Entrance Exam held nationwide in 2019

- Achieving the 800th rank among more than 220,000 candidates in the National University Entrance Exam for mathematics and physics and gaining admission to one of the best universities in the country
- Ranked 13th in the national mathematics olympiad

Programming and Certificates

Programming Language: MATLAB

Microsoft Office package: Word, Excel

Software: GIS (Geographic Information System), GMS (Groundwater Modeling System), SUTRA USGS (A Model for Saturated-Unsaturated, Variable-Density Ground-Water Flow with Solute or Energy Transport), Tecplot 360

Languages

English: IELTS score: 7.5

Persian: Mother's tongue

Interests

Simulation-Optimization, Equity-efficiency trade-off, Sustainable management, Integrated planning and management, Multi-criteria decision-making, Mathematics, Numerical modelling, Soccer

Experiences

Development of multi-criteria decision-making framework for a real case study in Iran considering different aspects of efficiency, equity, energy consumption, and environmental preservation.

Development of a simulation-based multi-objective optimization framework using the integration of three evolutionary algorithms, MOPSO, NPGA, and MOPSO, capable of acquiring reliable solutions for many dimensional optimization problems.

Development of a simulation code for the operation of a hydroelectric reservoir with the aim of determining the production capacity of the power plant at a 90% reliability level.

Voluntary work at AUT Office of Sustainability.

Construction manager and supervisor in an 8-story building in Tehran.

Compilation of two construction participation contracts between the owners and the builder.

Supervising Engineer at Azad University, Science and Research Branch to build a new department.

Design of a 4-story steel structure building.

Design of a 5-story concrete structure building.