Morteza Imani

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St Morris, Adelaide, SA

PROFESSIONAL SUMMARY

Engineer with over 8 years of experience in hydraulic system modelling, process design, and applied research, currently in the final year of a PhD in Civil Engineering at the University of Adelaide. Skilled in Python, MATLAB, ArcGIS Pro, SQL Server, and Maximo, with expertise in simulation, data analysis, and GIS-based asset management. Experienced in developing numerical and spatial models to support decision-making in water and infrastructure systems, combining analytical rigour with practical engineering insight.

Software Skills

- **Programming**: Python, MATLAB
- **Asset management**: Maximo
- **Mapping Software:** Autocade, ArcGIS Pro
- **Database Software:** SQL Server

COMPETENCIES

- Tech-savvy and a fast learner of various software systems.
- Creative problem solver
- Enthusiastic, self-motivated and hardworking to ensure a quality outcome.

EDUCATION & QUALIFICATIONS

2023-… PhD in Civil Engineering, University of Adelaide, Adelaide, Australia
Thesis: “A Comprehensive Elastic Water Column Model for Water Distribution System Analysis”
2012-2014 M.Sc. in Nuclear Engineering, Shahid Beheshti University (SBU), Tehran, Iran
2007–2011 B.Sc. in Mechanical Engineering, Shahrood University of Technology, Shahrood, Iran.

ACHIEVEMENTS

- Recipient of University of Adelaide Research Scholarship, Top-up Scholarship (ARC Grant), Frank Perry and Adelaide Graduate Research School travel scholarship.
- Top 1% of participants in the Iranian nationwide university entrance exam for graduate studies, 2011.

WORK EXPERIENCE

- **University of Adelaide**, **Adelaide, Australia**, 2023 – present, part time.

  Position: Teaching Assistant and Laboratory Demonstrator

  - Demonstrate and supervise laboratory sessions for undergraduate civil engineering courses, including Advanced Civil Engineering Hydraulics, Civil Engineering Hydraulics, Water Resource Systems, and Construction Safety.
  - Provide hands-on guidance in experimental setup, data collection, and result interpretation to ensure students understand fundamental hydraulic and civil engineering principles.
  - Support course instructors by preparing lab materials, calibrating equipment, and maintaining safety standards in the Robin Hydraulics Laboratory.
  - Assist in grading reports and mentoring students in applying theoretical knowledge to practical hydraulic engineering problems.

- **Nuclear Science and technology Research institute**, 2017 - 2023

  Position: Senior process engineer

  - Designed and optimized gas centrifuge cascades for separation of xenon and tellurium isotopes used in radioisotope production.
  - Developed detailed Process Flow Diagrams (PFDs) and Piping and Instrumentation Diagrams (P&IDs) to support system design and safety documentation.
  - Conducted experimental testing and performance evaluation of gas centrifuge systems to validate design efficiency and separation accuracy.

- Collaborated in multidisciplinary teams to ensure compliance with process safety, mechanical integrity, and instrumentation standards.

➢ **Shahid Beheshti University (SBU), Tehran, Iran**, 2015 – 2023, part time

Position: Researcher

- Conducted research and simulation studies on gas centrifuge cascade systems for the separation of xenon and tellurium isotopes used in radioisotope production.
- Developed custom simulation code to model gas flow and pressure dynamics within interconnected pipeline networks of centrifuge systems.
- Published over 10 papers in national and international journals on stable isotope separation and gas centrifuge system modelling.

Publications

JOURNALS

1. **M. Imani**, A. Zecchin, W. Zeng M. Lambert (2025). Generalisation and Analysis of Elastic Water Column Model for Hydraulic Transient Analysis of Water Distribution Systems, *Water Resources Planning and Management*.
2. **M. Imani**, W. Zeng, A. Zecchin, M. Lambert (2025). Real-time Estimation of States and Unknown Boundary Conditions in Pressurized Pipeline Systems, Mechanical system and signal processing.
3. **M. Imani**, W. Zeng, A. Zecchin, M. Lambert (2025). Modal Analysis of Water Distribution Systems with the Elastic Water Column Model, under review in journal of Water Resources Research.

For a complete list of publications, please visit my Google Scholar profile:
https://scholar.google.com/citations?user=9FkpYN8AAAAJ&hl=en

CONFERENCES

1. **M. Imani**, A. Zecchin, W. Zeng, M. Lambert, "Elastic Water Column Model with Dynamic Elements: A Case Study," 21st Computing and Control for the Water Industry (CCWI 2025), September 2025, Sheffield, United Kingdom.
2. **M. Imani**, A. Zecchin, W. Zeng, M. Lambert, "State Estimation in Water Distribution Systems Using a High-Gain Observer Based on the EWCM," 1st IFAC Joint Conference on Computers, Cognition and Communication (J3C 2025), September 2025, Padova, Italy.

References

References available upon request.