Arash Naseri
Research Engineer, PhD., EIT

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SUMMARY

Results-driven EIT engineer eligible for P. Eng. registration, with a Ph.D. in Mechanical Engineering and over 10 years of cross-industry experience in chemical processes and thermofluidic systems. Proven expertise in experimental and modeling work, specializing in petrochemical and energy sectors. In-depth understanding of core process engineering principles, including chemical reactions, heat and mass transfer, thermodynamics, and fluid dynamics. Skilled in designing and constructing test equipment for thermochemical processes. Demonstrated ability to solve complex technical issues related to mechanical equipment, piping, and heat exchangers.

- 10+ years of research experience in academic and industrial labs, specializing in experimental and modeling work using Finite Element Stress Analysis and CFD software, leading to over 10 peer-reviewed publications.
- 10+ years of expertise in 3D modeling and mechanical design using SolidWorks and AutoCAD.
- 4+ years of experience in Mechatronic System Design, including integration of DAQ systems, control system programming, and monitoring using Python scripting, developing GUI using PyQT, and data analysis scripting.
- 3+ years of experience in selecting rotating equipment in compliance with international standards.

EXPERIENCE

2023–Present **University of Alberta-Innova Hydrogen Co.**   **EDMONTON, CA**
Senior Engineer Researcher| EIT
- Headed methane decarbonization experiments using a pyrolysis catalytic reactor.
- Engineered a catalytic feeder for accurate dosing and sizing of catalyst into the reactor.
- Conducted feasibility studies and developed intricate designs for upscaling the reactor.
- Engineered a monitoring and control system for catalytic reactors, integrating DAQ systems with thermocouples and pressure transducers for precise temperature and pressure control.
- Integrated PyQT and Python scripting for GUI development and real-time data acquisition, enhancing operational stability and efficiency while optimizing catalytic processes.
- Proficiently conducted detailed technical bid evaluations to optimize equipment selection.
- Streamlined reactor design through successful collaboration with diverse engineering teams.

2019 – 2022 **University of Alberta-Mechanical Engineering Department**   **EDMONTON, CA**
Graduate Researcher
- Innovated a black carbon measurement method that operates up to 3 times faster and offers up to 55% higher accuracy, setting a new benchmark in the field.
- Executed thorough analysis of particle characteristics, including size, mass, and morphology, yielding impactful results.
- Utilized machine learning for the automated categorization of carbonaceous particles, enabling insights that are 10 times faster and 200% more accurate.

2015 – 2018 **Petrochemical Industries Design and Engineering Company (PIDEC)**   **SHIRAZ, IRAN**
Rotating Equipment Package Engineer
- Engineered the design and procurement of 4 heavy-duty rotating equipment for the gas and petrochemical industries,ensuring compliance with API standards and project specifications.
- Successfully reviewed and prepared accurate mechanical data sheets, ensuring compliance.
- Developed concise Mechanical Data Sheets for vendor efficiency.
- Developed concise Mechanical Data Sheets, enhancing vendor communication and reducing response time by nearly 20%.
- Led multidisciplinary collaboration among diverse engineering disciplines, overseeing a team of 10 engineers, as a rotating equipment package engineer and coordinator.

2013-2017 **Shiraz University-Mechanical Engineering Department**   **SHIRAZ, IRAN**
Graduate Researcher

- Applied SolidWorks and AutoCAD for precise 3D modeling, enabling comprehensive CFD simulations focused on heat and mass transfer as well as particulate matter dynamics in indoor and outdoor environments.
- Conducted extensive CFD simulations, delving into the intricate details of particle dispersion. Executed advanced post-processing techniques to ensure presenting precise results.

Apr-Oct 2013 **Petrochemical Industries Design and Engineering Company (PIDEC)**   **SHIRAZ, IRAN**
Piping Stress Engineer Intern
- Contributed to design by creating precise piping layouts and isometric drawings using AutoCAD.
- Conducted stress analysis with SolidWorks and Abaqus finite element solver, ensuring structural integrity and adhering to industry standards.
- Automated advanced pipeline stress analysis using Python, reducing analysis time by 40% while maintaining the same level of accuracy.

EDUCATION

2019 – 2022 **UNIVERSITY OF ALBERTA**   **EDMONTON, CA**
*Doctor of Philosophy in Mechanical Engineering (**CGPA**:3.95, **Thesis**: ERA-Library)*
- Shortlisted as a finalist for the Canadian Society for Mechanical Engineering Gold Medal.
- Won Alberta Innovation Graduate Scholarship in Advanced Materials and Manufacturing Technologies.
- Awarded Alberta Excellence Graduate Student Scholarship.
- Achieved Carleton International Doctoral Excellence Program Award.

SKILLS

Modelling Software	CFD, COMSOL, Ansys Fluent, Abaqus, Revit, Star CCM+, SolidWorks, AutoCAD.
Programming Languages	Python, MATLAB, R, Bash, LATEX, C++
Engineering Standards	American Petroleum Institute (API): 617, 618, 612, 610, American Society of Mechanical Engineers (ASME): B31.3, 31.4, and 31.8

Leadership and Involvement

2020–Present **Organizational Reviews**
Active Contributor
- Demonstrated a collaborative spirit through active involvement in organizational reviews for prestigious journals, and contributed insights and expertise to enhance the quality of academic publications.

2018 – 2020 **Mechanical Engineering Graduate Students Association (MEGSA)**   **EDMONTON, CA**
Vice President of Events
- Showcased leadership and organizational prowess, contributing to MEGSA's success.
- Headed event planning for various activities, fostering collaboration among students.

2019 – 2020 **Iranian Students' Association of the University of Alberta (ISAUA)**   **EDMONTON, CA**
Executive Committee Member
- Coordinated Flight PS752 memorial as executive member, showcasing commitment to community engagement.

2019–2022 **University of Alberta Fire Warden**   **EDMONTON, CA**
Executive Member
- Ensured mechanical building safety, demonstrating a strong sense of responsibility.
- Demonstrated dedication to the well-being of the university community.

Spring 2023 **Combustion Institute Canadian Section (CICS) Conference**   **EDMONTON, CA**
Executive Member
- Organized the conference, showcasing strong organizational skills and attention to detail.
- Coordinated activities with a team of 15 individuals to ensure the success of the event.