Mehrad Ansari

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Summary: A detail-oriented chemical engineer with a strong background in computational modeling, data science and programming supported by research and professional work experience in process design and optimization.

Education

Doctor of Philosophy in Chemical Engineering (August 2023)
University of Rochester, Rochester, NY GPA: 3.8

Master of Science in Chemical/Environmental Engineering (May 2018)
Missouri University of Science and Technology (UMR), Rolla, MO GPA: 3.8

Publication: Thesis: *"Numerical Modeling of Capillary-driven Flow in Open Microchannels: An Implication of Optimized Wicking Fabric Design""*

Bachelor of Science in Chemical Engineering (July 2015)
University of Tehran, Iran GPA: 3.4

Publication: Thesis: *"Experimental Setup and Optimization for Electro-catalytical Generation of Hydroxyl Radicals in Wastewater Treatment"*

Work Experience and Practical Training

Research Assistant (2019 - present)
University of Rochester, Rochester, NY

- Developed a plugin with TensorFlow GPU-accelerated operations combined with HOOMD-Blue molecular dynamics simulation engine (HOOMD-TF)
- Developed a maximum entropy biasing epidemiology model to study COVID-19 trajectory in NY state
- Developed a web-app for gelator transparency classification using Kernel ridge regression with TensorFlow.JS
- Developed an automated module on a Raspberry-Pi for real-time monitoring of HPC using Python, JS and HTML
- Implemented finite difference analysis in python to study 2D shallow water dynamics
- Implemented Monte Carlo simulations in MATALB to study evolution of spin configurations of a ferromagnet using the Ising model

Lead CFD Analyst at Missouri S&T Solar Car Design Team (2016 - 2018)
Missouri University of Science and Technology, Rolla, MO

- Developed validated wind tunnel simulations in STAR-CCM+ for aerodynamic optimization of the solar car
- Improved aerodynamic design efficiency prior to manufacturing

Research Assistant (2016 - 2018)
Missouri University of Science and Technology, Rolla, MO

- Numerical modeling of multiphase flow in open microfluidics using ANSYS and STAR-CCM +
- Data analysis and model verification
- Reduced simulation run-time by developing an algorithm for Adaptive Mesh Refinement (AMR)
- Increased solver's stability by developing an algorithm for Adaptive Time Step

Manufacturing Process Modeling Intern (May-Dec 2017)
The Goodyear Tire & Rubber Company, Akron, OH

- Phase-change heat transfer modeling and optimization of tire vulcanization process in ANSYS
- Model verification based on plant data and analytical solution
- Utilized assets more efficiently through MATLAB post processing and automating the simulation process using OPTIMUS
- Provided faster simulation results using Adaptive Mesh Refinement and High-Performance Computing
- GUI development and coupling ANSYS with MATLAB for time-effective post processing

Teaching Assistant of "Applied Numerical Methods in CFD" (Jan-May 2017)
Missouri University of Science and Technology, Rolla, MO

- Lectured on Finite Difference Analysis in fluid dynamics, heat and mass transfer using MATLAB
- Organized CFD and programming workshops for ANSYS and Star-CCM +

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Work Experience and Practical Training

Teaching Assistant of "Process Control" (2014-2015)
University of Tehran, Iran

- Tutored undergraduate students in process control using MATLAB and VisSim

Engineering Intern (July-Sept 2014)
Emden-Leer University of Applied Sciences, Germany

- Experimental optimization in advanced oxidation process (AOP) for wastewater treatment

President of IAESTE Iran (Apr 2013-July 2014)
(International Association for the Exchange of Students for Technical Experience)

- Led a team of college students that prepared technical internships internationally

MATLAB Programming Tutor (July-Sept 2011)
University of Tehran, Iran

- Organized advanced programming workshops for engineering students

Computer Skills

MATLAB	STAR-CCM+	ANSYS	SolidWorks
OpenFOAM	COMSOL Multi-Physics	Polymath	Mathematica
ASPEN	AUTOCAD	Mathcad	JavaScript
CATIA	OPTIMUS	Python	HTML

Honors and Awards

Earl W. Costich Graduate Fellowship (May 2020)
Department of Chemical Engineering, University of Rochester

First place winner: 2017 Mike Alizadeh Scholarship (Aug 2017)
American Society of Civil Engineers (ASCE)

Recognized reviewer: Journal of Environmental Chemical Engineering (May 2016)

First place winner MATLAB programming contest (Mar 2014)
"University of Sharif Computer-Aided Chemical Engineering Contest (SC_3)"
Sharif University of Technology, Iran

Memberships and Volunteer Work

American Institute of Chemical Engineers (AIChE) (July 2016-Present)

Representative member of Scientific Committee in "15th Iranian National Congress of Chemical Engineering (ICHEC)" (Jan-Mar 2015)
University of Tehran

Head and representative member of scientific committee in "Underground Oil and Gas Storage (UGOS) Conference & Exhibition" (Jan-May 2014)
University of Tehran

Certificates

"Optimization Techniques in Chemical Engineering" (Feb 2016)
Missouri University of Science and Technology

"Theory of Piping and Pipeline Designs" (Sept 2012)
Tehran Institute of Technology, Iran