

# Mehrad Ansari

[Mehrad.Ansari@rochester.edu](mailto:Mehrad.Ansari@rochester.edu) [GitHub](#) [YouTube](#) [Personal Page](#)

**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

University of Rochester, Rochester, NY

(August 2023)

GPA: 3.8

### Master of Science in Chemical/Environmental Engineering

Missouri University of Science and Technology (UMR), Rolla, MO

(May 2018)

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

University of Tehran, Iran

(July 2015)

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

University of Rochester, Rochester, NY

(2019 - present)

- 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 MATLAB to study evolution of spin configurations of a ferromagnet using the Ising model

### Lead CFD Analyst at Missouri S&T Solar Car Design Team

Missouri University of Science and Technology, Rolla, MO

(2016 - 2018)

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

### Research Assistant

Missouri University of Science and Technology, Rolla, MO

(2016 - 2018)

- 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

The Goodyear Tire & Rubber Company, Akron, OH

(May-Dec 2017)

- 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”

Missouri University of Science and Technology, Rolla, MO

(Jan-May 2017)

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

# Mehrad Ansari

[Mehrad.Ansari@rochester.edu](mailto:Mehrad.Ansari@rochester.edu) [GitHub](#) [YouTube](#) [Personal Page](#)

## 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<sub>3</sub>)”*

*Sharif University of Technology, Iran*

## Memberships and Volunteer Work

American Institute of Chemical Engineers (AIChE)

(July 2016-Present)

Representative member of Scientific Committee in “15<sup>th</sup> 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*