AMIRHOSSEIN ALIVANDLAI

+98 (911) 630 - 0135 ◇ Tehran, Iran
Gmail ◇ LinkedIn ◇ Personal Website

EDUCATION

M.Sc. in Chemical Engineering - Separation Processes, Sharif University of Technology 2020-2023
GPA: 3.61 of 4.00 (16.01 of 20)
Thesis: Hydrodynamic Analysis of The Motion of Particles in a Binary Bubbling Fluidized Bed using Markov Chains Method [Supervisor: Dr. Fotovat]

B.Sc. in Chemical Engineering, Iran University of Science and Technology 2015-2019
GPA: 3.15 of 4.00 (15.78 of 20)
Thesis: Design and Simulation of Dehydration Units [Supervisor: Dr. Shahhosseini]

RESEARCH INTERESTS

- Parallel Computing, Scientific Machine Learning, and Application of Machine Learning Algorithms in Chemical Engineering
- Developing Frameworks and Softwares for Chemical Engineering Problem-Solving
- Reinforcement Learning (RL), Operations Research (OR), Decision-Making and Optimization
- Statistical and Numerical Analysis and Computation
- Computational Fluid Mechanics Simulation (CFD) Fluidized Beds, Multiphase Flow, and Particle Tracking
- Physical, Quantum, and Computational Chemistry

PUBLICATIONS

- Zahra Sadeghian, Amirhossein Alivandi, "Vaccum Membrane Distillation - Novel Methods in Practice and Modeling" [to be submitted]
- Amirhossein Alivandi, Farzam Fotovat, "Markov Chains Modeling of Large Particle Motion in Binary Bubbling Fluidized Beds" [in preparation]

RESEARCH EXPERIENCE

Markov Chain Modeling of Large Particle Motion in a Binary Bubbling Fluidized Bed using MATLAB Sharif University of Technology, Dr. Fotovat 2022-2023

Machine Learning Modeling of Vaccum Membrane Distillation using Python Petroleum Industry Institute, Dr. Sadeghian 2022-2023

Classification of Robusta and Arabica Coffee Beans using PLS-DA method, NIR Spectroscopy, and MATLAB Sharif University of Technology, Dr. Parastar 2022

Simulation of Propylene Glycol Production using Aspen HYSYS Sharif University of Technology, Dr. Taherinia 2022

Machine Learning Classification of Particles in a Binary Bubbling Fluidized Beds using MATLAB and Python Sharif University of Technology, Dr. Fotovat 2021-2022

Simulation and Optimization of Axial-Flow and Radial-Flow Reactors for dehydrogenation of Ethylbenzene into Styrene based on a Heterogeneous Kinetic Model using MATLAB Sharif University of Technology, Dr. Khorashe 2021-2022

Design of Experiment and Optimization of Phenol Extraction parameters in a Liquid Emulsion Membrane using Fractional Factorial Design and Minitab Sharif University of Technology, Dr. Fotovat 2021

2D Simulation of Gas-Solid Canonical Fluidized Beds and Bubble Behavior Analysis using ANSYS Fluent and MATLAB Sharif University of Technology, Dr. Molaei 2021

Simulation of Particle Aggregation using ANSYS Fluent Rahneshan Competition for Exceptional Students, Dr. Riahifar 2020-2021

Design and Simulation of Dehydration unit using Molecular Sieves Unit using Aspen HYSYS and Aspen Adsorption Iran University of Science and Technology, Dr. Shahhosseini 2019

AWARDS AND HONORS

- Ranked within the 1 percent among more than 39000 participants in Iranian University Entrance Exam for Bachelor's Degree [407/39500] 2015
- Ranked within the 0.2 percent among more than 6500 participants in Iranian University Entrance Exam for Master's degree in Chemical Engineering [14/6604] 2020
- Ranked 1st Group in Energy Section of Rahneshan Competition on the subject of "Particle Aggregation Simulation" 2020-2021
- Government Scholarship to cover full tuition for the master's program, SUT, Tehran, Iran 2020-2023
- Government Scholarship to cover full tuition for the bachelor's program, IUST, Tehran, Iran 2015-2019

TEACHING EXPERIENCE

Please refer to my personal Website

WORK EXPERIENCE

Please refer to my personal Website

CERTIFICATES

Please refer to my personal Website

LANGUAGE PROFICIENCY

Academic IELTS

- Total Score : 7.5 [Taken on October 13th]
- Each Score : L:7.5, R:8.5, W:6.5, S:7.0

General GRE

- Total Score : 317 [Taken on October 27th]
- Each Score : V:152, Q:165, W:3.5

Persian and Azerbaijani Native - Maternal Language

SELECTED COURSES

Please refer to my personal Website for Detailed List of Courses

SKILLS

Proficient

- Advanced Numerical, Statistical, and Mathematical Analysis
  Concepts : Approximations and Round-Off Errors - Truncation Errors and The Taylor Series - Roots of Equations - Linear Algebra - Optimization - Curve Fitting - Numerical Differentiation and Integration - Ordinary Differential Equations (ODEs) - Partial Differential Equations (PDEs) - Time-Series Analysis - Random Number Generation - Probability and Statistics - Variance-Reduction Techniques
  Programming Languages : Python, MATLAB, Julia, R

- Machine Learning and Artificial Intelligence [Both the Mathematical and Statistics Foundations and Programming Codes]
  Concepts : Unsupervised Learning - Supervised Learning - Deep Learning - Reinforcement Learning - Convolutional Neural Networks - Recurrent Neural Networks - PCA
  Programming Languages : Python, Julia, MATLAB
- Aspen HYSYS
- MATLAB
- Python
  Libraries : NumPy, SciPy, Pandas, Matplotlib, Scikit-Learn, PyTorch, Keras, Theano
- Mendeley

Competent

- ANSYS Fluent
  Concepts : Fluid Mechanics Simulations, Heat Transfer Simulations, Mass Transfer Simulations, Multiphase Flow Simulations, Reaction Systems Simulation
- COMSOL
- OpenFOAM
- CFD
  Concepts : FDM Method, FVM Method, Discretization, Algorithms, High-Resolution Schemes, Gradient Computation, DEM Method, TFM Method, DNS Methods
  Software : ANSYS Fluent, COMSOL, OpenFOAM
- EndNote
- Minitab
- LaTeX
- Julia
- Git

Beginner

- C++

REFERENCES

Upon Request