

Saleh Shamloo Ahmadi

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EDUCATION

Sharif University of Technology, Tehran, Iran

Bachelor of Physics

Fall 2019 – Present (Expected February 2024)

GPA: 18.75/20.00 (Ranked 5th out of 55 in class)

RESEARCH INTERESTS

Computational Physics, Simulation of Materials, Quantum Technology, Condensed Matter Physics.

RESEARCH EXPERIENCE

Monte Carlo Simulation of Polygonal Colloids in Various Geometries

Summer 2022 – Present

Supervisor: Prof. Mohammad Reza Ejtehadi

Sharif University of Technology

- Writing custom code to allow for arbitrary geometries (HOOMD-blue, which is the package used for this kind of simulation, has limited ability for adding constraints).
- Utilizing CUDA GPU acceleration.

Machine Learning Prediction Model for the Exfoliation of Layered Materials into Nanosheets

Summer 2022 – Fall 2022

Supervisor: Dr. Naimeh Naseri

Sharif University of Technology

- Worked in the lab to gather testing data.
- Created the samples using bath sonication and analyzing the sample with a UV-Vis test.

Lab Assistant in the Health and Energy Lab

Winter 2022 – Fall 2022

Supervisors: Dr. Naimeh Naseri, Mr. Nikan Afsahi

Sharif University of Technology

- Trained under the supervision of a master's student.
- Helped with micro-supercapacitor projects.

ACHIEVEMENTS

Accepted into Iran's National Elites Foundation (Bonyad-e Melli-e Nokhbegan)

Fall 2022

Ranked **8th** in the Iranian Universities Physics Olympiad

Summer 2022

Ranked in the **top 0.2% (284th out of 150666)** in the mathematics and physics Konkour (Iranian universities entrance exam) and **1st (out of 139131)** in the foreign language Konkour

Summer 2019

Awarded the **bronze medal** in the Iranian Physics Olympiad

Summer 2018

PROJECTS

Simulating Electrodynamical Systems using the FDTD Method | [GitHub repository](#)

Spring 2021

- Supervisor: Prof. Mahmud Bahmanabadi
- Electromagnetism II course project

Measurement of Short Particle Lifetimes in Particle Physics | [Documents](#)

Spring 2022

- Supervisor: Dr. Amin Faraji Astaneh
- Particle Physics course project (joint work with Hossein Hatamnia)
- Used CERN tutorial data to demonstrate one of the methods.

Trajectory of Supersonic Projectile with Variable Air Resistance | [GitHub repository](#)

Fall 2020

- Supervisor: Prof. Sohrab Rahvar
- Analytical Mechanics I course project

Simulating Wheel-Pendulum System with Lagrangian Mechanics | [GitHub repository](#)

Winter 2021

- Supervisor: Prof. Sohrab Rahvar
- Analytical Mechanics II course project

COURSES

Computer Simulations in Physics

Fall 2021

Prof. Mohammad Reza Ejtehad

Grade: 20.0/20.0

- Notable simulation include molecular dynamics, the Ising model (Using the Metropolis Monte Carlo method), percolation (using the Hoshen-Kopelman algorithm), and diffusion-limited aggregation. [GitHub repository](#).

Nonlinear Dynamics and Chaos

Spring 2023

Dr. Saman Moghimi Araghi

Grade: 19.5/20.0

- [Assignments GitHub repository](#). Textbook: Nonlinear Dynamics and Chaos by Steven H. Strogatz
- Reproduced the result of [this paper](#) for the course project (joint work with Erfan Rahbari).

Quantum Computation and Information I | [Webpage](#)

Spring 2023

Prof. Vahid Karimipour

Grade: 17.6/20.0

- Graduate course. Aimed to be a comprehensive introduction to the theory behind quantum computing and quantum information technology.
- Presented a literature review of quantum simulation at the end of the course.

Data Science and HPC | [Webpage](#)

Spring 2022

Dr. Hamidreza Arian

Grade: 20.0/20.0

- Offered by the Graduate School of Management and Economics.
- The syllabus included supervised learning, clustering methods, and parallel computing. [GitHub repository](#)

Advanced Programming

Spring 2021

Dr. Mohammad Amin Fazli

Grade: 20.0/20.0

- Programming Language: Java
- The course project was developing a Yu-Gi-Oh game in teams of 3. [Course project GitHub repository](#)
- The syllabus included object oriented programming, graphical user interface (with JavaFX), client-server and peer-to-peer (P2P) networks, version control with Git, and regex. [Assignments GitHub repository](#)

Electronics I

Fall 2020

Dr. Seyed-Nader Seyed-Reihani

Grade: 18.5/20.0

- Built a simple sound amplifier system for the course project. The project documents can be found [here](#).
- Textbook: Basic Electronics for Scientists and Engineers by Dennis L. Eggleston

Astronomy Lab

Summer 2023

Dr. Reza Rezaei

Grade: 20.0/20.0

- Performed 9 amateur astronomy experiments in teams of 3, involving observations and intensive image processing. [GitHub repository](#).

TEACHING EXPERIENCE

Teaching Assistant, Computer Simulations in Physics

Spring 2023

Prof. Mohammad Reza Ejtehad

Sharif University of Technology

Teaching Assistant, Introductory Programming (in C)

Spring 2021

Dr. Reza Fakouri

Sharif University of Technology

TECHNICAL SKILLS

Programming Languages

Julia, Python, C/C++, Java, Octave/MATLAB, Mathematica

Tools & Frameworks

Git, CUDA, Parallel Computing, Machine Learning, L^AT_EX, Inkscape

Machine Learning

scikit-learn, TensorFlow, Flux.jl, Keras

LANGUAGE

English Fluent (C1~C2 CEFR Level)

TOEFL Score: 111/120 (Reading: 30/30, Listening: 29/30, Speaking: 22/30, Writing: 30/30)

Persian Native

COMMUNITY & LEADERSHIP

Head of Translation | [Webpage](#)

Zharfa Scientific Community

August 2021 – September 2022

Sharif University of Technology

- Translated parts of The Feynman Lectures on Physics (license for free electronic publication secured from The eFLP Group)

Member of the Board of Directors | [Website](#)

Zharfa Scientific Community

September 2021 – September 2022

Sharif University of Technology

Member of the Lambda Study Circle | [Webpage](#)

Quanta Study Circles

February 2020 – Present

Sharif University of Technology

REFERENCES

Prof. Mohammad Reza Ejtehadi

Physics Department, Sharif University of Technology

- Email: ejtehadi@sharif.edu, reza.ejtehadi@gmail.com
- Webpage: softmatter.physics.sharif.edu

Dr. Naeimeh Naseri

Physics Department, Sharif University of Technology

- Email: naseri@sharif.edu, naseri1361@yahoo.com
- Webpage: physics.sharif.edu/~naseri

Dr. Saman Moghimi Araghi

Physics Department, Sharif University of Technology

- Email: samanimi@sharif.edu, samanimi@gmail.com
- Webpage: physics.sharif.edu/~samanimi