

Mohammad Sherazi

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EDUCATION

George Mason University

B.S., Physics, Minor in Computer Science

Fairfax, VA

Aug. 2020 - Dec. 2024

- **Relevant Coursework:** Object-oriented Programming, Data Structures, Analysis of Algorithms, Numerical Analysis, Mathematical Methods of Physics, Electromagnetic Theory, Quantum Mechanics I & II, Special & General Relativity, Computer Simulation in Astronomy, Waves & Optics, Senior Laboratory in Modern Physics
- **Honors:** Learning Assistant Scholarship
- **Organizations/Leadership:** Physics and Astronomy Society at George Mason University (Officer), Society of Physics Students, Data Science and Computational Society

RESEARCH EXPERIENCE

Undergraduate Research Assistant

George Mason University Dept. of Chemistry & Biochemistry

Fairfax, VA

Jan. 2023 - Present

- Utilizing variational quantum circuits to develop algorithms for simulation of quantum dynamical processes critical to the function of semiconductors and solar cells (e.g. electron transport, proton migration, exciton transfer)
- Modeling of physical phenomena using quantum computational tools such as Qiskit, used Hopper, the George Mason University supercomputer to carry out classical simulations
- Using Python and associated scientific computing libraries to conduct simulations and write programs to perform mathematical operations such as tensor decomposition, as well as to implement techniques from machine learning, such as optimization algorithms (e.g. gradient descent)

WORK EXPERIENCE

Undergraduate Learning Assistant

George Mason University Dept. of Physics & Astronomy

Fairfax, VA

August 2022 - Present

- Assisted students in University Physics II (calculus-based) and College Physics II (algebra-based)
- Topics of study included electricity, magnetism, optics, nuclear physics, atomic physics, RC/RL/LC circuits, and electromagnetic waves/radiation.
- Gave a poster presentation at the conclusion of the Fall 2022 semester. The presentation included a statistical analysis of the efficacy of having learning assistants present in introductory physics courses, as well as what problems students face the most while learning topics such as Newtonian mechanics and electromagnetism.

Software Engineering Intern

Express Technology Consultants

Alexandria, VA

May 2021 - August 2021

- Built Python applet designed to allow employees of a company to submit their working hours
- Regularly utilized Git Bash, GitHub, Docker, ERPNext, and PostCSS
- Programmed in Python, HTML, CSS, and JavaScript through the duration of the applet project

TECHNICAL SKILLS

Programming Languages: Java, Python, C, C++, MATLAB, R, HTML/CSS

Frameworks: React, Node.js, JUnit

Developer Tools: Git Bash, GitHub, Docker, PostCSS

Libraries/Packages: Qiskit, NumPy, SciPy, pandas, Matplotlib

General Skills: Modeling & Simulation (Orbital Mechanics/Dynamics, Quantum Chemistry), Computer-aided Design (AutoCAD, SolidWorks), Numerical Methods, Optimization Techniques/Algorithms, Technical Writing/Presentations

REFERENCES

Dr. Fei Wang, Research Advisor, fwang22@gmu.edu

Dr. Benjamin Dreyfus, Learning Assistant Coordinator, bdreyfu2@gmu.edu

Mr. Umer Hashimi, Former Supervisor, Express Technology Consultants, umer.hashimi@etcsquad.com