Dhanvi Bharadwaj

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Education

University of Wisconsin-Madison
Bachelor of Science in Physics, Minor in Data Science — Sept. 2020 – May 2024
Cumulative GPA: 3.92/4.00
Relevant Coursework: Quantum Mechanics, Linear Algebra, Differential Equations, Machine Learning, Data Structures & Algorithms, Statistics & Probability, Computational Physics

Technical Skills

Languages: Python, C++, MATLAB, Wolfram, R, SQL, HTML
Libraries: Qiskit, Tensorflow, SciPy, Scikit-learn, NumPy, Matplotlib, Pandas
Software: Jupyter, Git, Power BI, Excel, Photoshop, Premier Pro
Related Programs: Qiskit Summer School 2022, CQN Winter School 2023: Quantum Networks, MIT iQuHACK 2023

Experience

Undergraduate Research Assistant — Sept. 2020 – Present
Thevamaran Lab — Madison,Wisconsin

- Utilized Python to implement curve fitting techniques that corrected for strain-overshoot in viscoelastic relaxation experiments, which increased the accuracy of dynamic moduli calculations by 26%
- Collaborated with researchers to perform data analysis that identified an opportunity to reduce noise from resonance effect on average by 32%
- Investigated the viscoelastic properties of vertically aligned carbon nanotubes (VACNT) across broad frequency and amplitude ranges using dynamic mechanical analyzer

Qiskit Global Summer School Student — June 2022 – July 2022
IBM — Cleveland,Ohio

- Completed all graded lab work assignments with a final cumulative score of 100%, demonstrating applied understanding of and comfort with Quantum Simulations using Qiskit.
- Simulated a Quantum Spin-1/2 model and achieved a state tomography fidelity of 0.89 on the IBM Manila Quantum Computer
- Utilized NISQ hardware to conduct Pauli Trotter Evolution experiments with Quantum Circuits

Projects

Quantum Key Distributor

- Developed a framework to facilitate secure communication between quantum computers using the BB84 protocol
- Implemented encryption techniques under symmetric key cryptography using Qiskit

Quantum Password Generator

- Built a password generator using Qiskit to produce a random 16 character alphanumeric string
- Incorporated non-deterministic algorithms to increase password security for 50+ devices

NBA MVP Predictor

- Programmed a machine learning model using Python and R to accurately predict 84% of all NBA MVPs including the 2021-22 season award winner
- Utilized Random Forest, LightGBM, and XGBoost regression frameworks for data analysis

Honors & Awards

- University of Wisconsin-Madison Dean's List - Fall 2020, 2021, 2022 ; Spring 2021,2022
- Academic Merit Award for securing 99th percentile in All India Secondary School Examination among 1.1 million candidates (2020)