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Personal Website

Jeffrey Li B.A.Sc Engineering Physics UofT

Summary

Hi! I am Jeffrey, an undergraduate Engineering Science student at the University of Toronto pursuing a specialization in Engineering Physics. I am interested in Quantum Computing, Quantum Information, and Machine learning.

Education

Engineering Science, University of Toronto Toronto, Canada
B.A.Sc Engineering Physics 2023 - 2028 *(expected)*
CGPA: 3.9

Skills

Languages: Java, Python, Matlab, C/C++, R, LaTeX
Libraries: Scipy, OpenCV, Pandas, Qiskit, Pytorch, PennyLane
Certificates: IBM Basics of Quantum Information, Qiskit FallFest 2023
Technologies: COMSOL, CAD, Arduino, PCB Design, Power tools

Publications & Posters

1. Chen,H., **Li,J.**,(Nov. 30, 2023 - March 3, 2024) *Denoising CGI Renderings using Deep Learning*,CUCAI 2024 , Kingston , ON, 2024. [Paper Link]
2. Li,J. Braverman,B.,(Aug 23, 2024) *Low-Noise, Vibration Minimized Optical Shutter Using DC Brushed Motor*, UNERD 2024, Toronto, On, 2024. [Poster Link]

Experiences

Quantum Information Research Intern | Braverman Lab, UofT 2024.05 - Present
- Simulated Hermite-Gaussian beam propagation in spatial filter system.
- Optimized filter properties to achieve an output mode fidelity of 95%.
- Simulated light propagation in disordered optical cavities with COMSOL
- Programmed a FNN to predict output wavelength from the disordered optical cavities with an error of 1.2 nm.
- Designed a low-vibration optical shutter achieving an 8 ms shutter period.
[`Scipy / COMSOL / Pytorch`]

UTMIST QuDiffuse Project Lead | UTMIST, UofT 2024.09 - Present
- QuDiffuse: Accelerating Diffusion model using Quantum Annealer.
- Applied D-wave Quantum Annealer on Denoising Diffusion probablistic Model
[`Pytorch / D-Wave`]

UTMIST Denoising Project Developer | UTMIST, UofT Link 2023.09 - 2024.05
- Denoising - denoise real-time Monte Carlo rendering with deep learning.
- Implemented a GAN-Auxiliary Buffer encoder hybrid model to improve denoising efficiency, reducing rendering convergence time significantly.
[`Pytorch / PyMC4`]

Research Supervisor - IYPT Canadian Physics Camp | IYPT 2024.05 - 2024.08
- Mentored Canada's National Physics Team to win Bronze at the 2024 International Young Physicists' Tournament.
- Organized the National Camp, developing experimental/theoretical guidelines and delivering undergraduate-level physics lectures.
[`Matlab / COMSOL`]

Awards and Honors

- **ESROP-UofT Recipient** - $ 7000 research grant 2024.05
- **Dean's Honour List**, Applied Science and Engineering UofT 2024.05
- **Silver Medal**, Online International Young Physicist Tournament(O-IYPT) 2022.07
- **2 x Top 20**, Sir Isaac Newton's Physics Exam 2022.04, 2023.04