Choong Zheng Yang
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Singaporean

Education

Nanyang Technological University Singapore — Singapore
School of Physical and Mathematical Sciences — *Aug 2020 - May 2024*

- CN Yang Scholars Programme, Dean's List for Academic Year 2020/2021
- Bachelor of Science in Physics and Applied Physics
- Expected Honours with Highest Distinction (CGPA 4.91/5.00)

Relevant Courses: Linear Algebra, Vector Calculus, and Differential Equations, Introduction to Data Science and Artificial Intelligence, Introduction to Complex Methods, Quantum Mechanics

University of Edinburgh — United Kingdom
Semester Exchange — *Jan 2023 - May 2023*

- Gained new perspectives and insights into Scottish history and its connections with the Enlightenment

Relevant Courses: Financial Mathematics, Computational Physics, Graduate Classical Electrodynamics

Relevant Skills

Programming: Python (pandas, numpy, matplotlib), Flask, Tensorflow, R, Linux, bash, Excel VBA, web crawling
Digital: Adobe Premiere Pro, Photoshop, LaTeX, Microsoft Office tools, Bootstrap, Canva
Languages: Proficient in English and Chinese

Academic Projects and Experiences

Astignes Capital Asia — Singapore
Quantitative Development Intern — *May 2022 - Aug 2022*

- Developed a risk regime indicator in Python using correlations between FX implied vols, experimenting with methods such as Hidden Markov Models to build statistical models for regime transitions, improving risk awareness.
- Translated regime transition information into a toy trading strategy by writing and training Genetic Algorithms, exploring a parameter space of $\sim 10^{12}$. Quantified strategy P&L and volatility for trading operations.
- Designed, maintained, and deployed an in-house dashboard in Plotly Dash for data visualisation with automatic updates, enhancing user interactivity for data exploration and conducting diagnostic checks.

Making and Tinkering, NTU — Singapore
Summer Project — *May 2021 - Aug 2021*

- Built a remote-controlled single cell-counting optical microscope using Python with automated 3D motion.
- Implemented and validated a machine vision pipeline, attaining over 90% accuracy in synthetic and real-life tests.
- Deployed a Flask web front-end interface on a Raspberry Pi. Project blog: blogs.ntu.edu.sg/ps9888-2021-g18

Earth Observatory of Singapore, NTU — Singapore
Research Assistant — *Dec 2020 - May 2022*

- Measured the detection accuracy of a pre-trained Convolutional Neural Network (CNN) for time-domain seismic signals using Monte Carlo methods. Designed a processing pipeline, improving detection accuracy to 95%.
- Automated the processing of $\sim$100 TB of raw data using a super-computing cluster in Python, detecting over 6000 robust micro-earthquake candidates over 1.5 years.
- Applied statistical techniques, validated micro-earthquake re-locations to $\sim$1 km (95% CL) with bootstrap methods, computing a power-law scaling exponent of ~ 1. Github: github.com/zhengyang-c/cy1400-eqt

CN Yang Scholars' Club, NTU — Singapore
Peer Mentoring Programme — *Aug 2021 - Aug 2023*

- Tutored over 20 students for first-year accelerated Math and Physics courses, improving subject understanding.
- Wrote and edited a comprehensive survey of mathematical methods for first-year accelerated Physics.

Press and Publications Subcommittee Director — *Aug 2020 - Aug 2021*

- Coordinated a team of three subcommittee members. Maintained and delivered media for club operations.
- Enhanced the production value of club events through photography, graphic and video editing.

Honours

Princeton University Physics Challenge - Top 10 / Hon. Mention — *2017*
Best Science Student Award, Hwa Chong Institution (College) — *2016*
Singapore Physics and Chemistry Olympiad - Silver — *2016*

Interests

Musical: Licentiate of the Trinity College of London with Distinction for Piano Performance
Others: Reading non-fiction, hiking, writing poetry.