Looi Shen Wei Brendan

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As an Applied Mathematics graduate from Colorado State University, I strive to leverage mathematics and programming to tackle complex challenges in today's digital landscape. My focus: high-performance computing and algorithm optimization across diverse technology industries.

Education

Colorado State University — **Fort Collins, CO, United States**
Bachelor of Science in Mathematics, Concentration in Applied Mathematics – Computer Science — *Graduated May 2021*

- **Relevant Mathematics Coursework:** Fourier and Wavelet Analysis, Numerical Analysis, Abstract Algebra, Ordinary/Partial Differential Equations, Advanced Calculus of One Variable, Projects in Applied Mathematics
- **Relevant Computer Science Coursework:** Software Development, Information and Coding Theory, Post-Quantum Cryptography, Mathematics of Information Security, Data Structures, Discrete Structures

Technical Skills

- **Programming Languages, Frameworks & Tools:**
  - Languages: Bash, **C**, **C#**, **C++**, **mySQL**, Matlab, **Maple**, Java, JavaScript, **Python**, LaTeX, Haskell, Ada 95, R, PHP
  - Frameworks & Tools: NumPy, Websocket, Numba, HDF5, PyTables, Jupyter, Git, Docker, Powershell, EC & DLP cryptosystems
- **Mathematical Skills:**
  - Able to recognize shifting priorities within theoretical problems and their applications
  - Advanced ability to utilize software to solve problems within the scope of mathematics
  - Quickly and efficiently apply different concepts within mathematics to real-world problems

Work Experience

Software Developer — **Penang, Malaysia**
Onboard Technologies – Python & C++ Development Team — *July 2022 – Present*

- Develop and maintain a high-frequency trading platform for large-scale, low-latency daily transaction volumes
- Anticipate changes in execution platforms and proactively optimize software architecture to ensure continuous, smooth improvements and maintain a competitive edge
- Interface actively with stock exchange APIs, discovering and reporting bugs, contributing towards improvements, and implementing redundancy measures to ensure efficient and reliable connectivity
- Design and fortify mission-critical trading system features, facilitate market expansions, and swiftly resolve live trading issues. Employ automated testing for regression and error detection, implement fail-over protocols to ensure high stability during high-volume trading
- Engage in key areas of the tech stack: market data, book-building, order management, IPC, monitoring, alerting, and UI

Junior Software Developer — **Kuala Lumpur, Malaysia**
Stampede Solution – C# Volare Development Team — *July 2021 – July 2022*

- Improved and optimized Volare, the main FinTech product, to decrease workflow ineffeciencies for users
- Identified and mitigated multiple complex, critical flaws within the full product stack
- Worked in C# with mySQL, Vicidial, Ozeki, bash, PHP and several internal libraries

Projects & Research Experience

Clebsch Map Modeling of Cubic Surfaces — **Colorado State University**
Department of Mathematics – Dr. Anton Betten — *Jan 2020 – May 2020*

- Developed novel solutions for optimizations of non-trivial implicit surface modeling
- Probing surface representation spectra for real world applications including cryptography and tessalation
- Worked in Maple, MATLAB, Python, and C++

Visualization and Quantization of Implicit Surfaces — **Colorado State University**
Department of Mathematics – Dr. Anton Betten — *Aug 2020 – Dec 2020*

- Exploration of exotic mapping methodologies for physical data visualization and surface property characterization
- Optimized tools for topological analysis of compute heavy implicit surfaces
- Applied ideas from Coding Theory, Differential Geometry and Group Theory