Mark Lin

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Skills

Languages: C++, Java, C, Python, JavaScript/Typescript, Bash, R
Technologies: Linux, Git, AWS, Microsoft Azure, Firebase, Docker, Kubernetes, WSL, Jira, Redis

Experience

Software Engineer @ Bloomberg **Oct 2025 – Present**
C++, Python *New York, NY*

Software Engineer Intern @ Autodesk **May 2024 – Aug 2024**
C++, Typescript, Node, XCode *Toronto, ON*

- Designed and integrated a **real-time schema upgrader** for our manufacturing data model into existing user workflows.
- Collaborated on cross-team initiative to implement Part Number Grouping and BOM calculations for the **Fusion360**.
- Improved performance of time-based queries by **10%** by refactoring our internal data model for asset relationships.
- Implemented data model operations to handle Part Number Grouping on the fusion360 including Copy, Delete and Move.

Software Engineer Intern @ Cover **May 2023 – Aug 2023**
Python, Flask, AWS, PostgreSQL, C#, ASP.NET, Azure, EF Core, Vue.js *Los Angeles, CA*

- Designed and implemented a set of component generating algorithms using Python's **multiprocessing**, to reduce sequential component layer generation between components for Cover housing designs, reducing runtime by **15%**.
- Spearheaded the launch of **Cover S** by designing our website, and streamlining the onboarding process for potential clients by remodeling our property zoning tool, receiving commendation from CEO.
- Architected and developed scalable back-end web infrastructure for our internal ERP system to support our engineers.

Software Engineer Intern @ TD Securities **Jan 2022 – Aug 2022**
Scala, Python, Akka, Node.js, SQL, React.js, Angular.js *Toronto, ON*

- Worked on our flagship application dedicated to intra-day real-time management of **Fixed Income** and **FX risk**.
- Developed a risk trade curve editor using **React.js** to streamline client trading workflows and to enable real-time, client-side trading operations.

Projects

CollisionWorld Screensaver | *C, OpenCilk, XQuartz, LLVM/Tapir* *CollisionWorld Screensaver*

- Implemented a line collision screensaver in C using XQuartz for graphics.
- Leveraged multi-threading using the OpenCilk runtime to improve the performance of the application from a naive implementation by **281%**.

PPython | *Python* *PPython*

- Implemented a simple version of Python with type support, a lexer, parser, tokenizer and interpreter.

AlgoTrading | *C++, Python, Numpy, Pandas*

- Developed a backtester in Python for times series analysis using OHLC data using **numpy** and **pandas**.
- Designed and developed a low-latency trading system in **C++** and **Python** to aggregate L1/L2 data from various crypto exchanges and execute trades using public Websocket APIs in real-time.

Education

University of Waterloo **Sept 2020 – Jun 2025**
Bachelor of Mathematics – Statistics, Computer Science *Waterloo, ON*

Relevant Coursework: Stochastic Processes 2, Estimation and Hypothesis Testing, Stochastic Simulation Methods (R), Forecasting, Statistical Learning - Classification, Computational Statistics and Data Analysis (R), Generalized Linear Models, Statistical Learning - Advanced Regression

National University of Singapore **Aug 2023 – Dec 2023**
Student International Exchange – School of Computing *Singapore*

Relevant Coursework: Software Engineering & Object-Oriented Programming (Java), Computer Organisation (C++), Data Structures and Algorithms (C)

Audited Courses: MIT-OCW 6.172 Performance Engineering (C), MIT-OCW 6.829 Computer Networks, MIT-OCW 6.824 Distributed Systems, University of Waterloo CS350 Operating Systems