Curtis Chong

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Education

University of Waterloo · Bachelor of Software Engineering Co-op — Apr 2023

Courses: Stochastic Processes · Forecasting · Concurrency · Distributed Systems · Reinforcement Learning

Projects

Arreau · E(3)-Equivariant Diffusion Model Trained on the Alexandria Dataset · bit.ly/e3-diffusion
- Reproduced the **unconditional Mattergen model** on A10 GPUs
- Strategically selected a subset of the Alexandria dataset, saving hundreds of hours running DFT

E3Simple · The Simplest E(3)-equivariant Graph NeuralNet library · bit.ly/e3simple
- Engineered the simplest-to-understand E3GNN library from scratch in 500 lines of code
- Incorporated the best ideas of E3nn and E3x, providing clear documentation of tradeoffs

Polymer Builder · Constructing Realistic Polymers with NeuralNet Potentials · bit.ly/polymer-nnp
- Formed polymers using NNPs, ensuring realistic bond geometries in systems with hundreds of atoms
- Replaced unreliable conformer math with NNPs, ensuring that polymer chains are spaced realistically

Experience

Citadel Securities — Chicago
SRE Intern · Trade Execution Services Team — Sep – Dec 2022
- Crafted high-performant scripts to efficiently extract and transform **terabytes of logs** into KDB
- Unified order events into trader consoles, eliminating complex and ad-hoc qSQL queries
- Upgraded an XML interpreter to parse nested FlatBuffer messages, simplifying hundreds of lines of code

Jane Street — New York
SWE Intern · Cybersecurity Team — Jan – Apr 2022
- Developed filters to block network packets from malicious IPs or carry invalid TLS certificates
- Classified IPs as safe or malicious in under **20 µs** via a trie-based lookup table
- Designed bots to listen for malicious IP announcements and stream the latest updates to the lookup table
- Leveraged **Zookeeper** to routinely backup job state so users can restore crashed jobs on standby servers

BitGo — San Francisco
SWE Intern · Trade Execution Team — Jan – Apr 2020
- Wrote **trading algorithms** (Sweep and TWAP) to place orders across crypto exchanges at optimal prices
- Developed a testing suite simulating market conditions to ensure engine stability
- Designed race-free state machines and exchange balance tracking services to ensure stable trades
- Integrated **Prometheus** metrics into our trading engine to identify performance bottlenecks

BitGo — Remote
SWE Intern · Trade Execution Team — Sep – Dec 2020
- Developed algorithms to correct interrupted trades, expediting client support from **hours to minutes**
- Leveraged **Protobufs** to snapshot our trading engine's entire state, allowing us to replay and debug trades
- Decreased account balance queries by **80%** using a Redis cache
- Reduced tech debt in our algorithms, request, and rounding logic, simplifying code for other engineers