Andrew Jemin Choi

⚑ *Canadian Citizen*   🏠 *USA Permanent Resident*

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Experience

Algorand
Boston, MA

SOFTWARE ENGINEER (ALGOCHOI)
Jun 2021 - Present

- Worked on open-sourced consensus protocols, compilers, tools, and infrastructure in Go for a $1Bn+ market cap blockchain (go-algorand), founded by Turing Award cryptographer Silvio Micali
- Developed parts of the Algorand Virtual Machine to allow safer & better programmability for smart contracts and added performance benchmarks to monitor opcode runtimes
- Designed, developed, and maintained features, tests, and infrastructure for the Algorand Python/TypeScript SDK
- Introduced new AVM v6 features (recursive inner contract calls) for the Algorand database indexer and Chrome Web debugger

University of Toronto
Toronto, ON

GRADUATE RESEARCH STUDENT, BLOCKCHAIN LAB
Sep 2019 - Dec 2021

- Researched novel methods to improve authenticated storage performance and test transaction execution throughput for a new multi-layered Merkle-Patricia structure in EVM-compatible systems *(Master Thesis; IEEE ICBC '22 Distinguished Paper Award)*
- Developed performance benchmarks for Ethereum clients to evaluate a run-time smart contract validation tool *(ACM PLDI '20)*

University of Toronto
Toronto, ON

TEACHING ASSISTANT
Sep 2016 - May 2021

- Developed and wrote automated testers for graduate compilers assignments in C++, ANTLR, and LLVM (CSC488 - Compilers)
- Managed groups of 50+ students to build large software projects in C++/Java, held weekly code reviews, and taught students about software development tools such as git, gdb, gprof, perf, and unittest (ECE297, CSC207, ECE326 - Software Design)
- Received "Outstanding" TA ratings from course surveys, with an average rating of 6.87/7; TA'ed 8 Computer Engineering courses

Google
Remote (Sunnyvale, CA)

SOFTWARE ENGINEERING INTERN
Jun - Sep 2020

- Worked on the Global Networking team to develop an OpenConfig service in Go to aggregate and monitor vendor-neutral routing data, and created a client to stream events using gRPC APIs to log abnormal network activity

Amazon Web Services (AWS)
Seattle, WA

SOFTWARE DEVELOPMENT ENGINEER INTERN
May-Aug 2018, 2019

- Worked on the DynamoDB team to develop a Java client library for RESTful APIs to monitor and replace stale/faulty EC2 hosts for table indexing requests (Summer 2019)
- Worked on the AWS Internet of Things (IoT) team to create Python tools to streamline the on-boarding process for devices, reducing user wait times by 60% (Summer 2018)

Education

University of Toronto

MASTER (MSc) IN COMPUTER SCIENCE
Dec 2021

Thesis: *LMPTs: Eliminating Storage Bottlenecks for Processing Blockchain Transactions*
Advisor: *Fan Long*

BACHELOR (BASc) IN COMPUTER ENGINEERING WITH HONOURS
May 2019

Projects

MLH Hackathons [devpost: ajchoi]

PYTHON, FLASK, SOLIDITY, REACT NATIVE, REDIS, CASSANDRA, FIRESTORE, GCP

- Received $1000+ in awards as a competitor at collegiate hackathons (UofT, Dartmouth, CU Boulder, Ryerson), building projects addressing social issues ranging from tackling social anxiety to minimizing food waste in local communities
- Mentored younger students to ideate, implement, debug, and pitch technical solutions for school hackathons