Andrew Jemin Choi

Canadian Citizen *USA Permanent Resident*
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Experience

Software Engineer

Algorand (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 (smart contract assembler) and PyTeal (high level language) to allow safer and better programmability for smart contracts
- Performed internal smart contract audits to check for security and correctness and published docs on best practices
- Developed, maintained, and deployed features, tests, and packages for the Go/Java/Python/TypeScript SDK
- Reduced build and integration test times in CI processes by 60% by refactoring tests and using a dev-mode network in four repos (Cucumber, Docker, CircleCI, Github Actions)
- Implemented highly requested dev-mode algod (server process that exposes node/network functionality) features and successfully sunsetted v1 APIs to complete migration to v2 algod
- Addressed public Github issues and presented live demos to devs in the ecosystem (featured on the Proof of State Show!)

Google *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) *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)

Teaching | Adjunct Faculty

Wentworth Inst. of Tech, Boston University, University of Toronto *Sep 2016 - May 2023*

- WIT COMP1050 - Computer Science II Primary Instructor: Developed and delivered lectures, assignments and autograders on Github Classrooms for topics in Java (Object-Oriented Programming, data structures, GUIs, software engineering)
- BU CS526 - Data Structures: Taught data structures, complexity analysis and applying algorithms in Java
- UofT CSC2107 - Compilers: Wrote automated testers and labs for graduate-level compiler assignments in C++, ANTLR, and LLVM
- UofT ECE297/CSC207 - Software Design: 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
- Received "Outstanding" ratings from UofT course surveys (average rating of 6.87/7); Taught 8 Computer Engineering courses

Graduate Researcher

University of Toronto, Department of Computer Science *Sep 2019 - Dec 2021*

- Received the IEEE ICBC '22 Distinguished Paper Award for improving authenticated storage performance and benchmarking transaction execution throughput for a new multi-layered Merkle-Patricia structure in EVM systems *(Master Thesis)*
- Developed performance benchmarks for Ethereum clients to evaluate a run-time smart contract validation tool *(ACM PLDI '20)*
- Competed and won $1000+ in awards at MLH hackathons including UofT, Dartmouth, CU Boulder, Ryerson *(devpost.com/ajchoi)*

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*