

# Andrew Jemin Choi

🇨🇦 Canadian Citizen 🇺🇸 USA Permanent Resident

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## Experience

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### Software Engineer | Researcher

#### 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
- Worked on the Algorand Virtual Machine (smart contract assembler) and PyTeal (high level contract language) to allow safer and better programmability for Web3 apps
- Introduced **OpenSearch telemetry** services and developer infrastructure to Conduit (blockchain data streaming pipeline)
- Implemented **highly requested algod REST endpoints** (daemon exposing node/network functionality) and led work to sunset v1 algod APIs to complete migration to v2
- Developed, maintained, and deployed features, tests, and packages for the **Go/Java/Python/TypeScript SDK** library
- Reduced build and integration testing times by **60%** by refactoring, optimizing, and using a dev-mode network in four repos, which led to **\$100K+** cost savings in CI and improved developer experience (**Cucumber, Docker, CircleCI, Github Actions**)
- Addressed public Github issues and presented live demos to devs in the ecosystem (**featured twice on the Proof of State Show!**)

#### University of Toronto, Software Engineering & Blockchain Lab

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-based systems (*Master Thesis*)
- Developed performance benchmarks for Ethereum clients to evaluate Solythesis, a novel run-time smart contract validation tool (**AWS, Rust, Python, Solidity**) (*ACM PLDI '20*)
- Competed and won \$1000+ in awards at MLH hackathons including UofT, Dartmouth, CU Boulder, Ryerson (*devpost.com/ajchoi*)

#### 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 to stream events using gRPC APIs to log abnormal network activity (**Go, gRPC**)

#### Amazon Web Services (AWS)

May-Aug 2018, 2019

- Worked on the DynamoDB team to develop a **Java client library for REST APIs** to monitor and replace stale/faulty EC2 hosts for table indexing requests
- Worked on the AWS Internet of Things (IoT Core) team to create Python tools to streamline the on-boarding process for devices

## Teaching | Adjunct Faculty

### Wentworth Inst. of Tech, Boston University, University of Toronto

Sep 2016 - Sep 2023

- WIT COMP1050 - Computer Science II: Developed and delivered lectures, assignments and autograders using Github Classrooms for topics in Java (Object-Oriented Programming, data structures, GUIs, software engineering)
- BU CS526 - DS & Algos: Taught data structures, complexity analysis and how to implement algorithms in Java
- UofT CSC2107 - Compilers: Wrote automated testers and labs for graduate-level compiler assignments in C++, ANTLR, and LLVM
- UofT ECE297, CSC207, ECE244 - 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) and BU course surveys (4.9/5)

## Education

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### 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