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Nicholas Chaloult

Education

August 2017 – December 2021 — **Bachelor of Science in Computer Science**, *Georgia Institute of Technology*, Atlanta, GA

- GPA: 3.88/4.00
- Threads: Intelligence, Info & Internetworks
- Selected Coursework: Data Structures and Algorithms, Database Technologies, Machine Learning, Computer Networking, Systems and Networks, Intro to Artificial Intelligence, Intro to Info Security, Computer Organization

Experience

October 2022 – Present — **Software Development Engineer**, *Amazon Web Services*, Remote

- TBD. Helping customers index, search, and aggregate their IoT device data with the Fleet Indexing team

February 2022 – September 2022 — **Software Engineer**, *NCR Innovation Lab*, Atlanta, GA

- Designed and implemented an internal HTTP API that serves as an abstraction layer on top of a collection of retail product advertisement engines. Allows clients to specify which engine they'd like to invoke in each request without needing to know where instances of that engine are deployed. Built with **Node.js** and **TypeScript**, and deployed to **Google Kubernetes Engine**
- Used **OpenCV**, **OpenPose**, **Python**, and **InfluxDB** to build a vision-based inference application that powers a real-time "heatmap" visualization of foot traffic on a retail store's floor plan
- Conducted technical and behavioral interviews for intern and full-time candidates

May 2021 – December 2021 — **Software Engineer Intern**, *NCR Innovation Lab*, Atlanta, GA

- Architected and developed a full stack application that collects insights and displays analytics about the behavior of a retail store's customers. Consumes real-time data streams from proprietary edge compute devices. Identifies over 3,000 unique customers per week in a production environment. Built with **WebSockets**, **React**, **BigQuery**, **Google Cloud Pub/Sub**, and **Google Cloud Functions**
- Onboarded 3 new developers to the project via remote and in-person pair programming sessions, and by creating video tutorials

June 2020 – August 2020 — **MLH Fellow**, *Major League Hacking*, Remote

- Selected as **one of 150 Fellows from a pool of 20,000 applicants** to be a member of the Fellowship's inaugural class
- Used **TypeScript** and a **cross-compilation toolchain** to implement functionality in the **AWS Amplify CLI** that allows users to write, test, and deploy **AWS Lambda functions** with the **Swift** programming language and runtime
- Wrote user-facing documentation and guides, as well as developer-facing design documents, with the AWS Amplify team

January 2018 – May 2020 — **Rise Up Undergraduate Assistant**, *College of Computing, Georgia Institute of Technology*, Atlanta, GA

- Led weekly webinars and monthly in-person sessions, explaining and demonstrating fundamental computer science concepts to groups of 30 Georgia high school students
- Helped organize and run the 2018 and 2019 **AP Bowl**, during which **over 300 Georgia high school students** took a mock AP Computer Science exam on Georgia Tech's main campus

Involvements

August 2019 – May 2021 — **GT Solar Racing**, *Telemetry Team Member*

- Redesigned a byte-oriented telemetry message protocol to support 4x more message types to and from the vehicle
- Maintained a server written in **Go** that listens for and processes the vehicle's vitals in real time via a **TCP connection**
- Integrated **Grafana** with **InfluxDB** to build a real-time dashboard for monitoring the state of the vehicle as it races

Personal Projects

Command Line Interface — **lancp**, *A simple tool for easily transferring files between two machines on the same network*

- Wrote a tool with **Go** that is similar to **scp** and **rsync**, but more convenient to use
- Allows two devices to trustlessly discover each other via plaintext passphrases in **UDP broadcast messages**
- Sends file contents over a secure **TLS connection** after generating and exchanging a **self-signed X.509 certificate**

Discord Bot — **HMM Mimicker**, *Generates messages of the same vocabulary and sentence structure as a corpus*

- Uses a **hidden Markov model** built from a customizable corpus to produce messages in a Discord text channel
- Used **Go** to implement a content generation model, and to build a bot which parses commands from users and posts messages
- Wrote a comprehensive **unit and integration test suite**. Containerized and deployed to **Cloud Run**

Skills and Attributes

Languages — Java, TypeScript, JavaScript, Python, Go, Bash

Technologies — git, Linux, Docker, Amazon Web Services (AWS), Google Cloud Platform (GCP), Elasticsearch, DynamoDB, PostgreSQL, InfluxDB, React, Node.js, Express

Interests — Rust, distributed systems, maintainable and testable software, free and open-source software