# Colby Duke

Engineering @ Applied Intuition https://colby.codes

#### Education

Georgia Institute of Technology – Atlanta, GA Bachelor of Science in Computer Science August 2019 – May 2023 Faculty Honors, Dean's List, Zell Miller Scholar

# Work Experience

#### Software Engineer

# Applied Intuition

June 2023 - Present

- Building a cloud-native autonomous vehicle development toolchain centered on simulation-based V&V.
- Developing full stack features across products using Python, Go, React, Kubernetes, Postgres, and Bazel.
- Identified a market gap for a drive data auto-labeling system and gathered customer pull from 10+ OEMs.
- Using said pull, founded a 0 to 1 tiger team to deploy and sell a multi-modal embedding model for tagging.
- Refactored a DSL compiler to leverage memoized abstract syntax trees for ~5x faster compilation speed.
- Wrote an async simulation data processor which runs abstract algorithms on billions of rows of sim data.
- Aided in doubling the TCV of one product, personally managing the eng-side of 5+ accounts totaling \$XXm.
- Authored product and eng roadmaps, demoed features to C-suite customer execs, and guided pre-sales.

#### Software Engineer Intern

### Snap Inc.

May – August 2022

- Researched in Snap's R&D division, SnapLab, on Spectacles Snap's next generation wearable smartglasses.
- Improved computer vision models for hand tracking and pose estimation using Spectacles' camera system.
- Generated over three million frames of fully synthetic training data which reduced CV model error by 20%.
- Built and deployed load distributed Kubernetes machine learning pipelines for CV training and validation.

#### Software Engineer Intern

Uber

May - August 2021

- Algorithmically modelled order costs (Core Pricing team) for over 80 million monthly Uber Eats orders.
- Developed pricing microservices which calculated delivery fees based on restaurant and customer location.
- Utilized Uber's H3 Hexagonal Hierarchical Spatial Index to scale algorithms to evaluate over broader regions.
- Wrote the back-end for the services with Go, Python, Hive, and Docstore (Uber's distributed SQL database).

#### Software Engineer Intern

# The Home Depot

January – May 2021

- Designed and programmed ARKit-based iOS apps to scan 3D models of customers' furniture with LiDAR.
- Enabled the app to generate and save high fidelity meshes from the scans with ~2cm-wide polygon faces.
- Merged the meshes with AR to create real-time virtual visualizations of the customers' furniture and rooms.

## University Projects & Organizations

CopyCat – Computer Vision and HCI research project which utilizes pose-estimators paired with Hidden Markov Models to translate American Sign Language (ASL) signs to aid deaf children learning ASL.

PopSign – Primary project manager of PopSign, a published iOS and Android mobile app which teaches adults ASL. PopSign is backed by Google's Accessibility Research Team and was presented at Google I/O 2023.

GT CS Careers Club – Founder and President of the Georgia Tech Computer Science Careers Club, a registered student organization and online community of over 2,600 GT CS students. The club offers mentorship, resume workshops, mock interviews, technical interview prep, and other career-related services.

#### **Awards**

1st Place Paper – ACM CHI Conference 2021, Undergraduate Student Research Competition – May 2021. Best Overall Presentation – Georgia Tech CoC, Undergraduate Research Symposium – April 2021.

#### Skills

Languages – Python, Go, Typescript, Java, C++, C, C#, Swift, Bash, x86 Assembly

Technologies – React, Docker, Kubernetes, Terraform, AWS, GCP, SQLAlchemy, Bazel, GraphQL, Postgres, Git Concepts – Machine Learning, Computer Vision, Pose Estimation, Microservice Architecture, Distributed Systems, Scalable Containerization, Cloud Computing, Human Computer Interaction, Augmented Reality