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Colby Duke

Engineering @ Applied Intuition
https://colby.codes

Education

Georgia Institute of Technology – Atlanta, GA *August 2019 – May 2023*
Bachelor of Science in Computer Science 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.
- Led a tiger team to develop an offline auto-labeling pipeline for processing thousands of hours of drive data.
- Refactored a DSL compiler to utilize modern abstract syntax trees for distributed and memoized compilation.
- Developed multiple mission-critical microservices which efficiently handle bulk RPC loads across customers.
- Aided in doubling the TCV of one product, personally managing the eng-side of 5+ accounts totaling $XXm.

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*

- Worked on algorithmically modelling order costs (Core Pricing team) for Uber Eats' 80 million monthly users.
- 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 an ARKit-based iOS app 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 2,500 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, TensorFlow, SQLAlchemy, Bazel, GraphQL, Postgres*
Concepts – *Machine Learning, Computer Vision, Pose Estimation, Microservice Architecture, Distributed Systems, Scalable Containerization, Cloud Computing, Human Computer Interaction, Augmented Reality, Git*