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Colby T. Duke

Student in Atlanta, GA
https://colby.codes

Education

Georgia Institute of Technology – Atlanta, GA   *August 2019 – May 2023*
Bachelor of Science in Computer Science, GPA 3.91   *Faculty Honors, Dean's List, Zell Miller Scholar*

Work Experience

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 the Uber Eats Core Pricing team, which was responsible for algorithmically modelling order costs.
- Developed a pricing microservice which calculates delivery fees based on restaurant and customer location.
- Deployed the service into production where it is utilized for every order made by 80+ million monthly users.
- Coded the back-end for the service 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 virtual visualizations of the customers' furniture and rooms.

Data Science Intern   **JANUS Research Group**   *June – August 2020*
- Constructed a line of computer vision sensors to monitor meters on water pumps at local farms.
- Integrated the sensors into the Google Cloud Platform, connected via LoRaWAN and cellular data.
- Created a monitoring UI with Django, InfluxDB, and Grafana for the Georgia counties managing the sensors.

Projects & Organizations

CopyCat – Computer Vision and HCI research project which utilizes various pose-estimators (such as MediaPipe, Kinect, and AlphaPose) paired with Hidden Markov Models to translate American Sign Language (ASL) signs to aid deaf children learning ASL. Developed in Dr. Thad Starner's Contextual Computing Group.
Co-authored Publication at 2021 ACM CHI: https://dl.acm.org/doi/abs/10.1145/3411763.3451523

PopSign – Primary project manager of PopSign, a published iOS and Android mobile game which teaches adults ASL on their phones. PopSign is backed and funded by Google's Accessibility Research Team.

GT CS Careers Club – Founder and President of the Georgia Tech Computer Science Careers Club, a registered student organization and online community of over 2,000 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, Java, Go / Golang, C++, C, C#, Swift, Bash, x86 Assembly*
Technologies – *TensorFlow, OpenCV, MediaPipe, InfluxDB, SQL, Apache Hive, Docker, Kubernetes, GitHub*
Concepts – *Machine Learning, Computer Vision, Pose Estimation, Microservice Architecture, Distributed Systems, Scalable Containerization, Cloud Computing, Human Computer Interaction, Augmented Reality*