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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 3.94 Faculty Honors, Dean's List, Zell Miller Scholar

Work Experience

Software Engineer Intern **Uber** *May – August 2021*

- Worked under Uber Eats' Core Pricing team, the group responsible for modeling Uber Eats order costs.
- Developed a pricing service which calculates order delivery fees based on restaurant and customer location.
- Deployed the service into production where it is utilized for every order made by 70 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 ARKit-based iOS apps to scan 3D models of customers' furniture with LiDAR.
- Generated high fidelity mesh scans with ~2cm-wide polygon faces utilizing said apps.
- Merged the models with AR to create virtual visualizations of the customers' furniture and rooms.
- Programmed the back-end functionality for future teams to implement these features into THD's mobile app.

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 with LoRaWAN and cellular.
- Created a UI with Django, InfluxDB, and Grafana for the Georgia counties managing the sensors.

Software Engineer Intern **JANUS Research Group** *June – August 2019*

- Worked on a pair of night vision binoculars which were purchased and militarized by the U.S. Army.
- Developed the drivers necessary to integrate IR cameras into a Variscite IMX6 board.
- Utilized Yocto to create a custom Linux-based OS for the board so it could load the camera drivers.

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.

Publication: CopyCat: Using Sign Language Recognition to Help Deaf Children Acquire Language Skills - D Bansal, P Ravi, M So, P Agrawal, I Chadha, G Murugappan, and C Duke. 2021. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems* (*CHI EA '21*). ACM, Article 481, 1–10.

Leak Geeks – Leader of a team in a 2019 Shark Tank-like student competition. Designed and constructed a prototype for a sensor which detects leaks in water pipes. Placed 3rd out of ~40 Georgia Tech teams.

Awards

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

Skills

Languages – *Python, Java, Go / Golang, C++, C, C#, Swift, Bash, x86 Assembly*
Technologies – *Django, MediaPipe, iOS, GCP, Docker, GitHub, Yocto, SQL, Apache Hive, InfluxDB, CV, NLP*
Concepts – *Human Computer Interaction, Machine Learning, Computer Vision, Pose Estimation, Augmented Reality, Kernel Development, Sensor Design, Data Visualization, Containerization, Agile Development Process*