Ansh Sundeep Gwash

anshgwash@vt.edu | (703) 438-1965 | Blacksburg VA | linkedin.com/in/anshgwash

EDUCATION

B.S. Computer Science, Virginia Tech (Blacksburg, VA) ***Aug 2019 – May 2023 (expected)***

- Mathematics Minor
- Dean's List (*Fall 2020, Fall 2022*)

Technologies & Languages: C++, Swift, Python, JavaScript, Dart, C, MATLAB, Firebase, MongoDB, React, ML, Arduino

RELEVANT EXPERIENCE

Undergraduate Teaching Assistant, Virginia Tech Department of Computer Science ***Jan 2023 – Present***

- Roles include grading, holding office hours and assisting students with assignments CS 4624: Multimedia Capstone
- Developing tutorials for students using **MERN** (**MongoDB**, **Express**, **React**, **Node**) stack

Algorithm Lead, Hokie Electric Vehicle Team, Virginia Tech ***Aug 2022 – Present***

- Leading Algorithm Development of **Connected Autonomous Vehicles** for Virginia Tech's EcoCAR EV Challenge team (sponsored by US Dept. of Energy, GM and Mathworks)
- Developing **Sensor Fusion Algorithm** that will aid SAE Level 2 Autonomous Driving in 2023 Cadillac LYRIQ
- Implemented Joint Probabilistic Data Association Filter (**JPDAF**) to cluster multiple detections from vehicle's sensors
- Used **MATLAB** and **C++** to program **Kalman Filter** and **Mathworks** Driving Scenario Designer for sample data
- Future duties include developing Cooperative Adaptive Cruise Control, Lane Centering and Visualization systems

Duke Data+ Researcher, Duke University, Durham, NC ***May 2022 – Aug 2022***

- Developed **Machine Learning** algorithms for **6G Wireless Communications** to improve data rates by **200%**
- Implemented **Q-learning** and **SARSA** using **Python** and GNU Radio (**JavaScript**) to reduce interference
- Worked in a team of 5 over the summer and presented our findings at a poster session at Duke University
- Learned about **CogRF** (tunable radio frequency) for beyond 5G and 6G systems and **Software Defined Radios**

HMI / UX Team Member, Hokie Electric Vehicle Team, Virginia Tech ***Aug 2021 – May 2022***

- 2nd place for **Connected / Automated Vehicle**s in Year 4 of US Dept. of Energy **EcoCAR Mobility Challenge**
- Developed **iOS educational app** for our Chevrolet Blazer's Adaptive Cruise Control using **Swift**
- Delivered **Human Machine Interface / User Experience** presentation at Year 4 competition in Phoenix, AZ

Research Assistant, Bio-Inspired Science & Technology Lab, Virginia Tech ***Aug 2021 – Dec 2021***

- Used **MATLAB** and stereo cameras for **3D point tracking** of biomimetic bat ears
- Worked under Dr. Rolf Mueller to develop and improve biomimetic bat robot for **drone navigation**

Software Engineer, THE FIRM ARCHITECTURE, Mumbai, India ***May 2021 – Aug 2021***

- **Automated** construction site report checklist process using **iOS app** (developed using **Flutter**)
- **50% reduction in time** taken to generate site report (auto-generated PDF report)

PROJECTS

Occuper, MLH HackViolet 2023 Hackathon

- Designed and developed **UI** for **web application** that hosts research listings using **Next.js** (React framework)
- Implement authentication using **Auth0** and merged our **MongoDB** database to web app using **Node** and **Express**
- Integrated **Google Cloud Storage** with web app to host images

App to Cloud Data Pipeline, ThermaSENSE Corp.

- Implemented a circular buffer using **C++** for data on the **Adafruit nRF52** board provided by the client
- Built iOS app in **Swift** to visualize temperature data received from **Bluetooth Low Energy** device
- Integrated Google **Firebase** and **Firestore** into iOS app for cloud database storage of raw and processed data
- Collaborated with a team of 8 to deliver a custom **React** website and **iOS** application to client

Ident-A-Plant iOS app

- Collaborated in team of 3 to develop an iOS app using **UIKit** and **Swift** for plant species identification
- Sent image (captured by camera or selected from library) to **API** provided by Plant.id
- Stored information in a searchable database using **Core Data database**