Dinesh Kumar Ranganathan

Urbana, IL · dineshk.ranganathan@gmail.com · (217) 518-3986 · github.com/dineshkumar227/

Education

University of Illinois at Urbana Champaign May 2022
B.S. Computer Science + Astronomy, Minor in Statistics **GPA:** 3.43

Work Experience

Samsara San Francisco, CA
Sofware Engineer Intern (Firmware) May 2021 - Present

- Worked on the Vehicle Gatway, the main hub that reports vehicle data (GPS, engine diagnostics, etc) to the backend, with a team of 20 people.
- Coded an engine immobilizer to customer specification using a microcontroller connected to the vehicle gateway, allowing vehicles to be locked and unlocked over the cloud.
- Reduced power usage of the gateway by 10% by moving functionality from the CPU to the MCU and using FreeRTOS task notifications to handle communication.
- Added support for a dashboard camera to the gateway by optimizing pin usage and using a state machine to control camera recording based on ignition.

Joby Aviation Santa Cruz, CA
Embedded Software Intern (Hardware Emulation) June 2020 - August 2020

- Created custom language and compiler for state machines using lex and yacc. Transpiles to C++ and generates diagrams, reducing development and documentation time by 30%.
- Implemented usage of physical inverter emulators in the flight simulation network, increasing speed and accuracy by 15%.
- Developed a stack memory monitor for the inverter emulator MCU, easing debugging.

Joby Aviation Santa Cruz, CA
Software Engineer Intern (Battery Software) Jan 2020 - May 2020

- Devised real-data testing framework that uses real flight data to test iterations of the Battery Software in C++ and Python.
- Analysed flight data to isolate battery temperature anomalies using Databricks and Pandas.
- Designed modular and extensible GUI power supply software using Qt and Pymodbus.
- Automated takeoff procedures using Python scripts, cutting takeoff times in simulations by 25%.

National Center for Supercomputing Applications Urbana, IL
Full Stack Developer (SPIN Intern) Sep 2019 - Jan 2020

- Implemented interactive map layers with React that dynamically show temerature, wind and other details in real-time.
- Wrote functions to crop and serve GeoTIFF data for fields using Node.js and Rasterio (Python).
- Set up hosting and authentication using Firebase and Google Cloud Platform.

Projects

GPA++ *Python(Flask, Pandas, Matplotlib, Jinja)* chinmayamahesh.me/gpa
Search Engine for UIUC courses used by over 15,000 people that serves detailed GPA graphs.

Adder *Python(NLTK, Flask), Lean* github.com/dineshkumar227/adder
Automatically grades math proofs written in English using NLP and transpilation to Lean. Provides suggestions and hints to fix incorrect proofs.

Skills

Programming Languages:	C, C++, Python, Go, Java, Verilog, Javascript
Frameworks & Libraries:	Pandas, Numpy, Matplotlib, Flask, Qt, React
Tools:	Git, Docker, Linux, Bash, LaTeX, Vim

Activities

ACM GLUG
GNU/Linux Users Group that aims to provide a forum and community for Unix users on campus.