

DINESH KUMAR RANGANATHAN

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EDUCATION

University of Illinois at Urbana Champaign

B.S. Computer Science + Astronomy, Minor in Statistics

May 2022

GPA: 3.43

WORK EXPERIENCE

Samsara

Software Engineer Intern (Firmware)

San Francisco, CA

May 2021 - Aug 2021

- Worked on the Vehicle Gateway, the main hub that reports vehicle data (GPS, engine diagnostics, etc) to the backend, with a team of 20 people.
- Developed a new engine immobilizer (Neo) with a team of 10 people. Responsible for firmware design and tailoring features to customer specifications. Beta tested with customer trial runs.
- 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 between the two.
- Collaborated with the Connected Equipment team to allow the gateway to support a dash cam and a privacy button simultaneously by optimizing pin usage, increasing compliance with GDPR.

Joby Aviation

Embedded Software Intern (Hardware Emulation)

Santa Cruz, CA

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

Software Engineer Intern (Battery Software)

Santa Cruz, CA

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

Full Stack Developer (SPIN Intern)

Urbana, IL

Sep 2019 - Dec 2019

- Implemented interactive map layers with React that dynamically show temperature, 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)*

1010labs.org/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, L^AT_EX, Vim

ACTIVITIES

ACM GLUG

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