

# DINESH KUMAR RANGANATHAN

Urbana-Champaign, IL · dkr2@illinois.edu · (217) 518-3986 · [github.com/dineshkumar227/](https://github.com/dineshkumar227/)

## EDUCATION

**University of Illinois at Urbana Champaign**  
BS Computer Science + Astronomy *GPA: 3.2*

Champaign, IL  
- Expected May 2022

## WORK EXPERIENCE

### Joby Aviation

Remote

*Software Engineering Intern (Hardware Emulation)*

June 2020 - August 2020

- Integrated Inverter Emulator into simulation network, removing one layer of simulation, increasing speed and accuracy by 25%.
- Consolidated various transport layer applications, reducing code size by 50%.
- Created DSL for state machines to generate C++ code and diagrams automatically, reducing development and documentation time by 60%.
- Wrote stack monitor for inverter emulator, significantly increasing ease of debugging.
- Added automatic loggers to various emulator subapplications, increasing data collected by 60%.

### Joby Aviation

San Carlos, CA

*Software Engineering Intern (Battery Software)*

Jan 2020 - May 2020

- Implemented faster-than-real-time tests and testing framework for the Battery Management System in C++ and Python, increasing testing speed by 300%.
- Increased developer efficiency by 10x by writing a state machine autogenerator that generates 1500+ lines of C++ code from a simple metalanguage in a 100 line YAML file.
- Analysed temperature data of the plane to isolate rapid increases using Databricks and Pandas.
- Designed modular and extensible GUI for current/future power supplies using Qt and Pymodbus.
- Automated takeoff procedures in the Docker based simulations with Python scripts.

### National Center for Supercomputing Applications

Urbana, IL

*Full Stack Developer (SPIN Intern)*

Sep 2019 - Jan 2020

- Worked on the precision agriculture webapp of Aspiring Universe ([aspiringuniverse.com](https://aspiringuniverse.com)).
- Wrote functions to crop and serve GeoTIFF data using Node.js and Rasterio (Python).
- Set up hosting and authentication using Firebase and Google Cloud Platform.
- Implemented interactive map layers with React.

## SKILLS

Programming Languages:	C/C++, Python, Java, Go, Ruby, Verilog, Javascript, HTML, CSS
Frameworks & Libraries:	Pandas, Numpy, Sympy, React Native, Android, Rails, Node.js, Qt
Tools:	Git, Docker, Linux, Bash(Shell), Latex

## PROJECTS

**GPA++** *Python(Flask, Pandas, Matplotlib, Jinja)*

[chinmayamahesh.me/gpa](https://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](https://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.

**DeadAssign** *Python(Sympy, Numpy, Matplotlib)*

[github.com/dineshkumar227/dead-assign](https://github.com/dineshkumar227/dead-assign)

Experimental Differential Equations course to replace WebAssign with open source tools.

**RFID Vehicle Tracking** *C++, Arduino*

Programmed an Arduino to manage traffic lights by tracking vehicle movements using RFID tags.

## ACTIVITIES

### ACM GLUG

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

### PhysicsVan

Volunteer travelling science show that demonstrates physics principles with fun experiments.