Dinesh Kumar Ranganathan

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Education

University of Illinois at Urbana Champaign — Champaign, IL
BS Computer Science + Astronomy — - Expected May 2022
GPA: 3.33
Courses Taken: CS 225, CS 374, CS 421

Work Experience

Joby Aviation — Remote
Sofware Engineering Intern (Hardware Emulation) — June 2020 - August 2020

- Created a DSL and compiler for state machines using lex and yacc. Transpiles to C++ and generates flow diagrams, reducing development and documentation time.
- Integrated Inverter Emulator into the simulation network, removing one layer of simulation, increasing speed and accuracy.
- Consolidated various transport layer applications, cutting redundancy and code size.
- Wrote stack memory monitor for inverter emulator, significantly increasing ease of debugging.
- Added automatic loggers to various emulator subapplications, increasing data collected.

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 significantly.
- 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).
- 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.

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.

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

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

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.