Rithvik Bhogavilli

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EDUCATION

University of Illinois, Urbana-Champaign May 2025
B.S. in Computer Engineering (GPA 3.78) Urbana, IL
Coursework : Machine Perception, Computer Systems, Algorithms and Models of Comp, Control Systems, Data Structures, Probability, Linear Algebra, Analog Signal Processing

SKILLS

Languages : Python, C++, C, Bash, x86, Java, Kotlin, MATLAB, JavaScript, TypeScript, Rust
Tools : Linux, Git, EagleCAD, Wireshark, React, NodeJS, Flask, Electron, OpenCV, PyTorch

PROFESSIONAL EXPERIENCE

Relativity Space August 2023 - November 2023
Incoming Factory Test Software Intern Long Beach, CA

Blue Origin May 2023 - August 2023
Avionics Software Intern Kent, WA

- Supporting the Instrumentation and Comms team improve systems for next generation New Glenn rocket applying Agile methods.
- Responsible for camera health and communication software on rocket to stream video for monitoring and promotional purposes.
- Developing packet splitting software in C++ for transmission and configuration generators in Python to support distributed devices.
- Collaborated with New Glenn responsible engineers and various teams to capture system requirements for flawless integration.

University of Illinois CyberGIS Center September 2021 - December 2021
Software Engineering Intern Urbana, IL

- Created helper tool scripts to improve maintenance efficiency and increase accessibility of custom cyberGIS framework.
- Developed Anisble playbooks for Docker image version control and virtual machine management for researchers.
- Designed JupyerLab extension using TypeScript to enable seamless installation of Jupyter kernels when referenced in notebook.

University of Maryland MIND Lab June 2020 - August 2020
Software Engineering Intern College Park, MD

- Developed interactive user interface in JavaScript for tracing spread of COVID-19 across floors on campus using Mapbox.
- Designed scraper for University of Maryland map server to retrieve floor layouts as GeoJSON in JavaScript and ArcGIS.
- Experimented with algorithms for removing noise from GPS data using Turf.js and road fitting APIs.
- Removed noise from GPS data algorithmically considering speed of device and using Turf.js with road-fitting APIs.

Efabless.com, Open Circuit Design June 2020 - August 2020
Software Engineering Intern

- Optimized Magic EDA tool in C by implementing binned collections, reducing VLSI design time by 30 percent.
- Enhanced circuit extraction performance by consulting users to improve VLSI design performance by 20 percent.
- Improved time complexity of tool software through analysis and implementation of efficient data structures.
- Validated tool performance through analysis using flame graphs generated from Linux perf data to illustrate improvement.

PROJECT EXPERIENCE

Illinois Space Society Spaceshot Avionics August 2022 - Present

- Implemented custom 3 DOF Kalman Filter on Teensy 4.1 in C++ for state estimation during flight to control airbrake mechanism.
- Designed 3 DOF Kalman Filters fusing barometer, accelerometer, and gyroscope data to estimate displacement and orientation.
- Created 6 DOF rocket physics simulation and emulated flight sensor suite in Python for testing control algorithms.
- Designed and implemented scheduler for experimental finite state machines on rocket in ChibiOS to compare effectiveness in flight.

FIRST Robotics Competition Team 4099, Controls Lead and Mentor August 2017 - Present

- Designed and programmed robot subsystems teleoperation and autonomous movement in Kotlin.
- Developed custom trajectory following using PID and motion profiling for a holonomic drivetrain.
- Conducted workshops on state space control, perception, and state estimation.

FIRST Tech Challenge Team 13100, Mentor August 2018 - Present

- Managed a team of 10, led workshops on programming and strategic design skills.
- Incorporated project management techniques such as Gantt charts to increase accountability.
- Implemented odometry and programmed path planning for autonomous routines in Java.

HackIllinois 2022, John Deere Community and Sustainability Winner

- Designed real-time interactive map to alert farmers of crop disease outbreaks in field using Mapbox.
- Trained TensorFlow Lite model to detect diseases in cassava plant for use on Google Edge TPU.