Surya Somayyajula

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Education

M.S. in Computer Science @ **University of Massachusetts-Amherst** Sep 2024–May 2026
– Relevant Coursework: Secure Distributed Systems (CS 661), Game Programming (CS 576)

B.S. in Computer Sciences @ **University of Wisconsin-Madison** Sep 2021–May 2024
– Relevant Coursework: Programming Language Theory (CS 538), Compilers (CS 536)

Experience

Model-Based Vehicle Control Software Design Intern @ **Karma Automotive** Jun–Aug 2025
– Designing Simulink models for embedded control of vehicle body systems in Karma's line of luxury electric vehicles

Software Engineer Intern @ **Blue Origin** Jan–Apr 2025
– Worked on the BE-7 Engine Software team for Blue Moon lunar landers (MK1 and MK2), developed safety-critical embedded software
– Created an interoperability layer to integrate simulated BE-7 avionics embedded software with BE-7 valve plant model, for control systems software-in-the-loop testing
– Assessed compiler toolchains for use in future development efforts
– Tested embedded software on prototype boards and debugged hardware/software issues
– Improved sensor data replay for virtual hardware-in-the-loop testing procedures
– Delivered and supported hotfire software builds for engine hotfire tests

Software Engineer Intern @ **Sedaro** May–July 2023
– Worked on Sedaro's cloud aerospace/aeronautic simulation diagram engine (written in Python)
– Corrected value propagation, i.e., initialization of simulation diagrams from data sources
– Optimized auto-generated fragment of engine by writing Python AST transformations to eliminate redundant module imports and clean identifiers
– Improved performance of simulation state-manipulating functions by implementing Python-to-Rust compiler and enabling automated partial migration to Rust
– Added Rust workflow to development environment and wrote Python-Rust multithreaded interop tests

Research Fellow @ **IRIS-HEP** May–Aug 2022
– Fellowship with Vassil Vassilev on Improving the Cling Packaging Tool (CPT) at Institute for Research and Innovation in Software for High Energy Physics at Princeton University (tech: Python)
– Rewrote parts of CPT to improve correctness and build parallelism (tech: GitHub Actions for CI/CD)
– Extended CPT to support such platforms as Debian, RHEL, Windows, and macOS (tech: Docker)

Chief Technology Officer @ **DotBot** Jul 2019–Jul 2021
– DotBot is a patented affordable braille embosser that uses OCR via Google Cloud Vision and Python-based translation to convert text from images into printable braille for the visually impaired

Skills

Proficient: Python, Java, JavaScript, ANTLR, C, Rust
Intermediate: HTML, CSS, Pandas, Docker, Haskell, TypeScript, Solidity, MATLAB, Simulink, C++
Learning: OCaml, Go

Projects

JavaScript Optimizer
– Optimizer that rewrites nested and partial/error-returning function calls in JavaScript with improvement in performance metrics (tech: Acorn, Escodegen).

Timely Computation
– Python implementation and visualization of Elliott's *timely computation* model of digital circuits