Pradyunn Kale

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Education

Purdue University — West Lafayette, IN
Bachelor of Science in Computer Engineering — *Aug. 2025 – May 2028 (Expected)*
Faculty GPA: N/A
Relevant Coursework: Calculus III, Introduction to C Programming, Engineering

Harvard Extension School — Cambridge, MA
Dual Enrollment — *Sep. 2024 – May 2025*
Faculty GPA: 3.5/4.0
Relevant Coursework: Linear Algebra, Introduction to Computer Science with Python

Experience

Avionics Engineer - Liquid Propulsions — July 2025 – Present
Purdue Space Program (A SEDS Chapter) – Purdue University — *West Lafayette, IN*

- Developed **drivers** for **ADC**, **Ethernet PHY**, and **Magnetometer** from **scratch** using **C/C++**
- Automating **CI/CD pipeline** for **driver firmware** testing using **CMake**
- Planned configuration **FreeRTOS** ensuring **peripheral detection** and **real-time task scheduling**
- Planned validation **driver firmware** using **HITL** and **HOOTL simulations** against **MATLAB/Simulink** missions

Embedded Systems Engineer — Sep. 2025 – Present
Purdue Solar Racing – Purdue University — *West Lafayette, IN*

- Developing a **Raspberry Pi Pico** to **CAN controller library** from **scratch** in **C++**
- Planning implementation of **over-the-air communication system** between **racing car** and **support car** for **real-time data transmission**
- Planning implementation of **embedded linux** on the **steering wheel** with custom **GUI** for **real-time telemetry** and **control**

Firmware Engineer — Sep. 2025 – Present
ECELabs.io – Purdue Universty — *West Lafayette, IN*

- Developing **firmware** for **lab boards** used by **electrical engineering students** for **assignments**
- Implementing **MAX7301 library** for **high frequency communication** to **I/O expanders** via **SPI**
- Planning development of **firmware** enabling **USB-based configuration** of **physical FPGA hardware**

Projects

Bare Metal Arduino Repository (GitHub) | *C* — September 2025 – Present

- Created a repository for **bare metal arduino** development, **directly interacting** with **registers**
- Documented my **learning** through this **repository**, showing **growth overtime**
- Currently only an **led blinking project** inside the repository,
- Planning to create projects, all the way up to **7 segment display** through **bit banging communication protocols**

Phone Cubby Carousel (GitHub) (YouTube) | *Arduino C++, LiquidCrystal, Keypad* — June 2025 – July 2025

- Implemented **embedded software** for **stepper motor control**, enabling **automated carousel functionality**
- Developed **authentication system** requiring **usernames and passwords** for each device, enhancing **security**
- Designed **user-friendly interface**, simplifying **phone storage** and **retrieval** for **students**
- Enhanced **classroom phone management**, by combining **security**, **automation**, and **charging** into a **single system**

Technical Skills

Languages: C/C++, Python
Developer Tools: Git, CMake, KiCAD, Linux
Libraries: STM32 HAL, Raspberry PI Pico, Arduino