

# Pradyunn Kale

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Embedded Software Engineer | Low-Level Firmware | Real-Time Systems

## SKILLS

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- **Programming:** C, C++, Python, Java, JavaScript, HTML/CSS, React
- **Embedded & Hardware:** STM32, Driver Development, KiCad, PCB Design (routing/layout), Sensors & Data Acquisition Systems
- **Tools & Platforms:** Git, Visual Studio Code, STM32CubeIDE, Linux, Microsoft Office
- **CAD & Design:** SolidWorks, Fusion 360, AutoCAD, Inventor
- **Other:** Photoshop, DaVinci Resolve

## EXPERIENCE

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### Purdue Space Program (A SEDS Chapter), West Lafayette, IN

June 2025 – Present

#### Avionics Engineer - Liquids Team

- Developed device driver for ADS1158 analog-to-digital converter, enabling accurate sensor data acquisition for liquid propulsion systems.
- Currently implementing LAN8742A Ethernet PHY driver to support network communication for onboard systems.
- Planned development of BMM350 magnetometer driver to enhance system orientation sensing and navigation capabilities.
- Collaborated with the team to integrate low-level drivers into the overall embedded control firmware.
- Perform debugging and validation using logic analyzers and software tools to ensure hardware interface reliability.

## PROJECTS

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### 3D Holographic Display (ONGOING)

August 2025 – Present

#### Liquids Team Member, Avionics Engineering

- Developed all motor control firmware in C for STM32 microcontroller, including PID control implementation (pid.c) to achieve precise rotational accuracy.
- Designed and tuned PID algorithms to stabilize motor movement, improving holographic image quality and reducing mechanical jitter.
- Created modular, maintainable C codebase for motor drivers and sensor integration to facilitate real-time feedback control.
- Conducted debugging and testing using hardware tools such as oscilloscopes and logic analyzers to ensure system reliability and performance.
- Planning and developing device drivers for LED activation and control to enhance visual effects and system interactivity in the holographic display

## EDUCATION

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### Purdue University, West Lafayette, IN

August 2025 – Present (Expected May 2029)

#### Bachelor of Science in Electrical Engineering

- Cumulative GPA: N/A
- Relevant Coursework: Calculus I-III, Differential Equations, Programming with C, Physics I & II

### Harvard Extension School, Cambridge, MA (Dual Enrollment)

September 2024 – May 2025

#### Grade 12

- Relevant Coursework: MATH-21B: Linear Algebra & Differential Equations (Grade: B), CSCI E-7: Introduction to Computer Science with Python (Grade: A)