

Mohnish Nanthakumar

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EDUCATION:

University of Wisconsin-Madison

B.S. Computer Engineering, B.S. Computer Science

Madison, WI

Expected Graduation: May 2027

WORK EXPERIENCE:

Mobile App Developer Intern – FiPet

Jun. 2025 – Aug. 2025

- Worked on a cross-platform Mobile App for a **30+ employee** financial education startup
 - Developed and deployed interactive screens, buttons, and cloud functions using React Native and Google Firebase
 - Used **GitHub** (merge, cherry-pick, squash) to handle programming workflow with 12 other developers
- **Documented entire codebase** (features, project file structure, data flow, etc.) to aid in onboarding new developers
- Helped develop admin-level testing scripts to verify performance and accuracy of new features

TEAM PROJECTS:

Avionics Engineer - Wisconsin Space Program (WiSP)

Sep. 2024 - Present

- Designed the Electronics Controls Unit (ECU) of an amateur bipropellant liquid rocket (IPA + O₂) for a Collegiate rocketry team
 - Interfaced an Arduino MEGA with servo motors, data storage, LoRa RF communication modules, sensors, etc.
 - Designed the Schematics and Printed Circuit Board (PCB) for the ECU in Altium using Multi-Channel design
 - Documented the PCB, including choices of electronic components, sensor temperature requirements, etc.
- **Compiled a \$1000+ Bill of Materials (BOM)** for building the rocket engine
 - Extensively connected with team leads to communicate requirements for ordering sheet metal, valves, O-rings, etc. from McMaster-Carr and Speedy Metals
 - Considered the tradeoffs of different manufacturing techniques and kept in mind the task distribution of 10+ people for machining parts

Software Engineer - FRC Team 3130 (High School Robotics Team)

Sep. 2022 – May 2024

- **Managed a team of 10+ software developers**
 - Used **GitHub** and GitKraken to handle programming workflow of the organization
 - Gave lessons on version control, **PID** motor control, GUI-based debugging, and the Java programming language
- Wrote Software on 120+lb, 12V, aluminum robots for yearly competitions against other robots
 - Interfaced different subsystems (Xbox controller, chassis, accelerometer, robot arm, etc.) using the WPILib framework and **CAN**

PERSONAL PROJECTS:

Custom Alarm

- Fully Developed and Debugged an alarm on an STM32F4 microcontroller using Bare-metal Programming and PCB Design
- Bare-metal Programmed using the microcontroller's Datasheet, Reference Manual, and Application Notes
- Documented design choices, program code, and PCB through various stages of development (Arduino prototype 1, STM32 NUCLEO prototype 2, and STM32 PCB final)
- Peripherals used: UART (MP3 Module), ADC (Volume and Hour Dials), DMA, GPIO, TIM, External Interrupts (Buttons)

TECHNICAL SKILLS:

Software: C, C++, Unix, Linux, Bash, Python, Java, JUnit, HTML/CSS/JS, React, React Native, Git Workflows, LC-3 Assembly, Arch Linux

Electrical: PCBA Design, Altium Designer, Altium 365, Multimeter, Oscilloscope

Embedded: Bare-Metal Programming, STM32, Raspberry Pi, Arduino, UART, I2C, SPI, ADC, DMA, TIM, PWM, Clock Configuration, PID

Miscellaneous: MATLAB, Onshape, Fusion 360, 3D-Printing, MS Office, Slack, Atlassian Trello