# Mohnish Nanthakumar

mohnish.nanthak@gmail.com | (612)-269-1970 | Madison, WI

## EDUCATION:

**University of Wisconsin-Madison** Madison, WI

*B.S.* ***Computer Engineering,*** *B.S.* ***Computer Science*** *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 to handle programming workflow with 12 other developers
- **Documented entire codebase** (features, project file structure, data flow, etc.) to aid in onboarding new developers

## 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
  - 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, Firebase, Git Workflow, LC-3 Assembly, Arch Linux

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

**Embedded**: Bare-Metal Programming, STM32, STM32Cube, 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