# Aniket Fasate

Boston, MA-02119 | fasate.a@northeastern.edu | 857-332-8478

Portfolio | GitHub | LinkedIn | Medium | Availability: July 2024


## Education

**Northeastern University, Boston, MA** **August 2023 - June 2025**

*Candidate for Master of Science in Electrical and Computer Engineering (Internet Of Things)* **GPA: 3.8/4**

**Relevant Coursework:** Algorithms, Introduction to Machine Learning and Pattern Recognition, Wireless Sensor Networks and IoT, Mobile and Wireless Networks

**Sant Gadge Baba Amravati University, Amravati, India** **July 2016 - August 2020**

*Bachelor of Technology in Electronics & Telecommunication Engineering* **GPA: 9.1/10**

## Technical Skills

**Programming Languages:** C/C++, Python, PHP, HTML, Algorithms
**AI/ML:** Artificial Intelligence (AI), Machine Learning (ML)
**Boards:** ESP32, Raspberry Pi, Jetson Nano, Arduino, ARM Cortex-M, Teensy 3.2/4.0, LoRa, AtTiny85
**Software:** IoT Platforms (Platform IO, Arduino IDE, Blynk, Things Board, Telemetry Viewer, Proteus), Docker, Anaconda, PCB Design (KiCAD), MATLAB
**Protocols:** FreeRTOS, HTTP/HTTPS, TCP/IP, I2C, I2S, SPI, WebSocket, ESP-NOW, BLE, Wi-Fi, UDP, MQTT, CAN, Zigbee
**Soft Skills:** Leadership, Communication, Teamwork, Project Management, Problem Solving, Analytical Thinking

## Work Experience

**Northeastern University,** Boston **January 2024 – June 2024**

*Research Assistant*

- Led a project to enhance gaze angle tracking for XR/VR glasses, improving accuracy by 20%.
- Designed and manufactured a proprietary capacitive sensor, handling firmware development, PCBA design, prototype design, data collection, and testing.
- Developed a machine learning algorithm for real-time data processing, optimizing XR/VR user interaction.

**Indian Institute of Technology**, Bombay **February 2021 – August 2023**

*Research Assistant*

**Site Survey Kit**

- Designed a data acquisition system using ESP32 and ATtiny85 for fault detection in rotary machines, ensuring data integrity through DSP methods.
- Developed firmware with C/C++ for ESP32, utilizing FreeRTOS, and hosted data transfer on AsyncWebServer with WebSockets
- Generated PCBA designs using KiCAD, debugged prototypes, and managed component selection.
- Analyzed and troubleshooted analog circuits with a digital oscilloscope.

**Data Logger**

- Led a team in designing a real-time multicore FreeRTOS system with a system-on-chip server, enhancing data transmission and supporting OTA updates.
- Developed the first version with sensors for temperature, humidity, and light, and upgraded to high-end sensors for industrial environments, improving operational efficiency by 25% and reducing costs by 50%.

**Dandi Project**

- Led a project for real-time health monitoring of historically significant structures, integrating multiple controllers for comprehensive data management.
- Engineered a battery management system for accelerometer and gyroscope data collection.
- Developed a smart desktop app for real-time data plotting, analysis, and notifications. the development of a custom project for a government organization focused on real-time health monitoring of historically important structures, integrating multiple controllers for comprehensive data management.

**Defense Research and Development Organization (DRDO),** India **June 2018 – July 2018**

*IoT and AI/ML Trainee*

- Developed a sentiment analysis system with TensorFlow, Scikit-learn, and NLTK, utilizing CNN for precise text analysis.
- Designed a GUI for user interaction with real-time feedback.

**Indian Institute of Technology,** Kanpur **June 2017 – July 2017**

*IoT and AI/ML Trainee*

- Initiated Developed an autonomous vehicle prototype with IoT sensors, ultrasonic sensors, and ESP32 controllers.
- Conducted data training in MATLAB using backpropagation techniques.
- Utilized Raspberry Pi for self-training testing, demonstrating real-world application robustness.

## Projects

**Enhanced Data Logging System with Integrated ZigBee Wireless Communication,** *Research Project ( Link)* **July 2020 – January 2021**

- Developed a Zigbee-based data logger using ESP32, DHT22 sensors, and LDRs for real-time monitoring of temperature, humidity, and light levels.
- Integrated high-precision sensors for comprehensive environmental analysis and remote monitoring.

**Single Phase to Three Phase Converter,** *Smart India Hackathon, 2019 and bachelor's project (Link)* **July 2019 – March 2020**

- Engineered a solar-powered system transforming single-phase to three-phase electricity, aiding rural farmers in India.
- Incorporated Raspberry Pi, sensors, and actuators for intelligent monitoring and precise control of energy usage.

**Precision Agriculture Quadcopter for Enhanced Farm Monitoring and Management** **August 2018 – December 2019**

- Developed a Precision Agriculture Quadcopter equipped with GPS, multispectral cameras, and AI/ML to optimize crop monitoring and irrigation, improving yields sustainably.
- Enhanced farming sustainability and productivity using innovative technology solutions

**Portable and Cost-Effective Automated Fruit Sorting System for Farms,** *Research Project* **October 2019 – December 2020**

- Developed an automated fruit sorting system using Raspberry Pi, sensors, and actuators for efficient size and color sorting.
- Applied AI/ML techniques for high-speed fruit classification, enhancing produce quality and market readiness.