

# ARJUN YADAPADITHAYA

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## PROFESSIONAL EXPERIENCE

### Research Engineer

Illinois Institute of Technology, Chicago, IL

January 2024 - Present

- Designed custom PCBs in KiCAD and assembled a low-cost steam trap monitoring system, integrating multiple thermocouples, piezoelectric accelerometers, and an ARM Cortex-M0 based microcontroller for precision diagnostics.
- Optimized system firmware for seamless hardware integration, set up test points, and used oscilloscopes and logic analyzers for testing and debugging SPI and I2C communication.
- Automated data collection and logging with InfluxDB and dashboard powered by Grafana for real-time monitoring of system nodes and gateways leveraging sub-Ghz technology, ensuring efficiency and scalability.

### Senior Software Engineer

Capgemini, Bengaluru, India

August 2021 - August 2023

- Streamlined Java backend with efficient data structures to improve speed and reduce memory usage, addressed 2 PRs daily, worked with cross-functional teams and introduced features to enhance functionality and user experience.
- Transitioned deployment processes from Jenkins to Rancher for efficient container management, supporting virtualization and enabling scalability across multiple systems in a hybrid environment.
- Scripted backend processes to parse complex XML files and convert to Excel sheets, decreasing manual operation time by 25% and improving workflow efficiency in server and network system evaluations.

### Embedded Systems Intern

Vitvara Technologies, Mangalore, India

April 2020 - August 2020

- Engineered a Smart Warehouse Management System built with an ESP32 chip to overhaul inventory control, cutting down processing time by 68% and boosting overall operational efficiency.
- Designed a sun-tracking solar panel system utilizing an MSP430 microcontroller, servo motors, and energy-efficient algorithms to maximize power capture.
- Facilitated workshops on IoT and microcontrollers, leading hands-on projects demonstrated real-time sensor data acquisition and system debugging for over 60 students.

## PROJECTS

### Smart Energy Meter

March 2024 - Present

- Engineered a data-sniffing system by interfacing with op-amp LM2902 of a Kill-A-Watt device, converting raw analog signals into current, voltage, and power values leveraging linear regression to achieve accurate real-time calculations of energy usage.
- Implemented an ESP32-based solution to log data via Wi-Fi, transferring energy consumption data to a database for continuous monitoring, analysis, troubleshooting and insights on Grafana.

### Battery Operated Radiator Control

October 2023 - Present

- Developed BORC v2, a versatile temperature control device for retrofitting older buildings, facilitating dynamic adjustments of radiator valve settings based on user-defined set points.
- Ensured reliable data logging and communication with a HopeRF RFM69HCW 915MHz transceiver, enabling real-time data uploads to InfluxDB and integrating C++ and Python for seamless system performance.
- Achieved 74% cost savings in energy consumption by systematizing temperature control and reducing electricity usage.

## EDUCATION

Illinois Institute of Technology, Chicago, IL

May 2025

### Ms, Electrical and Computer Engineering, GPA: 3.9 / 4.0

- Courses: Digital Signal Processing, OOPS and ML with C++/Python, Hardware Software Co-design, Computer Vision & Image Processing, Hardware Security and Advanced Computer Architectures, Cloud Computing & Native Systems, Elements of Smart Grid.

Nmam Institute of Technology, Karnataka, India

June 2021

### Be, Electronics and Communication Engineering, GPA: 3.7 / 4.0

- Courses: VLSI Circuits, FPGA Design, PIC & ARM MCU, Embedded Systems, Data Structures and Algorithms using C++, AEC, DEC.

## SKILLS

- Languages:** C, C++, Java, Python, SQL, MATLAB, Verilog.
- Technologies & Tools:** Linux, LTSpice, Docker, PCBA, Sigma Studio, CCS, Git, PyTorch, TortoiseSVN, Grafana, Flask, MongoDB, Jenkins, Rancher, Angular, Raspberry Pi, Wi-Fi, Bluetooth, SPI, UART, I2C.

## ACHIEVEMENTS

- Winner of Kaplan Pitch Tank 2024; secured \$30,000 in funding for BORC, a smart radiator attachment automatically adjusts temperature based on user preferences. Recognized for innovation, technical feasibility, and market potential.
- Completed Linux Device Driver Programming certification from CoreEL Technologies in Apr 2025.