



Kayilainathan J

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Objective

Dedicated 3rd EIE student at Anna University (MIT Campus) seeking to apply my expertise in Digital design, Verification, through a technical internship. Committed to driving efficiency through hardware-software integration and analytical problem-solving.

Experience

- NLC India Limited** 14 MAY 26 - 26 MAY 26
Internship Trainee
Gained firsthand exposure to large-scale industrial automation and control systems through an observational internship at NLC.

Education

- Madras Institute of Technology** 2028 (Expected)
BE Electronics and Instrumentation Engineering
9.2
- Little Flower Matric Higher Secondary School** 2024
Higher Secondary
94%

Skills

- C,C++
- PYTHON
- VERILOG HDL
- EMBEDDED SYSTEMS
- HTML

Projects

- ALU Design and Implementation**
RTL Design: Developed a 4-bit ALU using Verilog HDL in Xilinx Vivado, supporting 8+ arithmetic and logical operations.
Verification: Authored comprehensive test benches to verify functional correctness and analyzed simulation waveforms to debug timing issues.
Hardware Prototyping: Translated theoretical designs into a physical 1-bit ALU prototype using discrete logic gates (ICs) to demonstrate real-world signal propagation and hardware constraints.
- SIS Failure Prediction System | Schneider Electric Hackathon**
Developing a predictive model for Safety Instrumented Systems (SIS) to identify potential failures before they occur.
Analyzing industrial sensor data to enhance safety protocols and reduce downtime in critical environments.
- Depthra | Real-time Groundwater Management App | SIH'25**
Built a application integrating data from 5,260 DWLR stations to analyze real-time water level fluctuations. Implemented dynamic recharge estimation and resource evaluation tools for public and corporate groundwater monitoring.
- Linear DC Power Supply Design (AC to 5V DC)**
Designed and implemented a regulated DC power supply using a Bridge Rectifier and a step-down transformer. Integrated a capacitor filter and an LM7805 voltage regulator to achieve a stable 5V output with minimal ripple voltage.
- Spectral Analyzer**
I developed a Digital Spectrum Analyzer designed to perform real-time frequency domain analysis of analog signals. By implementing a Fast Fourier Transform (FFT) algorithm on a microcontroller, I was able to decompose time-series data into its constituent frequencies, and calculate total harmonic distortion.

Achievements & Awards

- 2nd Prize, IoT Hunt | Awarded ₹10,000 for excellence in IoT-based solution design | Feb 2026 | REC
- 3rd Prize, Web Escape | Awarded ₹4,000 for technical problem-solving and web navigation | Feb 2026 | REC
- Scholastic Award for Academic Excellence (2024)

Activities

- Hosted a Technical Event Code Craze as a part of Department Symposium

Tools

- Vivado AMD
- Matlab
- Github
- Aurdino IDE
- Xschem

Courses

- **Time Series | Kaggle**
Lag features, Rolling windows
- **Intro and Intermediate Machine Learning | Kaggle**
Developed proficiency in Supervised Learning, Feature Engineering, and Model Validation using Python (Scikit-learn).
- **Meta Front-End Development**
Learned to build responsive web pages using HTML5 for structure and CSS3 for advanced styling and layouts.
- **Matlab Onramp | Mathworks**
Proficiency in matrix-based computation, data visualization, and scripting for engineering simulations and linear algebra.
- **TCS iON Career Edge - Young Professional**
Communication Etiquette
- **Foundation Data,Data Everywhere | Google**
Introduction to Data Analytics