

SWAMINATHAN PL

Chennai, Tamil Nadu

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Education

Indian Institute of Information Technology Kottayam

B.Tech in Electronics and Communication Engineering (CGPA: 9.24 Upto Semester 6)

Nov 2022 – Present

Kottayam, Kerala

Velammal Bodhi Campus

Class 12 - CBSE 93.5% in CBSE Board Examination and 94.98 percentile in JEE Mains.

Jun 2021 – Aug 2022

Chennai, Tamil Nadu

Experience

Positive Integers Pvt Ltd

Data Science Intern - Machine Learning

Dec 2024

Chennai, Tamil Nadu

- Built **scalable data pipelines** for real-time supply chain analytics using **Python**, improving ML model accuracy. Automated validation and transformation of **high-volume datasets** (over 1000 data points) using **asynchronous workflows** for efficient data processing. Created and documented **machine learning models** to streamline data flow.

NIT Tiruchirappalli

Research Intern - Networking

Jun 2024 – Jul 2024

Tiruchirappalli, Tamil Nadu

- Worked under **Dr. B. Nithya**, Assistant Professor on advanced wireless networking research. Simulated **Flying Ad Hoc Networks (FANETs)** in **NS-3 (C++)** to optimize TCP performance, diagnosed issues in **multi-tier architectures**, performed low-level **debugging** in **Linux**, and authored a comprehensive **research paper** detailing the methodology and results.

Projects

LiveSync - Smart Mesh Meet | Node.js, Express.js, MongoDB, Socket.IO, PeerJS [🔗](#)

Jun 2025 – Aug 2025

- Built a scalable, real-time **video conferencing system** supporting both **synchronous and asynchronous communication**. Implemented **WebRTC** via **PeerJS** in a **mesh topology** for peer-to-peer connectivity, supporting up to **3-5 participants** at 480p resolution.
- Designed a **multi-tier backend** with **Express.js** and internal APIs for authentication and user management. Integrated **MongoDB-based user authentication** and **JWT** for secure access and session management.
- Added **TURN server** support for reliable peer connections for more than 3 users. Enabled **audio and video toggle**, **screen sharing**, and live chat via **socket.IO**. Deployed using **Render** with a fully responsive UI.

ShopSphere - Fashion and Lifestyle Online Store | HTML, CSS, JavaScript [🔗](#)

May 2025

- Built a **responsive E-Commerce web application** with polished UI and smooth navigation.
- Implemented a **dynamic product catalog**, persistent **shopping cart** via **localStorage**, and real-time coupon application. Deployed on **GitHub Pages** with a modular frontend architecture for easy backend integration.
- Planning to integrate **Node.js**, **Express.js**, and **MongoDB** for full-stack capabilities, including **RESTful APIs**, **user authentication**, and server-side logic.

Technical Skills

Languages: C/C++, Python, JavaScript, SQL, HTML/CSS

Frameworks & Libraries: Node.js, Express.js, PeerJS, Socket.IO, Scikit-learn, TensorFlow, Keras, Pandas, NumPy.

Databases: MySQL, MongoDB

Tools: Git, Jupyter, Kaggle, MATLAB, VS Code, PostMan

Concepts: Backend Development, REST APIs, API Integration, File & Operating Systems, Data Structures and Algorithms, Security (JWT), Regression, Classification, Neural Networks.

Competitive Programming: CodeChef, Codeforces, LeetCode

Achievements

- Solved **1300+ DSA problems** across **LeetCode**, **CodeChef**, and **Codeforces**, demonstrating expertise in algorithms, data structures, and problem-solving.
- LeetCode max rating: **1810** and rated top **7%** among all LeetCode users, with a **400+ day** daily streak.
- CodeChef max rating: **1623 (3 Star)**, Global Rank **80** in STARTERS 185 (Div 3).