

SWAMINATHAN P L

Chennai, Tamil Nadu

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Education

Indian Institute of Information Technology Kottayam

B.Tech in Electronics and Communication Engineering (CGPA: 9.26 Upto Semester 7)

Nov 2022 – Present

Kottayam, Kerala

Velammal Bodhi Campus

Class 12 - CBSE

Jun 2021 – Aug 2022

Chennai, Tamil Nadu

Scored **93.5%** in CBSE Board Examination, Secured **94.98** percentile in JEE Mains.

Experience

Positive Integers Pvt Ltd

Dec 2024

Data Science Intern - Machine Learning

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

Jun 2024 – Jul 2024

Research Intern - Networking

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** using **WebRTC** via **PeerJS** in a **mesh topology**, supporting 3-5 participants at 480p, with **audio/video toggle**, **screen sharing**, and **live chat** via **socket.IO**.
- Designed a multi-tier backend with **Express.js**, **MongoDB**, and **JWT** for secure user authentication and session management, integrated **TURN server** for reliable peer connections, and deployed a **fully responsive UI** on Render.

ShopSphere - Fashion and Lifestyle Online Store | Node.js, Express.js, MongoDB, HTML, CSS, JS

May 2025

- Developed a **full-stack responsive E-Commerce web application** with a polished UI and seamless navigation. Implemented a **dynamic product catalog**, persistent **shopping cart** using **MongoDB**, and integrated coupon and **Stripe payment** functionality.
- Built secure **user authentication** and **RESTful APIs** with **Node.js**, **Express.js**, and **MongoDB** for robust backend operations. The application was deployed with modular front-end and back-end architecture, enabling easy scalability and future enhancements.

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, 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 **500+ day** daily streak.
- CodeChef max rating: **1623 (3 Star)**, Global Rank **80** in STARTERS 185 (Div 3).

Certification and Courses

- Operating System Course: Learn Fundamentals of Operating System by Srikanth Varma on Scaler (**in progress**).
- DBMS Course: Master the Fundamentals and Advanced Concepts by Srikanth Varma on Scaler (**in progress**).
- Machine Learning (Regression & Classification) course by Andrew NG on Coursera.