

# SWAPNIL SONTAKKE

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## Education

Indian Institute of Information Technology Gwalior

2021 - 2026

*Integrated B.Tech and M.Tech in Information Technology*

## Work Experience

Wiriya Technology

May 2025 - July 2025

*Full Stack Web Developer Intern*

*Remote*

- Built dynamic, responsive front-end interfaces in **React.js**, enhancing user experience and engagement.
- Engineered scalable **RESTful APIs** for efficient data management and interoperability with front-end modules.
- Designed and implemented complex **Mongoose schemas** with population methods to maintain relational data integrity.
- Implemented efficient **pagination** and robust **error handling** to improve backend performance and reliability.
- **Technologies used:** React.js, Redux, TailwindCSS, Node.js, Express.js, MongoDB.

## Projects

SkillOrbit - Empowering Education with Seamless Technology

[Deployed Link](#) | [Github Link](#)

- **Technologies used:** *React.js, MongoDB, Node.js, Express.js, Redux, Razorpay, JWT*
- SkillOrbit backend is built with **secure RESTful APIs** using Express.js, featuring role-based (**student, instructor, admin**) **JWT authentication**; integrated **Cloudinary** for media handling and **Razorpay** for seamless payments.
- SkillOrbit's frontend utilizes **Shadcn/UI** for components, **Tailwind CSS** for styling, and **Redux** for state management, ensuring an engaging and efficient user interface.

SamudraPath

[Github Link](#)

- **Technologies used:** *Python, Django, ReactJS, Evolutionary Genetic Algorithm*
- Developed a **multi-objective ship routing algorithm** for the Indian Ocean, optimizing **fuel, time, and safety** while avoiding ecological, piracy, shallow-water, and geopolitical zones under environmental and security constraints.
- Implemented a **hybrid approach** using **Theta\*** for initial pathfinding and the **NSGA-II** Genetic Algorithm for multi-objective optimization, engineered advanced **crossover and mutation** operators with validation mechanisms to improve path diversity and ensure only optimal routes progress to the next generation.
- Integrated **Mapbox API** into a responsive **web interface** to create an interactive 3D globe visualization, allowing users to explore and interact with optimized ship routes.

Early Alzheimer's Disease Detection

[Deployed Link](#) | [Github Link](#)

- Trained a **deep learning model** using **CNNs** on MRI datasets for **Alzheimer's detection**, achieving over **99% accuracy** with **TensorFlow (Keras API)**.
- Applied **OpenCV**, **NumPy**, and **PIL** to preprocess and augment medical images, improving model robustness.
- Built and **deployed** a user-friendly website using **Streamlit** on **Hugging Face** for end-users.

## Skills

**Programming Languages:** C, C++, JavaScript, SQL, Python

**Frontend:** HTML, CSS, React, TailwindCSS, Bootstrap, EJS

**Backend:** Node.js, Express.js, MongoDB, RESTful APIs, JWT

**Developer Tools:** Postman, VS Code, Git, GitHub, Vim

**Concepts:** Data Structures, Algorithms, Database Management Systems, Operating Systems, Computer Networks, Object-Oriented Programming

## Achievements, Honours and Awards

National Winner - Smart India Hackathon 2024

[Certificate Link](#)

- Ranked in the top 0.01% teams in a national-level competition with 49,000+ teams from 2,500+ institutions.
- Our team **Hello.World.LT** won first prize for the SIH problem statement stated by the **Ministry of Earth Sciences** for the **development of a versatile and fast algorithm for the optimal ship routing**

Selected for Amazon ML Summer School 2025

- Selected among top 3,000 candidates nationwide from 80,000+ applicants through a competitive screening test.

Successfully completed 30-day Google Cloud Challenge

[Profile Link](#)

Qualified **GATE 2025** in Computer Science and Information Technology.

Semifinalist in **TVS Credit E.P.I.C 6.0 — IT Challenge**.

Solved 800+ problems on various coding platforms

[🐙 Profile Link - Codolio](#)

🔑 [LeetCode](#) ⚙️ [GeeksforGeeks](#) 🍷 [CodingNinjas](#)

## Responsibilities

- Coached over 250 students up to Class X as part of the Student Gyan Movement Club at IIIT Gwalior.