

Tamal Mallick

Software Engineer specializing in BACKEND DEVELOPMENT, SCRIPTING, and MACHINE LEARNING using PYTHON

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EDUCATION

- **Indian Institute of Information Technology, Kalyani** 2021 - 2025
Bachelor of Technology in Computer Science and Engineering GPA: 8.26
- **New Barrackpore Colony Boys' High School** 2017 - 2019
Matriculation 91.8%
- **New Barrackpore Colony Boys' High School** 2019 - 2021
10 + 2 86.2%

EXPERIENCE

- **Deep Learning Intern (SERB) | IIIT Kalyani | [Report Certificate](#)** Jun 2024 - Jul 2024
 - **Skills Used:** Deep Learning, TensorFlow, CNN, YOLO, NumPy, Pandas, Matplotlib, Data Analysis
 - Developed deep learning models for "Cyclone Intensity and Track Prediction" using INSAT-3D data.
 - Achieved 99.6% accuracy in central pressure detection and fixed cyclone positioning with Mercator projection.
 - Preprocessed and visualized data with NumPy, Pandas, and Matplotlib for optimization.
 - Attended 5-7 weekly meetings with my guide, recognized as a top 1% performer for perseverance and learning.

PROJECTS

- **AI-Powered Surveillance Vehicle | [Code Report Demo-1 Demo-2](#)** Jul 2024 - Dec 2024
 - **Skills Used:** C/C++, Web APIs, Postman, YOLO, Machine Learning, Multithreading, UI/UX, PyQt
 - Built an ESP32-CAM surveillance vehicle with 360° mobility, integrating Postman-tested C++ web APIs.
 - Developed a desktop app with YOLO-based object detection, 720p streaming, and seamless real-time control.
- **Python Search Engine | [Code Report Live](#)** May 2024 - Jan 2025
 - **Skills Used:** Flask, BeautifulSoup, API Integration, Gunicorn, Nginx, Azure, Hugging Face, NLP, Pinecone
 - Developed a Python query search engine by web scraping 400K+ URLs, reducing them to 70K for indexing.
 - Integrated sentence transformer and Pinecone for advanced semantic search, deployed with Flask backend.
 - Hosted on Azure VM with Gunicorn, Nginx, and SSL for high performance and security.
- **Task Management and Collaboration System | [Code Report](#)** Sep 2024 - Oct 2024
 - **Skills Used:** Python, Flask, SQL, Postman, API Testing, Role-Based Permissions, Database Design
 - Developed a Flask backend to manage task, supporting personal/group tasks with role-based permissions.
 - Ensured 100% API coverage with Postman, using a scalable database and SRS-based feature implementation.
- **FREDS - Freedom of Expression in a Decentralized Society | [Code Demo](#)** Jul 2023 - Aug 2023
 - **Skills Used:** React, Web Development, Solidity, Blockchain, MetaMask, ML, Abuse Prevention
 - Led the development of a decentralized platform on the Polygon Mumbai network using Solidity and React.
 - Enabled secure profile creation, posts, comments, media sharing, and integrated ML for 90% abuse prevention.
- **Hand-Controlled Virtual Mouse | [Code Demo](#)** Aug 2023 - Dec 2023
 - **Skills Used:** Python, OpenCV, MediaPipe, UI/UX, PyQt, Multi-threading, Computer Vision
 - Developed real-time gesture recognition with OpenCV and MediaPipe in PyQt with 3x faster performance.
- **ReLearn - Edtech Platform | [Code Demo](#)** Jan 2023 - Mar 2024
 - **Skills Used:** React, Node.js, MySQL, MongoDB, WebRTC, UI/UX, Video Streaming, File Sharing
 - Developed a 100% fully responsive app with React, Node.js backend, video streaming, and file sharing.

REFERENCES

- [Dr. Anirban Lakshman](#) Assistant Professor at Indian Institute of Information Technology (IIIT) Kalyani
- [Dr. Uma Das](#) Assistant Professor at Indian Institute of Information Technology (IIIT) Kalyani