

SWARNABHA HALDER

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Career Objective: Computer Science undergraduate (Data Science) with systems-level expertise in machine learning, computer vision, and backend engineering. Applied experience **at Haldia Petrochemicals Ltd.** at a **production level, 100-5G -Use-Case-Lab** and the IDEAS Hub, **Indian Statistical Institute, Kolkata**, where I operationalized a forecasting platform that removed 90% of manual tracking. Skilled in engineering end-to-end predictive models and resilient data ingestion/processing pipelines using **Python, Pandas, SQL**; implemented ML and CV solutions with **TensorFlow** and **OpenCV**. Seeking to deploy **production-grade** automated inference pipelines and data architectures that convert noisy operational telemetry into decision-ready metrics.

Education:

Bachelor of Technology (Computer Science and Engineering), Sikkim Manipal Institute of Technology
(Status – Pursuing; University Reg No 202200248, Graduation in 2026) CGPA: 8.57

Skill Set:

Technology:	Emerging Field:
<ul style="list-style-type: none">a) Operating System: Linux, Windowsb) Languages: Python, C, C++, Javac) Office Suit: Word, Excel, Power Pointd) Backend : FastAPI, Django, Flaske) Database: MySQL, Sqlite, MongoDB, DuckDBf) Tools: Canvag) Scripting: Bash	<ul style="list-style-type: none">a) Artificial Intelligenceb) Data Sciencec) Data Analyticsd) Machine Learninge) Deep Learningf) Backend Developmentg) API Developmenth) Blockchain(Hashgraph)i) IOT & 5G Technology

Projects & Internship:

PrintFlow: A Secure Print Management and Forecasting Platform | Haldia Petrochemicals Ltd.

- Developed a full-stack analytics platform to parse Windows EVT-X print logs, analyse usage, and predict future toner needs.
- Engineered a secure backend using FastAPI and MySQL, and built a modern, interactive frontend with NiceGUI for data visualization.
- Implemented a SARIMAX-based machine learning model for forecasting and designed the complete data pipeline with PowerShell, which successfully reduced manual tracking by 90%

Venue: [Haldia Petrochemicals Ltd](#)

Duration: 2 months

AuthVision | 100-5G -Use-Case-Lab, Department of Telecommunication, Govt. of India at SMIT

- The smart attendance system based on AI was designed and developed using video surveillance, DeepFace, YOLO for facial detection, ArcFace for embeddings, and anti-spoofing techniques for real-time identification of people.
- This is a very secure, scalable backend with role-based access, real-time WebSocket updates, and CPU-optimized deployment designed for institutional usage.

Venue: 100-5G -Use-Case-Lab (Sikkim Manipal Institute of Technology)

Duration: 4 months

A Smart Material Prediction System for Planetary Exploration | IDEAS Hub @ Indian Statistical Institute, Kolkata

- Created a machine learning platform that is able to classify and interpret planetary surface materials through seismic and geophysical data.
- Developed the web interface of the platform employing Python and Streamlit, making use of Pandas for data processing, Plotly for interactive visualizations, and DuckDB for database performance enhancement.
- Conceived and executed the fundamental data upload, preprocessing, and analytics modules, which facilitated the very quick analysis and the very accurate material classification for the planetary science applications.

Venue: [IDEAS - Institute of Data Engineering, Analytics and Science Foundation](#)
[Technology Innovation Hub @ Indian Statistical Institute, Kolkata](#)

Duration: 2 months

Medical Image Registration Using B-Spline Algorithm | Sikkim Manipal Institute of Technology (Inhouse)

- Developed an image registration pipeline to align multi-channel (RGBA, 8-bit TIFF) histopathology images using a B-Spline-based non-rigid registration method.
- Implemented iterative deformation field estimation and integrated the output into 3D Slicer to perform volumetric reconstruction of the tissue samples.
- Applied denoising and preprocessing filters to enhance alignment, achieving sub-pixel registration precision that significantly improved 3D reconstruction quality for diagnostic analysis.

Venue: Inhouse(Sikkim Manipal Institute of Technology)

Duration: 2 years

Titanic Survival Prediction Model

Developed a Titanic Survival Prediction Model using machine learning algorithms to predict passenger survival based on features like age, class, and sex. Applied data preprocessing, feature engineering, and model evaluation techniques to achieve accurate predictions.

Venue: Online

Duration: 1.5 months

Certification:

1. [NPTEL ONLINE CERTIFICATION on Introduction To Internet Of Things](#)(Top 5%)
2. [NPTEL ONLINE CERTIFICATION on Data Analytics with Python](#)
3. [IBM Data Science Specialization \[Credly\]](#)
 - a. [What is Data Science? \[Credly\]](#)
 - b. [Tools for Data Science \[Credly\]](#)
 - c. [Data Science Methodology \[Credly\]](#)
 - d. [Python for Data Science, AI & Development \[Credly\]](#)
 - e. [Python Project for Data Science \[Credly\]](#)
 - f. [Databases and SQL for Data Science with Python \[Credly\]](#)
 - g. [Data Analysis with Python \[Credly\]](#)
 - h. [Data Visualization with Python \[Credly\]](#)
 - i. [Machine Learning with Python \[Credly\]](#)
 - j. [Applied DataScience Capstone](#)
 - k. [Generative AI: Elevate Your Data Science Career](#)
 - l. [DataScientist Career Guide and Interview Preparation](#)
4. [Google certification on Crash Course on Python, Coursera](#)
5. [Arizona State University certification on Object-Oriented Programming and GUI with Python](#)
6. Hedera certification on Block Chain Technology
7. Technical Communication for Engineers

Hackathons:

1. Smart India Hackathon 2024 Project - Online Chatbot based ticketing system.
2. Smart India Hackathon 2024 Project - Online testing and monitoring of quality of medicines and consumables
3. Smart Bengal Hackathon 2024 Project – EcoTrace: Revolutionizing Carbon Emission Monitoring & Car Longevity Prediction
4. Hacktoberfest 2024 [\[Holopin\]](#)

Workshops / Trainings Attended:

1. 3-days workshop on Blockchain Technology(10-12 FEB, 2025), SMIT Campus, Sikkim, India.
2. 3-day workshop “Build & Break” on Cybersecurity / Web Development hosted under GDSC SMIT during 14th - 16th September 2023.
3. 14 hours of Machine Learning in the 7-Day Bootcamp hosted by GDSC during 17th - 23rd January 2024.
4. Phase 1 of the Creators of Metaverse Student Program, a 2-day Activation workshop in the academic year 2023-24 on Metaverse.
5. 1-day workshop on MERN STACK under DESUN TECHNOLOGY PVT LTD. on 23rd October, 2024

Recommendation:

1. Letter of Recommendation from Haldia Petrochemicals Ltd. General Manager (GM) Mr. Snehasis Halder

Educational Details:

Qualification	Name of Institute	Name of Board / University	Year of Passing	Percentage of Marks	Remark
B. Tech (CSE)	Sikkim Manipal Institute Of Technology, Majitar, Rangpo, Sikkim	Sikkim Manipal University, Gangtok, Sikkim	2026	8.57 (in 10 scale)(Top 20%)	Pursuing
Class XII (Science)	Ballygunge Govt. High School, Kolkata, West Bengal	WBCHSE	2019	77.4%	NA
Class X	Ballygunge Govt. High School, Kolkata, West Bengal	WBBSE	2017	89.7%	NA

Other Interests / Hobbies:

1. Exploring new technologies
2. Reading Books
3. Travelling

Personal Information:

Gender: Male **Nationality:** Indian **Marital Status:** Single

Date of Birth: 17-Sep-2001

Language Proficiencies: English, Hindi, Bengali

Permanent Address:

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Declaration: I hereby declare that all the information furnished above is true to the best of my knowledge and belief.

Date:05.08.2025

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