

EDUCATION

Masters in Machine Learning , University of Tübingen	Tübingen, Germany 2023–current
B.E. (with Hons.) in Computer Science and Engineering , Jadavpur University CGPA: 9.4/10 - First Class Distinction with Honours (add. 20 credits)	Kolkata, India 2019–2023

EXPERIENCE

Mercedes-Benz AG Working Student in Pattern Recognition Team <ul style="list-style-type: none">– Working student to support research on pattern recognition algorithms in self-driving cars	Sindelfingen, Germany April 2024 –current
TCS Research and Innovation Labs Research Intern at PERC Lab <ul style="list-style-type: none">– Vision model compression using lottery ticket hypothesis, channel pruning, and knowledge distillation– Coding a generic algorithm to input parent model along with user requirements and output the best inference model for the given hardware and software limitations	Mumbai, India May–Oct 2022
Google Summer of Code at Red Hen Lab Research Intern <ul style="list-style-type: none">– Hand Gesture Recognition in Videos using OpenPose, 3D CNN, and LSTM. Project link: GSoC page– Invited to Oxford IMCC online talk: YouTube link. Accepted in a symposium at ISGS, 2022: YouTube link– Supervisor – Dr. Peter Uhrig	Online Jun–Aug 2021
Jadavpur University Undergraduate Student Researcher <ul style="list-style-type: none">– Conducting research in deep learning and computer vision topics such as image processing, geoinformatics, social network analysis and medical data analysis.	Kolkata, India 2020–2023

PROJECTS

Check the detailed full list of current projects at <https://swadesh13.github.io/projects.html>

- **Transformer and Graph-based Prediction of Mechanism of Action in DTI** Jun 2023–Jan 2024
 - Multimodal biological data with graph neural networks and LLM-based protein and molecule encoders for predicting mechanism of action (MoA) in drug-target interactions (DTI). Manuscript under review.
 - Supervisor – Dr. Ujjwal Maulik
- **Rethinking Convolutions: Image Segmentation in Medical images** Aug 2022–Feb 2023
 - Developing fuzzy atrous convolutional layers for better image segmentation in medical datasets. Paper presented at IEEE ASPCON 2023 conference. 10.1109/ASPCON59071.2023.10396336
 - Supervisor – Dr. Ujjwal Maulik
- **Air pollution prediction using Spatio Temporal Graph CNN** Oct 2021–Feb 2022
 - Application of Spatio-Temporal Graph-based CNN model for air pollution prediction. Manuscript under review.
 - Codebase: github.com/Swadesh13/Pollution-STGCN

– Supervisor – Dr. Sarbani Roy

- **ADDS: Attention-based Detection and Trajectory Prediction in Counter-Drone Systems** Jan 2022
 - Presented concept of Transformer Encoder-Decoder based 2D trajectory prediction of drone in videos at MLDS Conference, 2022. Inspiration from Anticipative Video Transformer.
- **Image Classification & Object Detection on road anomalies dataset** Mar–Sep 2021
 - Two papers on classification and object detection models on a self-annotated collection of road anomaly images. One manuscript published in Springer MONE (10.1007/s11036-023-02118-6), another under review.
 - Supervisor – Dr. Sarbani Roy
- **EQ - Virtual Queue for the new normal** August 2020
 - Developed web app backend using Node js and MongoDB for the HCL Better Health Hackathon.
 - Code: github.com/Swadesh13/ShopSafe
- **Neural Style Transfer** April 2020
 - Short coding and documentation Project on Image generation by combining content and style images.
 - Code: github.com/Swadesh13/Neural-Style-Transfer

SKILLS

- **Programming:** C, C++, Python, Bash, Java, Javascript
- **ML Frameworks:** PyTorch, TensorFlow, Scikit-Learn
- **Backend:** Node JS, Java Servlets
- **Frontend:** HTML, CSS
- **Database:** SQL, MongoDB
- **Other Tools:** Git, Jupyter, L^AT_EX
- **OS:** Linux (Ubuntu)

LANGUAGES

- **English:** Fluent
- **Bengali:** Native Language
- **Hindi:** Proficient
- **German:** Basic

ACHIEVEMENTS

- Selected for the Google Research Week 2023 at Bangalore, India (Jan 29-31, 2023) Jan 2023
- Jagadis Bose National Science Talent Search Senior Scholarship 2019–2023
- Rank 49 (Top 2%) in SIIM-ISIC Melanoma Classification, 2020 (Kaggle) 2020
- Letter of Recognition from West Bengal State for AISSCE 2019 results 2019

EXTRACURRICULAR ACTIVITIES

- Mentor at GSoC, Red Hen Lab Jun–Aug 2023
Extended work on hand gesture recognition based on GSoC 2021 work.
- Secretary at DevHub, Jadavpur University Jan 2021–Feb 2022
Managing a community-based developers group. Session videos available on YouTube.
- Sports & Games
Tennis, Badminton, Cricket, Chess
- Musical Instrument
Flute