# ANIRBAN BHATTACHARJEE

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## SUMMARY

With a Master's degree in Signal Processing & Communication Engineering and Instrumentation & Applied Physics, I am highly capable and motivated. Strong knowledge of programming languages such as Python, C, and C++, as well as tools such as OpenCV, TensorFlow, and Keil MicroVision. Extensive machine learning, deep learning, and data analysis experience, as proven by successful projects in real-time sign language recognition, GPR target categorization, and power supply design. With unrelenting focus and passion, I am ready to take on new challenges in the field of machine learning and deep learning.

## EDUCATION

**Master of Technology (M.Tech)**, Signal Processing & Communication — 2021-2023
Department of Electronics & Communication Engineering, Gauhati University

**Master of Science (M.Sc)**, Instrumentation & Applied Physics — 2019-2021
Department of Instrumentation & USIC, Gauhati University

**Bachelor of Science (B.Sc)**, Electronics — 2016-2019
Department of Electronics, Digboi College, Dibrugarh University

**The Little Stars Sr. Sec. School**, Science — 2014-2016
Digboi

## SKILLS

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|---|---|
| **Programming Languages** | Python, C, C++, Embedded C, Verilog |
| **Tools** | YOLO, OpenCV, Vivado, Keil MicroVision, Arduino, StreamLit |
| **Machine Learning** | Algorithms, Models, Evaluation Metrics |
| **Deep Learning** | Neural Networks, TensorFlow, Keras |
| **EDA** | Pandas, NumPy, Matplotlib, Seaborn |

## PROJECTS

1. **A Comparative Analysis of YOLOv5 and YOLOv8 for Real-World Traffic Sign Detection.** This study aims to evaluate and compare the performance of two state-of-the-art object detection models, YOLOv5 and YOLOv8, specifically in the context of real-world traffic sign detection scenarios. (Article Link)
2. **Real-Time Continuous Indian Sign Language Recognition System using YOLOv5 & YOLOv8 with StreamLit Web-Application Framework (M.Tech Final Project).** The Real-Time Continuous Indian Sign Language Recognition System using YOLOv5 & YOLOv8 with StreamLit Web-Application Framework for UI.
3. **Deep Learning based Indian Sign Language (ISL) recognition.** Convolutional Neural Network (CNN) based Indian Sign Language (ISL) recognition system.
4. **Cosine Similarity-Based Movie Recommendation System with Streamlit Deployment.** This project presents a movie recommendation system built using Python and Streamlit for web app deployment. It leverages cosine similarity to analyze movie data and recommend films similar to a user's chosen preference. (Article Link)
5. **Application of Deep Learning Algorithms for GPR Target Shape Detection and Material Classification (M.Sc Final Project).** An artificial neural network (ANN) model for automatic classification of object shape and material classification is proposed. Synthetic dataset using gprMax is created and used to train and validate the proposed ANN model. (Paper)

6. **Design a Data Acquisition System using 8051 and ADC0808 to read temperature data from LM-35 Temperature Sensor.** A Data Acquisition System using 8051 and ADC0808 to measure temperature data from LM-35 temperature sensor to collect temperature data for a period of time to observe change in temperature is a perfect system to design and learn about interfacing LM-35 sensor with 8051 microcontrollers.
7. **Design and Fabrication of Multi-Output DC Power Supply.** Design a power supply having a 5V, ± 12V and a variable output power source.

## RESEARCH PUBLICATIONS

1. **Artificial Neural Network based automatic classification of target shapes from GPR data**
   Nairit Barkataki, Anirban Bhattacharjee, Sharmistha Mazumdar, Banty Tiru, Utpal Sarma
   *IEEE International Conference on Computation System and Information Technology for Sustainable Solutions (CSITSS)*, 2021.
   (Paper)

## CERTIFICATIONS

1. **Machine Learning Pipelines with Azure ML Studio,** Coursera.(Certificate) Jan 2023
2. **Best Paper Award : CSITSS-2021,** RV College Of Engineering, Bengaluru. Jan 2022
3. **Complete Tensorflow 2 and Keras Deep Learning Bootcamp,** Udemy. (Certificate) Sep 2021
4. **Python Mega Course: Learn Python in 60 Days, Build 20 Apps,** Udemy. (Certificate) Feb 2021

## ADDITIONAL EXPERIENCES & ACTIVITIES

1. **3-Days Hands-On workshop on "Introduction to Machine Learning & TensorFlow",** The Little Stars Senior Secondary School, Digboi - Resource Person, August 2023.
2. **Short-Term Course on Foundations of Machine Learning and Deep Learning and Applications,** Department of Electronics & Communication Engineering, Gauhati University - Participant, March 2023.
3. **Department Representative,** Department of Electronics & Communication Engineering, Gauhati University, 2022-2023.
4. **8th School of System Designing using Microcontroller,** Department of Instrumentation & USIC, Gauhati University - Tutor, May 2022.
5. **Second International Conference on Advances in Electrical, Electronic and System Engineering, IEEE,** Gauhati University - Volunteer, 2019.
6. **7th School of System Designing using Microcontroller,** Department of Instrumentation & USIC, Gauhati University - Participant, February 2019.