

Anubrata Bhowmick

MACHINE LEARNING ENGINEER · DATA SCIENTIST · MS (MAJOR IN COMPUTER SCIENCE)

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Summary

Machine Learning Engineer with proven experience in Medical Imaging, Computer Vision and Brain Computer Interface. Currently doing my Masters Thesis at University of Twente, in collaboration with Philips Research. Pursuing Data Science, after Bachelors in Information Technology, with experience in competitive programming, having participated in ACM-ICPC Regionals in Amritapuri, India and Eindhoven, Netherlands.

Education

University of Twente

M.S. IN COMPUTER SCIENCE

Enschede, Netherlands

Sept. 2019 - Exp. Aug. 2021

- Currently studying at Computer Science Faculty of University of Twente, holding a GPA of 7.2/10.0*.
- Secretary of the Rially 2020 committee of Inter-Actief.

University of Twente

CHANGE LEADERSHIP AND MANAGEMENT

Enschede, Netherlands

Sept. 2019 - July 2020

- Gained significant knowledge in the field of leadership and management.
- Created a pitch deck as a part of the final project for my travel startup idea.

Bengal Institute of Technology, Kolkata(under MAKAUT)

B.TECH. IN INFORMATION TECHNOLOGY

Kolkata, India

Aug. 2012 - July 2016

- Graduated with a Bachelor of Technology in Information Technology, securing an overall GPA of 8.15/10.0.
- Technical Secretary of Bits2Bytes(Tech fest of BiT) and co-founder of coding club BiT.

Work Experience

Philips Research

RESEARCH AND DEVELOPMENT INTERN

Eindhoven, Netherlands

Aug. 2020 - Present

- Prepared a coregistered dataset from separate T1 voxelwise brain segmented images to be used as atlas over the preprocessed T1 images with 97% accuracy.
- Preprocessed and denoised the images along with level-1 and level-2 cluster analysis, resulting in correlation matrix over subjects.
- Cluster Analysis of the correlation matrices in native space and MNI space, showing that native space analysis does a comparatively better job in finding the correlation of the regions of the brain.
- Research and Development of a Graph Neural network, predicting which parts of the brain are responsible for resilience*.
- Tech Stack: Python, Matlab

University of Twente

GRADUATE TEACHING ASSISTANT

Enschede, Netherlands

Feb. 2020 - May 2020

- Assisting students during the practical sessions in C++, comprising mainly of Data Structures and Algorithms
- Leading a group of students in the development of Pacman game with C++ and OpeCV.
- Tech Stack: C++, OpenCV

Tata Consultancy Services

SYSTEMS ENGINEER

Kolkata, India

Aug. 2016 - Feb 2019

- Asst. Systems Engineer, promotion: Systems Engineer, responsible for end to end development of TCS BaNCS.
- Designed Recommender System, taking into account over 1000s of data points for recommending the perfect insurance plan for clients, resulting in 80% retention of clients from all over the globe.
- Led a team of 6 in other feature development, including finding black-listed people and transaction management system.
- Tech Stack: Java Python, PL/SQL, Docker, Kubernetes

Skills

Programming	C++, Python, R, Matlab, Spark
DevOps	Docker, Kubernetes, Bash scripting
Data Engineering	Apache Kafka, Beam & Flink
Databases	Oracle, MySQL
Tools	Jira, Git, Kibana, ElasticSearch
Languages	English
Industry knowledge	Machine Learning, Natural Language Processing, Brain Computer Interface, Medical Imaging
Interpersonal Skill	Leadership, Public Speaking

Projects

Classification of COVID-19 using CT Scan

Enschede, Netherlands

ADVANCED COMPUTER VISION PROJECT

May 2020

- Prepared a new dataset from CT-Scans by the process of Local Binary Pattern and Dominant Neighbourhood Structure in order to enhance features for classification.
- Performed an object detection, decreasing the feature space for proper classification.
- Deployed a neural network to perform classifications on LBS, normal and DNS datasets and combining them using a SVM classification, getting an overall accuracy of 71%.

Transfer Learning for Sleep Stage Detection

Enschede, Netherlands

REDI PROJECT

May 2020

- Implemented Transfer Learning for shortage of dataset, where public datasets were used for initial pre-training before using the original dataset for classification.
- Implemented Layer Freezing, understanding which layers of Deep Neural Networks are able to learn faster.
- Researched and experimented a variational autoencoder with KL-Divergence, minimizing the differences in dataset distribution and learning the features in the process.

3D tracking of facial features

Enschede, Netherlands

IMAGE PROCESSING PROJECT

May 2020

- Implemented Object Detection in 2D and 3D space, tracking the movement of the tip of the tongue with 80% accuracy using Optical Flow.

Early Identification of complications after surgery

Enschede, Netherlands

DATA SCIENCE PROJECT

Feb. 2020

- Analyzed patients' data using exploratory data analysis methods to find the relevance between the people's age, sex and physical conditions to developing complications after surgery.
- Devised a Machine Learning model to classify patients at risk and compare them with the general Medical Early Warning System (MEWS) score, finding that our model performs better.
- Used our model's threshold to find the people at risk and non-risk, getting an accuracy of around 85% for unseen datasets.

Microsoft Malware Prediction

Enschede, Netherlands

ADVANCED MACHINE LEARNING PROJECT

Nov. 2019

- Dataset of over 9 million records were analyzed and pre-processed for preventing Windows machines from being affected by malware
- Few Machine Learning models were developed, out of which Light Gradient Boosting model performed the best with an accuracy of around 67%.

Extracurricular Activity

Rially 2020 Committee

Enschede, Netherlands

SECRETARY

Feb. 2020 - Present

Secretary for Rially 2020, under the umbrella of Inter-Actief, responsible for the management of the event Rially 2020.

ACM-ICPC

Enschede, Netherlands

PARTICIPANT

Jan 2020

Participated in ACM-ICPC 2020 Northwest European Regionals after qualifying 2 rounds from the University and the Benelux regions, getting a final rank of 82 amongst 150 teams.

Personal portfolio

Enschede, Netherlands

DEVELOPER

Feb. 2020 - PRESENT

Developed a personal portfolio under <https://anubratbhowmick.github.io/>, showcasing all of my achievements and the work I've performed so far in my career.