Debargho Basak
Master's Student

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Motivated, hardworking, and driven computer science Master's Student with a track record in Software development and Machine Learning. Ability to identify business needs to develop software solutions to real-world problems. Seeking an opportunity to gain further experience in Machine Learning to drive business effectiveness through AI.

WORK EXPERIENCE

Student Research Assistant
Fraunhofer AISEC

11/2022 - Present *Garching, Germany*

Achievements/Tasks
- Performing cutting edge research at the intersection of Machine Learning, AI and Cybersecurity.
- Aiding in the development of deep learning based security technologies to increase the reliability, trustworthiness and protection against manipulation (adverserial attacks) of Computer Vision and Perception software products.

Natural Language Processing Research Intern
Convaise A.G.

05/2022 - 09/2022 *Munich, Germany*

A Munich based AI startup that provides NLP based solutions for the industry using their no code platform.

Achievements/Tasks
- Developed a SOTA novel clause splitting approach in English and German to be integrated and deployed into the company's NLP software products.
- Implemented an NLP pipeline combining the latest research in the fields of Text Simplification and Open Information Extraction to achieve clause splits using frameworks such as Hugging Face, PyTorch.
- Performed model quantization and pruning to improve performance during deployment.
- Deployed our solution to Kubernetes using Docker.

Werkstudent
Siemens

02/2022 - 07/2022 *Munich, Germany*

Achievements/Tasks
- Built a data visualization web app for internal usage within the firm.
- Created active, functional and responsive user interfaces for smooth user experience.
- Built landing pages for different data concepts containing interactive visualizations.
- Integrated an API that fetched, parsed and formatted analytic data and relayed it to React components.

PROGRAMMING SKILLS

Languages
Python, C++, R, Javascript, MATLAB, Java, ROS

Tools & Frameworks
PyTorch, Hugging Face, Keras, OpenCV, SpaCy, Git, JAX, CUDA, ONNX Runtime

Database
SQL, MongoDB, Apache Spark

Operating Systems
Linux, Microsoft Windows, Ubuntu

Productivity
LibreOffice, Microsoft Office, LATEX

Other:
Kubernetes, Docker, FastAPI, AWS SageMaker, Bash

KEY PROJECTS

Large Scale Differential Privacy Training (10/2022 - 03/2023)
- Designed an end-to-end architecture for medical image (2D and 3D) classification while maintaining the privacy of source data.
- Used DP-SGD (Differentially Private Stochastic Gradient Descent) to quantify the privacy of the training mechanism.
- Proposed architecture achieves parity in image classification performance between Differentially Private and Non Differentially Private models.
- **Frameworks Used :** Python, JAX, PyTorch, OpenCV, CUDA

Learning Long Range context in Legal Texts using MLP mixers (10/2022 - 03/2023)
- Experimented with MLP (Multilayer Perceptron) mixers to perform Natural Language Understanding tasks on Legal texts.
- Created an Attention free NLP pretraining pipeline.
- Benchmarked the performance of MLP mixers against Transformers for LexGLUE.
- **Frameworks Used :** Python, Hugging Face, PyTorch, CUDA

3D LiDAR to Image (10/2022 - 11/2022)
- Created a tool that converts 3D LiDAR pointclouds to 2D images.
- Supports several 3D LiDARs and multiple pointlcoud modalities.
- Can be seamlessly mounted on a ROS workspace for deployment.
- **Frameworks Used :** C++, Cmake

WORK EXPERIENCE

○ **Analyst**
Bain and Company

06/2021 - 09/2021   *Gurgaon,India*

Achievements/Tasks

- Modelled data on Revenue, Sales, and Money flow data of Organizations.
- Analysed Data thoroughly on Organization's structure, revenue streams, markets and customer bases using R, Python and Power BI.
- Created interactive data reports and visuals that represent different findings and insights from the project.
- Collaborated with other International Bain teams based out of USA, Poland and Australia.

EDUCATION

○ **Msc. Informatics**
Technische Universität München

10/2021 - Present   *München, Bayern, Deutschland*

Courses

- **Focus Areas:** Machine Learning, Deep Learning, Computer Vision, NLP and Software Engineering.
- **Relevant Coursework:** Machine Learning,Computer Vision 3, Introduction to Deep Learning, Machine Learning for 3D geometry.

○ **B.E. in Instrumentation And Control Engineering**
Netaji Subhas University Of Technology (erstwhile Netaji Subhas Institute of Technology) | University of Delhi

06/2017 - 07/2021   *New Delhi, India*

Courses

- **GPA**: 9.09/10(German equivalent = 1.4).
- **Focus Areas:** Software Engineering, Electronics and Robotics.

KEY PROJECTS

Object-Detection (05/2021 - 06/2021)

- Designed an end-to-end architecture by combining YOLO and DeepSORT to perform real-time object detection, recognition and localization of objects in its camera view.
- Modified YOLOv3 and YOLOv4 to attain fast computations with lesser computational requirements and sub-second inference times.
- Proposed architecture allows for a diverse set of applications based on the detected object (Pedestrian Counting).
- **Frameworks used :** Python**,** PyTorch, OpenCV, CUDA

PUBLICATIONS

Research Paper
A Comparative Analysis of Intelligent Classifiers for Seizure Detection Using EEG Signals
Author(s)
Debargho Basak, Arshdeep Singh, Upmanyu Das, Priya Chugh, Dr. Jyoti Yadav
22/07/2021
Springer/Advanced Computing and Intelligent Technologies /577-591

https://lnkd.in/esWN7yj

CERTIFICATES

Machine Learning A-Z™: Hands-On Python & R In Data Science (04/2021 - Present)
Credential ID:- UC-2f1eb491-88a3-45df-9c36-adbcfb97e668

LANGUAGES

English
Native or Bilingual Proficiency

French
Elementary Proficiency

German
Professional Working Proficiency

Italian
Limited Working Proficiency

INTERESTS/HOBBIES

| Reading | Football | Video Games | Music |