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EDUCATION

New York University: Master of Science: Computer Engineering | GPA 3.778/4 **May 2023**

Netaji Subhas Institute of Technology: Bachelor of Engineering: Instrumentation and Control | GPA 7.53/10 **June 2017**

RESEARCH EXPERIENCE

Scene Summarization, AI4CE Lab, New York University **Aug 2022 – Current**

➢ **[Python | NumPy |Matplotlib | Pytorch | Git]**

- Summarize a collection of single scene-level images to a small set of representative images.
- Realize representative frame structure using contrastive learning and deep auto-encoder.
- Comparing different approaches of contrastive learning based on two new metrics. One measures diversity by calculating GPS variance and the other which measures importance score by measuring the neighbor density of the selected frames.

Predicting Spread of Metastatic Cancer Using Deep Learning, NYU Video Lab, New York University **Aug 2022 – Current**

➢ **[Python | NumPy |Matplotlib | Pytorch | Git]**

- Understanding and predicting metastatic brain cancer based on the newly released NYUMets_Brain v1.0 dataset.
- Train a model that can segment the brain cancer in the brain MRIs.
- Comparing a variety of sequence processing deep learning architectures for time series analysis of brain MRIs.
- Help scientists and clinicians to focus on cancer dynamics – how metastatic cancer changes over time.

TEACHING AND WORK EXPERIENCE

Introduction To Machine Learning Course Assistant, New York University **Sept 2022 – Current**

➢ Involved in creating and grading homework, and exam solutions. Regularly held office hours to clarify doubts. Lead coding/debugging sessions and engaged with students.

Real-Time Embedded Systems Course Assistant, New York University **Jan 2022 – May 2022**

➢ Involved in preparing course content, homework, and grading for the class. Regularly held weekly office hours for teaching and doubt clearances. Mentored students on their final project.

Software Engineer, GO-MMT Goibibo Group **Jan 2019 – Apr 2021**

➢ **[Python | DJANGO framework | Kafka| REST APIs | Redis | Crontab | MongoDB | Git]**

- Worked on Hotel vertical, which required creating, storing, and maintaining hotel data from different vendors through the backend (achieved near 100%).
- Worked upon improving image selection and image processing criteria for Hotel Search Result Pages which increased image visibility from 78% to 97%.
- Developed APIs which were used by various other teams as per their requirements, along with that, developed dashboards and panels for an easier and smooth working of the marketing team for their different events, offers, and other campaigns.
- Developed domestic and international destination verticals from scratch, handled Trains and Bus verticals as well and improved the overall SEO rankings, brought to 1 for many hotels and areas.

Software Engineer, Bhavna Software India Pvt Ltd. **Jun 2017 - May 2018**

➢ [**Angular 2 | Typescript | C#| .Net| MySQL]**

- Worked on different operations associated with Lease modules like Create, Read, Update, Delete (CRUD), importing, exporting, and maintaining all lease records and associated data.

PROJECTS

Machine Learning/ Deep Learning Projects

➢ [**Python | NumPy |Matplotlib |MATLAB |Sklearn| Pytorch | Pyspark | Dask | Hadoop]**

- Developed Recommender Systems on MovieLens dataset (Big Data of 58000 movies and 280000 users) based on baseline Popularity and Collaborative Filtering models. These models were further compared on various ranking metrics like Precision ranking, Normalized Discounted Cumulative Gain, Root Mean Squared Error, and Catalog Coverage. Along with that, there was benchmarking done for single-machine execution as well as cluster-based execution.
- Developed a GAN-based extension to WaveNet architecture to generate raw music of various emotions and genres and not just one.
- Implemented all the major architectures from scratch starting from LeNet, AlexNet, GoogLeNet, VGG, ResNet, Seq2Seq, Seq2Seq with Attention, Transformers, GANs, Image Segmentation, YOLO V1, and V3 to gain better insights.

Real-Time Embedded System Project

➢ [**C |C++ | mbed.h | Gyroscope | STM32F429I-discovery board microcontroller | Assembly Language]**

- Developed an embedded system project that focused on gathering, processing that data, and providing a useful representation of information.
- A wearable speedometer that calculated velocity by measuring angular velocities from a gyroscope – without a GPS- was designed and built. Strategically placing the sensor and microcontroller on the legs or feet could capture the angular velocities and after some signal processing, convert those angular velocities to linear velocities and finally calculate the distance traveled (a prototype of a Fitbit or Apple watch but without GPS and only Gyro). An accuracy of 86% was achieved.

TECHNICAL SKILLS

➢ **Programming and Frameworks**: Python (NumPy, Pandas, Matplotlib, Pytorch, Pyspark, Dask), Django, Hadoop, C, C++, Git

➢ **Databases:** MySQL, MongoDB