SHOUMIK MAJUMDAR

LinkedIn: ShoumikMajumdar   Portfolio : Shoumik Majumdar   GitHub : ShoumikMajumdar
Email: shoumikmajumdar@gmail.com   Mobile: (857) 588-2263

EDUCATION

Boston University, Boston, MA.   **Sep 2019 – Jan 2021**
MS, Computer Science.   **GPA: 3.68**
Selected Coursework: Machine Learning, Computer Vision, Natural Language Processing, Robot Learning and Vision for Navigation, Artificial Intelligence, Object Oriented Design, Graduate Algorithms.

University of Mumbai, Mumbai, India.   **Aug 2014 - May 2018**
BE, Computer Engineering.

TECHNICAL SKILLS

Languages: Python, Java, C, C++, MySQL, R.
Technologies/Platforms: Linux, Bash, TensorFlow, PyTorch, Keras, OpenCV, Numpy, Pandas, Scikit-Learn, Git, Docker, Flask, , AWS, EC2, S3.

WORK EXPERIENCE

Boston University - Graduate Research Associate.   **Sep 2019 – Present**
- Collected, Annotated and Filtered the 1st video human action recognition dataset for action recognition curated specifically for purpose of domain generalization with Prof. Sarah Adel Bargal.
- Developed a model to align both spatial and temporal shifts across multiple domains and perform classification on videos using adversarial feature augmentations.
- Currently working towards a submission to ICCV2021 by extending our model by incorporating spatiotemporal explainability.

Affectiva – EMpath 2020 Graduate Student Mentor.   **Jun 2020 – Aug 2020**
- Mentored college student trainees for Affectiva's EMPath 2020 Student Artificial Intelligence Education Program in the development of an emotionally enabled IOT product.
- Developed and prototyped a smart mirror that is enabled to provide emotional support to mental health patients by leveraging facial expressions and speech recognition engines.

Boston University - Department of Medicine Kolachalama Laboratory.   **Mar 2020 - Aug 2020**
- Engineered a bidirectional Long Short-Term Memory (LSTM) network to compute residue level and sequence level solvent accessible surface area (SASA) for an Antibody Sequences.
- Developed quantitative metrics to evaluate obtained results against theoretical values calculated from antibody's crystal structure.

RECENT PROJECTS

Recommendation Systems for Movies.   **Dec 2020 - Jan 2021**
- Implemented a robust recommendation engine for movies using Content based and Collaborative filtering. Engineered a way to deal with the cold start problem by suggesting most popular items.
- Used an item-based memory approach and the SVD matrix factorization method for collaborative filtering. Leveraged features such as genres, cast, crew and keywords from the plot for content-based recommendations.
- Deployed the recommendation system as a web application using Flask.

Reinforcement Learning agent for self-driving car on OpenAI gym.   **Oct 2020 - Dec 2020**
- Trained a self-driving agent using DeepQ and Double DeepQ reinforcement learning algorithms on OpenAI Gym's Car Racing environment.
- Implemented the Epsilon-Greedy algorithm to address the multi armed bandit problem of the exploration-exploitation tradeoff.
- Resulting agent led to an average score of 631 out of a maximum possible score of 1000 over 10 trials on random seeds. The agent was the highest scoring agent among 10 other models.

Chest X-Ray classification for COVID19 detection.   **Mar 2020 - Apr 2020**
- Designed an image classifier to perform binary classification and multi class classification to distinguish between COVID19 patients and Pneumonia patients.
- Reviewed and compared results with pretrained model architectures such as ResNet50, VGG19 and Inception to determine best architecture to solve given problem.
- Model engineered outperformed 80% of compared models which provided reasonable evidence in determining best architecture to solve given problem.