

SHOUMIK MAJUMDAR

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EDUCATION

Boston University, Boston, MA.

MS, Computer Science.

Selected Coursework: Machine Learning, Image and Video Computing, Natural Language Processing, Artificial Intelligence, Object Oriented Design, Algorithms, Directed Study on Video Domain Adaptation.

Expected Jan 2021

Current GPA: 3.62

University of Mumbai, Mumbai, India.

BE, Computer Engineering.

Aug 2014 - May 2018

TECHNICAL SKILLS

Languages : Python, Java, C, SQL, R.

Technologies/Platforms : Tensorflow, PyTorch, Keras, OpenCV, scikit-learn, MapReduce, Spark, Hive, HBase.

WORK EXPERIENCE

Boston University - Graduate Researcher.

Sep 2019 - Present

- Collected, Annotated and Filtered the first domain generalization Video 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.
- Collaborated and documented research results and findings for WACV2021.

Boston University - Department of Medicine Kolachalama Laboratory.

Mar 2020 - Present

- 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 using the SASA scores to determine likelihood of a human body accepting an antibody and evaluated results against theoretical values calculated from antibody's crystal structure.

Genesys International Corp - Data Engineer Intern.

May 2018 - Oct 2018

- Effectuated data extraction, data cleaning, data aggregation using NoSQL database .
- Identified ways to promote data consistency, availability and partition tolerance.

RECENT PROJECTS

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 different model architectures such as ResNet50, VGG19, Inception-ResnetV2 and Xception pre trained on the ImageNet Dataset.
- Model engineered outperformed 80% of compared pretrained models with maximum validation accuracy of 68%.

Semi Supervised Multi Source Domain Adaptation.

Oct 2019 - Dec 2019

- Devised a high accuracy model trained on multiple source domain, to classify images on an unseen target domain using domain adaptation principles.
- Utilized a Moment-Matching approach to align image features between source and target domains and explored different distance metrics to determine overall loss function.

Java based Grading System.

Oct 2019 - Dec 2019

- Designed a software that makes it easier for a client to organize the grades of the students enrolled in her courses at the end of the semester.
- Designed the system keeping in mind the users requirements and the current system being used.
- Retained the benefits of the current system and addressed the requirements of the client by making the software environment reusable.

Time Series Prediction Using RNNs.

Jul 2018 - Aug 2018

- Engineered a stacked Long Short-Term Memory(LSTM) network to determine value of financial assets over time.
- Optimized the model using data over a time period of two years using a 60-day sliding window approach.
- Used the the model to estimated opening stock prices of Reliance Industries Ltd and Google.

Ensemble Learning with AdaBoost and Bagging.

Jan 2018 - Apr 2018

- Developed an ensemble learning model with Adaptive Boosting (AdaBoost) and Bootstrap Aggregating (Bagging) techniques on multiple base classifiers to boost model performance.
- Constructed voting method to regularize bias-variance tradeoff and compared results on several datasets from the UCI Machine Learning repository.

Students Performance Prediction and Analysis.

Sep 2017 - Mar 2018

- Developed a classifier to predict a particular student's marks in an upcoming examination based on scoring scheme designed by the University of Mumbai.
- Engineered a Generative classifier (Naive Bayes) and a Discriminative classifier (ID3 Decision Tree) and compared the effects of the Naive Independence assumption.
- Develop models were used by the training and placement cell to evaluate student scores before a placement hiring session.

CERTIFICATION

- Scientific Computing Using Python IIT Bombay. Mar 2017
- Microsoft Technology Associate Security Fundamentals. Apr 2017
- Machine Learning: Hands-on in Python and R. Jul 2018
- Deep Learning: Hands-on Artificial Neural Networks. Aug 2018
- Diploma in Hindustani Classical Singing. Aug 2004 - Aug 2012
- IIT Techfest - 3rd Place in Lift Off competition. Jan 2011

SELECTED LEADERSHIP EXPERIENCE

- Spearheaded executive team responsible for organizing a marathon in Mumbai in 2018 aimed at creating awareness about need for women empowerment with over **2000 participants**.
- Led and coordinated volunteering team for beach cleaning drive resulting in removal of **7.2 million Kilograms of plastic waste** from beaches of Mumbai.

MENTORSHIP AND OUTREACH

- Mentored college student trainees who participated in Affectivas EMPATH 2020 Student Artificial Intelligence Education Program in the development of an innovative Hackathon project related to **Emotion Enabled IOT**, that comprised development of a **smart mirror that provides support to mental health patients**.
- Mentoring high school student Adar Tulloch from Oberlin College, Ohio.
- Founded students chapter of **Association for Computing Machinery (ACM)** and served as Chair Person during senior year.
- Academic mentor for 30 undergraduate students at Rajiv Gandhi Institute of Technology, University of Mumbai.
- Seminar Series Coordinator - Image Processing and Machine Learning at Rajiv Gandhi Institute of Technology, University of Mumbai
- Conducted and delivered seminars on Machine Learning to High School students as part of Rajiv Gandhi Institute of Technology's Reach and Teach initiative during senior year.

VOLUNTEER EXPERIENCE

- Raised for ADAPT Able Disable All People Together (formerly The Spastics Society of India).
- Volunteered for beach cleaning drive that resulted in removal of 7.2 million Kilograms of plastic waste from the beaches of Mumbai.
- Spearheaded executive team responsible for organizing marathon in Mumbai aimed at creating awareness about need for women empowerment with over 2000 participants.
- Seminar Series Coordinator, Image Processing, Rajiv Gandhi Institute of Technology, University of Mumbai.
- Academic mentor for 30 students at Rajiv Gandhi Institute of Technology, University of Mumbai.