Siddhartha Mishra

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Education

MS in Computer Science
University of Massachusetts Amherst, MA, USA *Jan 2021 - Present*
Courses: Machine Learning, Distributed Systems

B.Tech. in Computer Science and Engineering and Eng. Science
Indian Institute of Technology(IIT) Hyderabad, India, 8.78/10 GPA *2015 - 2019*
Courses: Deep Learning, Bayesian Data Analysis, Theory of Learning and Kernel Methods, Data Mining, Information Retrieval

Experience

IESL Lab, UMass Amherst
Graduate Researcher, Prof. Andrew McCallum *Jan 2021 - Present*
- Evaluating Ideal Case Performance of Clustering Algorithms with Hyperparameter Optimization utilizing a novel evaluation framework.
- Using Variational Inference technique on the Gaussian process formulation of the optimization problem. [*PyTorch, wandb, NumPy*]

Goldman Sachs Private Ltd.
Analyst *May 2019 - Dec 2020*
- Worked in Enterprise Machine Learning platform team on metric analysis, models for alert prediction and resolution using serverless frameworks. [*TensorFlow, AWS Lambda*]
- Maintained dashboards for monitoring stack and managed model deployment pipeline. [*Prometheus, Grafana, Kubernetes*]
- Improved performance of search queries in Big data log analysis platform. [*Elasticsearch, Kibana, ReactJS*]

Goldman Sachs Private Ltd.
Summer Analyst *May-July 2018*
- Worked on a plugin for a graphical pipeline design tool of models used for prediction/auto-resolution of alerts.[*Angular, Rapidd*]
- Built a compiler for validating the pipeline and transform one payload format to another. [*NodeJS, Java*]

Technical skills

Languages: `Python, C++, C , Go, Java, Android, C#, Haskell, Prolog, MIPS,` LaTeX
ML/Data Science: `Tensorflow, PyTorch, Theano, NumPy, OpenCV, NLTK, SciPy, SKLearn, Pandas, MATLAB`
Devops/Tools: `Kubernetes, Prometheus, Kafka, Kibana, Elasticsearch`
Web: `HTML, CSS, JavaScript, AngularJS, ReactJS, NodeJS, Flask, MongoDB, SQL`

Academic Research/Projects

Multiclass Recurrent Gaussian Process for NLP problems [Code]
Dr. Srijith P.K. *Spring 2019*
- Formulated a multi-class model for recurrent Gaussian process using Variational Inference and ELBO gradient optimisation.
- Implemented a `Tensorflow` library to make recurrent Gaussian process models with support to add them as layers.
- Applied the model on various NLP problems such as Parts of Speech Tagging, Sequence encoding, NER etc. with lesser data to utilize the Bayesian model. [*TensorFlow, GPy, NLTK*]

Query Segmentation using LSTMs [Code]
Dr. Maunendra Deskar *Fall 2018*
- Designed a novel approach to Query Segmentation by mapping it to a sequence tagging problem.
- Used bi-directional LSTMs with/without CRF layers on webis-qsec dataset. [*Pytorch, NLTK*]

Deep reinforcement Learning model for self driving cars [Code]
Dr. Vineeth N. Balasubramanian *Spring 2018*
- Simulated environment using Mario Kart game using Asynchronous Actor Critic Advantage (A3C) to increase exploration rate and hence reducing training time in comparison to methods such as DQN.
- Designed an approximate reward function using CNNs to increase granularity of reward to accelerate learning. [*TensorFlow, OpenAI*]

Story similarity Detection/Clustering [Code]
Dr. Manish Singh *Spring 2018*
- Implemented LSH combined with MinHash for efficient similarity hashing using TF-IDF scoring. [NLTK, NumPy]
- Also tried Community Detection for a non-euclidean model on Tweets and Reuters data for news to find similar stories.[*louvain, NetworkX*]

Academic Achievements

- Academic Excellence Award for the highest CGPA in the Department for the Academic year 2016-2017 and graduated 2^{nd} in class.
- Qualified for ACM ICPC Amritapuri regionals and Kharagpur regionals 2017. Secured 49^{th} position among 265 teams in Amritapuri regionals 2017.
- Winner of "Honeywell Machine Learning Hackathon 2019" for the task of Automated Feature Extraction of Cockpit Images in Aircrafts.
- KVPY Fellowship by Indian Institute of Science, Bangalore; secured All India Rank 210.
- 97.66 percentile in JEE Advanced out of 150,000 candidates.
- Qualified INMO (Indian National Mathematics Olympiad) by clearing two stage regionals KVS-JMO and RMO; secured All India Rank 7.

Academic Responsibilities

MA2140: Statistics — **Prof. J. Balasubramaniam**
Teaching Assistant — *Spring 2019*

CS3530: Computer Networks-I — **Prof. Anthony Franklin**
Teaching Assistant — *Fall 2018*

MA2110: Probability — **Prof. J. Balasubramaniam**
Teaching Assistant — *Fall 2017*

- Worked closely with professors and fellow TAs to draft and evaluate assignments and exams. Assisted students with doubts and challenges faced throughout the course.