Aditya Jaishankar

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA.

Ph.D., **Mechanical Engineering** (Minor in Mathematics)   June 2014
M.S., **Mechanical Engineering** (*MIT Presidential Fellowship Awardee*)   June 2011

Indian Institute of Technology Madras, Chennai, India

Bachelor of Technology, Mechanical Engineering   July 2009

EXPERIENCE

Fellow, Insight Data Science, New York City   January 2020 - Present
- Created Magnetic Market, a tool that generates data-driven, location-specific, real-time event suggestions for managers of farmers markets to increase market attendance.
- Scraped and processed over five million tweets of followers of farmers markets using tweepy, nltk, gensim and spacy. Employed a combination of NLP techniques (LDA, word2vec embedding, SVM classifiers) to extract and automatically label topics of interest to customers of farmers markets.
- Developed a web app using streamlit and hosted it on AWS (bit.ly/magneticmarket)

ExxonMobil Research and Engineering, Corporate Strategic Research, Clinton, NJ   July 2014 - Present
Research Associate (Jan 2020 - Present), *Program Leader* (July 2018 - January 2020), *Senior Researcher* (January 2017 - January 2020), *Advanced Researcher* (July 2014 - January 2017)
- Led a multidisciplinary team of 8 Ph.D. scientists on a research program developing new high-strength polymeric materials. The team developed 12 new candidate high-strength polymeric materials.
- Utilized artificial neural networks as function approximators to solve mathematical models for molecular diffusion. Decreased time to find solutions by ~10x compared to conventional techniques.
- Solved differential equations using numpy, scipy, and scikit-learn for improving carbon capture processes. Explained experiments showing 7x increase in capture efficiency vs. current approaches.
- Managed 3 external academic collaborations with faculty at leading universities (Princeton, CCNY)

SKILLS

Programming Languages: Python, SQL, MATLAB, Mathematica
Tools: pytorch, scikit-learn, numpy, scipy, pandas, numba, nltk, gensim, spacy, matplotlib, git
Machine Learning: Classifiers, Clustering, Collaborative filtering, Neural networks (recurrent, convolutional, LSTMs), Mixture models, Reinforcement learning (Markov Decision Problems, Deep Q-Networks)
Quantitative Methods: Hypothesis testing, Bayesian Statistics, PCA, Linear Algebra, Nonlinear PDEs
Relevant Coursework: Algorithms, Statistics, Probability, Deep Learning, Reinforcement Learning
Publications: 14 publications in peer-reviewed journals, 4 provisional US patents and 7 conference talks

SELECTED MACHINE LEARNING PROJECTS

Jupyter notebook with code and explanations available at: https://aditya-jaishankar.github.io/projects/
- Prediction of molecular solubility from molecular graphs using convolutional neural networks.
- Automatic scientific abstract generation using an LSTM trained on a corpus of arXiv abstracts.