Ravi Agrawal

MACHINE LEARNING ENTHUSIAST · KAGGLE COMPETITOR

☐ (413)-406-8337 | ✉ raviagrawal@cs.umass.edu | 🏠 https://imraviagrawal.github.io/ | ⬛ imraviagrawal | 🔗 raviagrawal2

Education

University of Massachusetts – Amherst *Amherst, MA*
M.S. IN COMPUTER SCIENCE, GRADUATION DATE: 2019, GPA= 3.8 (Expected) *Sept. 2017 – May 2019*

- **Coursework**: Machine Learning, Natural Language Processing, Advanced Algorithms, Deep Learning, Inferential Statistics, Probability, Methods of Applied Statistics. Applied Stochastic Processes.

University of Massachusetts – Amherst *Amherst, MA*
M.S. – PhD IN INDUSTRIAL ENGINEERING, GRADUATION DATE: 2019, GPA= 3.7 *Sept. 2015 – May 2019*

Technical Skills

Languages:	**Fluency:** Python **Familiarity:** Java, R, MATLAB, HTML, CSS, JavaScript, SQL, NoSQL
Framework:	TensorFlow, PyTorch, Pandas, Numpy, MongoDB, EC2, Docker, Hadoop, Spark.

Experience

UNIVERSITY OF MASSACHUSETTS AMHERST–Research Assistant *Jan'16 – Present*

- Developed an algorithm for preprocessing of complex vehicle dataset which was collected during the experiment (Python, Pandas, Numpy, Matplotlib).
- Build machine learning model to predict accident-prone drivers in elevated risk driving scenarios using Logistic Regression, K-Nearest Neighbors and Naïve Bayes algorithm.

LEMKEN, INDIA - Data Analyst Intern *Jan'15 – April'15*

- Developed machine learning based predictive modelling to anticipate pricing for the product.
- Analyzed customer experiences to provide better understanding of customer services to increase demand value.

SAIL, INDIA - Data Analyst Intern *May'14 – Aug'14*

- Performed complex statistical analyses and data visualization (SQL, python, Tableau Software).
- Implemented algorithms for anomaly detection framework for sensor data of a large-scale steel plant.

Projects (⬛ imraviagrawal)

Segmentation from Natural Language Expressions (Python, word2vec, TensorFlow) *March'17 – May'17*

- Addressed the challenging problem of generating a pixelwise segmentation output for the image region described by a natural language referential expression on the 20,000 images in the ReferIt dataset.
- Implemented a LSTM based natural language expression encoder and a convolutional neural network to extract local image descriptors to achieve the 47% IoU score.

Transition-based Dependency Parser, POS tagger and Document classifier for ANLP *March'17 – May'17*

- Build a state-of-the-art transition-based dependency parser using Bi-LSTM in PyTorch - Neural network components include action chooser, word-embeddings initializer and word-embeddings combiner.
- Implemented Conditional Random Field models from scratch for sequence labeling (POS tagging) in Python.
- Implemented Naive-Bayes and Logistic Regression from scratch in Python for classifying reddit comments.

Home Depot Product Search Relevance (Python, Gensim, Sklearn, Pandas) *Jan'16 – May'16*

- Designed a machine learning model using state-of-the-art word2vec to accurately predicts the relevance score based on the search terms and product information.
- Applied TF-IDF to construct term-document matrix and SVD and PCA for feature reduction.
- Document's preprocessing: Tokenization, stemming, query expansion using household appliance databases.

Netflix: Prediction of Movie ratings for given user and movies (Python, ML) *Sept'15 – Dec'15*

- Used Netflix data set for prediction of ratings, given the user and the movie.
- Experimented various algorithms like Autoencoder, Restricted Boltzmann Machine, Nonnegative Matrix Factorization, Logistic Regression resulting in better recommendation.

Publications (1 of 7)

- **Agrawal, R.**, Knodler, M., Fisher, D., Samuel, S. L. (2017). Advanced Virtual Reality Based Training to Improve Young Drivers' Latent Anticipation Ability. In Human Factors and Ergonomics Society.