Nikhil Tilak

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"Physicist and quick learner looking forward to applying a diverse skill set to tackle important challenges in industry."

Selected Data Projects

Bookend Final project for Data Bootcamp (1st place winners) GitHub, App

- Trained an ensemble classifier model on books scraped from project Gutenberg which can predict the authorship of a snippet of text with a 93% accuracy.
- Led a team of four and was responsible for dividing tasks and establishing a GitHub-based workflow to maximize productivity.
- Extracted text features and implemented a bag-of-words model which gave the highest prediction accuracy score (85%) among the models considered.
- Presented the results to judges from industry and others in a short video format.

IMDB Movie review sentiment analysis Kaggle dataset containing 50K movie reviews Kaggle kernel

- Trained a neural network to predict if a given movie review is "positive" or "negative".
- Used a word2vec model trained on the reviews to generate word embeddings.
- Model achieved 87% accuracy.

BreweryXplorer Personal project GitHub, Dashboard

- Browse and search 3000+ breweries and pubs in the Unites States.
- Scraped and cleaned unstructured brewery data gathered from Wikipedia and other sources.
- Designed an interactive Dashboard using Dash/Plotly which was deployed to Heroku.

Skills

Programming/Scripting: Python, C/C++, SQL, Excel, MATLAB.

Packages: NumPy, SciPy, Pandas, Matplotlib, Scikit-Learn, Natural Language Toolkit, TensorFlow.

Experienced in: Data scraping and wrangling, data representation and dashboards, machine learning models for classification, regression, clustering, outlier detection and forecasting. Natural language processing (NLP), Convolutional Neural Networks (CNNs), text embedding, sentiment analysis, hypothesis testing, A/B testing.

Leadership and mentorship:

Vice-President of the Physics Graduate Student Organization (AY 2016-2017).

Graduate student representative on the Graduate Student Life Committee (AY 2018-2019).

Professional Experience

PhD Candidate, Physics & Astronomy. | Rutgers University, New Jersey, USA | (2015-present)

- Designed and performed state-of-the-art experiments to explore electronic properties of twisted two-dimensional materials using Scanning Tunneling Microscopy.
- Analyzed multidimensional experimental data using Python to extract signals from noisy data.
- Experienced in breaking down complex ideas and presenting them to experts and non-experts.
- Extensive writing experience which led to four high-impact publications in peer-reviewed journals.

Data Science Certificates

Erdos Institute Data Science Bootcamp (May-July 2020, 1st place winning final project.)
Coursera: Applied Data Science with Python Specialization (four separate courses) (Jan-Jun 2020).

Education

PhD in Physics & Astronomy, Rutgers University, NJ, USA. | GPA: 3.9/4.0 | 2015-Nov 2022 (expected)
B. Tech. (Engineering Physics), Indian Institute of Technology, Guwahati, India. | GPA: 9.04/10 | 2010-2014