ROHAN MITTAL

140C, Brittany Manor Drive, Amherst, MA 01002

📞 413-265-4102 ✉ rohanmittal@umass.edu in https://linkedin.com/in/rohan73/

Education

University of Massachusetts Amherst	**Sep 2021 – Dec 2022**
M.S. Computer Science; GPA: 3.75/4.0	*MA, USA*

Shiv Nadar University	**July 2016 – July 2020**
B.Tech. Computer Science and Engineering with minor in Mathematics; GPA: 9.1/10	*UP, India*

Graduate Coursework

- Software Engineering
- Advanced Algorithms
- Data Visualisation
- Machine Learning
- Neural Networks
- Advanced Natural Language Processing

Experience

Roostify	**June 2022 – Present**
Engineering Intern	*Amherst, MA*

- Automating a bank-transaction category identification task using transformer based models trained on the transaction description text. Framework: Pytorch, HuggingFace - Transformers
- Creating visualisation reports and dashboards using SQL and LookML for gaining insights into mortgage underwriting conditions data

Projects

Climate change knowledge graph construction | *Natural Language Processing*

- Developed an end-to-end deep learning based model for extracting the intended relationship phrase given subject and object entity pairs directly using raw text of relevant news articles
- Proposed an unsupervised learning scheme for obtaining the subject - relationship - object triplets for constructing a knowledge graph
- Created the dataset by web scraping over 11k climate change news articles from the Science Daily website
- **Accepted in Tackling Climate Change using Machine Learning workshop at ICML 2021 [Spotlight Talk]**

Sentiment Analysis on Code-Mixed Languages | *Python, Pytorch, HuggingFace*

- Fine-tuned a baseline Distil m-BERT model for the task of sentiment analysis on code-mixed Hinglish language
- Implemented data augmentation techniques including backtranslation using two separately trained mt5 models; as well as transliteration through Google translate
- Implemented a modified tokenization scheme by tuning the model tokenizer on the training set
- Visualized attention maps of the sentiment analysis models for increased model interpretability

Music Thumbnailing through Artist Recognition | *Python, Pytorch, Scikit-Learn, NumPy*

- Implemented and trained an attention-based neural network model on the task of music artist recognition
- Generated music thumbnails using attention scores for each song segment
- Verified the efficacy of the attention based model by evaluating the attention score results using a separately trained convolutional recurrent neural network (CRNN) model
- Observed an increase from 55% accuracy on the lowest attention score segments to 74% accuracy on the highest attention score segments using the CRNN model

Monitoring tree cover in an area through aerial images | *Python, Tensorflow, NumPy*

- Adopted the Mask R-CNN model for the task of tree instance segmentation and counting, through transfer learning
- Used a Gist Feature based sampling technique to minimize the amount of training data required for scaling the model to regions with varied geographical features
- **Published in Proc. SPIE, Applications of Machine Learning 2019 [Link]**

Covid-19 Visualisation Dashboard | *Javascript, D3.js, HTML, CSS, Bootstrap*

- Built an interactive covid-19 visualization dashboard for depicting the number of covid cases, state-wise, through time using a color gradient based approach
- Combined the covid-19 data with state-wise mental health care data to interactively visualize the trend between covid-19 and mental health cases in each state

Technical Skills

Languages: Python, Java, Javascript, C, SQL, LookML, Latex, Mathematica
Machine Learning: Pytorch, Keras, HuggingFace, Scikit-learn, Pandas, NumPy, SciPy