VIKRAM J. SHENOY

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EDUCATION

Northeastern University, Boston, MA, USA **May 2021**
Master of Science in Computer Science

University of Mumbai, Mumbai, India **May 2018**
Bachelor of Engineering in Computer Engineering: **GPA: 3.63/4.0**

PROFESSIONAL EXPERIENCE

Annadhan Welfare Organization **January 2019 – July 2019**
Technical Consultant

- Operated as a pro bono technical consultant for design and development of Annadhan's mobile application in collaboration with J.P. Morgan Chase & Co
- Created a workflow for application's functionalities in accordance with organization's day-to-day operations
- Designed a sleek, consistent, and user-friendly interface for mobile application targeting all age groups

University of Groningen **August 2018 – October 2018**
Machine Learning Research Intern

- Performed an extensive analysis of proposed feature selection algorithm as compared to existing feature selection methods such as Fisher Score, Generalized Matrix Learning Vector Quantization (GMLVQ), ReliefF and Boruta
- Devised a new weighting scheme which considerably improved algorithm's performance and efficiency for larger datasets
- Gained extensive knowledge about ensemble methods such as Random Forests, AdaBoost, and XGBoost

Vroom Cars **February 2017 – August 2017**
Software Engineering Intern

- Researched On-board Diagnostics Parameter IDs (OBD – II PIDS) - codes used to request data from vehicles
- Implemented an algorithm to extract and transform raw data received through a mobile application into structured format
- Created automated software to convert structured data from a local database into multiple user-friendly graphs

ACADEMIC PROJECTS

Understanding Capsule Networks (PyTorch and Google Colab) **August 2019**

- Built a Capsule Network and implemented dynamic routing algorithm that functions as a forward pass for entire network
- Achieved a final accuracy of 99.91% on training set and an accuracy of 98.80% on test set of MNIST dataset
- Gained a deeper understanding of state of features captured by 16-dimensional vector of Digit Capsule Layer

Music Recommendation using Deep Learning (Keras and Google Colab) **May 2019**

- Preprocessed data by producing mel-spectrograms for 8000 audio files, each of 30 seconds, from Free Music Archive dataset
- Designed a CNN on Google Colab for classifying 60,000 image slices of these mel-spectrograms into 8 different genres
- Predicted latent feature vectors using final network and established strong cosine similarity score between one song (anchor) and other similar songs in test set

Digit Generation using Wasserstein Generative Adversarial Networks (Keras and Google Colab) **April 2019**

- Trained a Wasserstein GAN on MNIST dataset utilizing an estimate of Wasserstein metric as a cost function for 90,000 epochs
- Generated images of digits by randomly sampling through a noise distribution and passing these samples through generator network

Twitter Sentiment Analysis using Recurrent Neural Networks (Keras and Google Colab) **March 2019**

- Preprocessed over 1.6 million positive and negative tweets from Stanford's Sentiment140 dataset
- Constructed a Recurrent Neural Network with Long Short-Term Memory units to analyze sentiment of these tweets
- Achieved an accuracy of 84.57 % on test set and employed final network to yield a degree of sentiment on user entered text

Neural Style Transfer with Convolutional Neural Networks (Keras and TensorFlow) **February 2019**

- Transferred artistic style of one image onto another image utilizing a pre-trained VGG19 network with Imagenet weights
- Generated final image by selecting intermediate layers of network and reducing overall loss (style loss and content loss)

Games using Artificial Intelligence, Undergraduate Final Year Project **May 2018**

- Programmed an AI for chess and a famous tile puzzle game, 2048, leveraging fundamental aspects of Game Theory
- AI for Chess is based on Minimax algorithm with alpha-beta pruning and AI for 2048 employs Expectimax algorithm

TECHNICAL SKILLS

- **Programming Languages:** Python (Expert), Java (Proficient), C (Familiar)
- **Frameworks and tools:** Keras, PyTorch, TensorFlow, Plotly, Scikit-Learn, Matplotlib, Pandas, Google Colab, Android Studio
- **Web Development and Data-oriented Languages**: HTML, CSS, PHP, JavaScript, Ajax, SQL