SHREESHA N MURTHY

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EDUCATION

Master of Science in Data Science, August 2019 – May 2021**,** Worcester Polytechnic Institute (GPA: 4.0)
Bachelor of Engineering in Computer Science, May 2011 – May 2015, VTU (GPA: 3.6)

RELEVANT COURSEWORK

Machine Learning, Deep Learning, Reinforcement Learning, Statistics, Big Data Analytics, Data Structures

WORK EXPERIENCE

Junior Software Engineer – **Razorthink**, India **|** July 2015 – Dec 2015
Artificial Intelligence Engineer – **Razorthink**, India **|** Jan 2016 – July 2019

SKILLS

- **Languages:** Java, Python, C++, HTML, Javascript, Scala, R
- **Frameworks and Libraries:** TensorFlow, Pytorch, spaCy, Gensim, Flask, Spring Boot
- **Big data Platforms:** Hadoop, Spark, Tensorflow PS architecture, Horovod(distributed deep learning)
- **Databases:** MySQL(proficient), MongoDB(intermediate), Cassandra (basic)

PUBLICATIONS

- *S. N. Murthy, F. Asani, S. Srikanthan, E. Agu, DeepSEAS: Smartphone-based Early Ailment Sensing using Coupled LSTM Autoencoders, IEEE BigData 2020* (Accepted)

RESEARCH PROJECTS

- **Differential Learning by means of Neural Network Pruning (Deep learning)**
  Worked on a novel technique to prune nodes of an FFN* using sigmoid-activated weighted learnable short circuit connections, which are pruned off of the network based on a threshold. The goal was to just retain imperative connections in the network. Gained 85% accuracy on Fashion-MNIST in 1400 training iterations compared to 7000 training iterations using a plain FFN*.
- **Curiosity based exploration (Reinforcement learning)**
  Identified a crucial issue while training a Deep-Q-network on Atari Breakout where an agent reaches a local minimum and loses motivation to train further due to the environment's reward system turning sparse. I leveraged the curiosity concept to improve training by introducing an intrinsic reward system that generates rewards based on novelty in the scene.

PROFESSIONAL PROJECTS

- **Explainable AI (Deep learning)**
  Built a framework to explain the predictions of an FFN*. The framework combined the trained model's weights and activations with raw customer data churning out explanations for the prediction. Saved operations costs and man-hours of our client, a major Banking firm by 80%.
- **End to End Trainable OCR –** Connectionist Temporal Classification
  Developed an end to end trainable OCR. Trained a Convolutional LSTM on a multi GPU distributed pipeline(Data parallelism). The dataset contained 50 types of font - 10 million word images. Prediction across 104 unique characters. Saved $10k annually for our Banking client. **Accuracy-81%**. Technologies used:
  Python|Tensorflow|GCP|Flask|spaCy.
- **Conversational AI (Deep learning)**
  Built a chatbot for end-users to query their relational database in English. The chatbot converts the question which is in English into MySQL syntax and queries the database. Trained word2vec models to tweak and personalize the results for domain-specific needs, saving $25k annually for a fortune 500 financial services company.

*FFN - Feed Forward Neural Network