SHREESHA N MURTHY

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PROFESSIONAL SUMMARY

- Worked as an AI Engineer. Possessing in-depth knowledge of building end to end trainable/deployable predictive models using Deep/Machine Learning.
- Conducted research on multiple verticals to develop and implement efficient Deep Learning techniques saving the company time and money.
- Handled complete product development cycle from initiation to planning and execution.

EDUCATION

Master of Science in Data Science, August 2019 (GPA:4.0)

Worcester Polytechnic Institute (WPI), Worcester, MA

Bachelor of Engineering in Computer Science, First class, May 2011 – May 2015

East West Institute of Technology, Bangalore, India

RELEVANT COURSEWORK

Machine Learning, Reinforcement Learning, Statistics, Linear Algebra, Big Data Analytics, Data Structures, Graph Theory, Design and Analysis of Algorithms, Computer Architecture

WORK EXPERIENCE

Artificial Intelligence Engineer – **Razorthink**, India | Mar 2016 – Jul 2019

- Reduced operation costs and time of a banking client by close to 80% by developing a classification model which not only gave predictions but also gave explanations which was previously done by humans who analyzed customer transactions to explain the reason for prediction.
- Built state-of-the-art OCR using CRNN(conv nets and LSTM) which saved more than $10000 for the company from buying a paid OCR from the market
- Used start-of-the-art Artificial neural networks like FFN, CNN, LSTM for model building
- Built customer churn, upsell, cross sell, customer retention, credit worthiness models in Deep Learning
- Built a conversational tool to query relational database in plain English. Used state-of-art NLP technologies.
- Extensive data analysis on supervised and unsupervised datasets in Computer Vision, NLP, BSFI sectors.

Junior Software Engineer - Razorthink, India | Jul 2015 – Feb 2016

- Built web applications/services in Java/Python using Spring/Flask Frameworks.
- Built and maintained complex database models in MySQL and MongoDB.
- Conducted research and assisted the company to decide between MongoDB and Cassandra

SKILLS

- **Programming Languages:** Python, Java, Scala, JavaScript, HTML
- **Databases:** MySQL, MongoDB and Cassandra and Hbase (Beginner Level).
- **Machine/Deep Learning Domains:** Computer Vision, NLP, Banking/Insurance/Telecom sector
- **Reinforcement Learning algorithms:** Deep-Q-learning, Policy gradient methods, Actor-Critic (A2C, A3C).
- **Neural Networks:** Feed forward Networks, Convolutional Networks, Recurrent (LSTM) Networks, GANs, RBMs, DBMs, Dynamic Co-attention networks, Attention and Pointer networks
- **Frameworks and Libraries:** TensorFlow, Pytorch, Flask, Spring Boot, Spring Data, Hibernate, JQuery
- **Big data Platforms:** Hadoop, Spark, Tensorflow PS architecture, Horovod(distributed deep learning)

RESEARCH

- **Model Explainability (Deep learning)**
  Built a framework to explain the prediction done by DL model. Used the trained model weights and activations and combined them with raw customer data to come up with explanations of the prediction.
- **Conversional AI (Deep learning)**
  Built a tool for users of an organization to ask questions in English language about their data stored in databases. This English sentence was translated into SQL query and executed. Trained a classifier to extract intents and entities based on RASA's NLU framework.
- **Curiosity based exploration (Reinforcement learning)**
  Identified a crucial issue while training a Deep-Q-network on atari breakout where agent reaches a local minima and loses motivation to train further due to environment's reward system turning sparse. Leveraged the curiosity concept to improve training by introducing an intrinsic reward system.

PROFESSIONAL PROJECTS

Deep Learning:

- **Intelligent Document Parser**
  Built an Invoice processor tool to segregate date, currency, total, list of items, address etc. Scanned bills were uploaded as images. Built in-house OCR and used word2vec model to segregate the fields. Model achieved accuracy of 82% when tested on 1000 bills.
- **End to End Trainable OCR – CTC**
  Developed an end to end trainable OCR. Trained a Convolutional LSTM (CRNN) using Connectionist temporal classification and beam search decoder. Dataset contained 50 types of font - 10 million word images. Prediction across 104 characters (Alphanumeric, special characters, currency symbols). Accuracy-81%.
- **Customer Retention, Upsell, Cross-sell Models**
  Built a LSTM–FFN ensemble network for a customer retention, upsell, cross-sell usecase. Used customer transaction, bureau and demographic data to model the solution. Client were able to cut down the operations cost by 50% with a top 3 decile capture rate of 90%
- **Customer Credit Worthiness Model**
  A binary classification problem. Used customer transaction, demographic data to predict how likely a customer will default if given a loan. Used LSTM for extracting behavior over time and a FFN for the final decision maker. Model was able to cut down operations cost and time with a test GINI of 76%.

Web Application:

- **ResultGenie – SpringBoot, MySQL, MultiTenant Architecture (Personal Project)**
  Built a result analysis tool with my colleague for engineering colleges in Karnataka. The tool reported student/subject/branch performances over each semester to colleges with graphs and charts for easy analysis.
- **ShredsKerala – SpringBoot, MySQL**
  A Job portal where an employer uploads their requirements and registered candidates can apply to the jobs they are eligible for
- **Sarvint – SpringBoot, MongoDB, HTML, JQuery**
  Built a backend architecture to collect pulse information and report heartbeat and other useful information about the user's activity.

AWARDS

Won the 'Best Innovative Idea' award for implementing an optimized food delivery system in 'Opiniothon' hackathon