Manikanth Reddy

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Machine Learning Engineer with 2 years of experience building scalable solutions applying AI/ML techniques to solve real world problems. Kaggle Competitions Expert with a Bachelors from IIT, Kharagpur.

Technical Skills

Deep Learning: NLP, Computer Vision, Time Series Analysis, Training models on GPU/CUDA/TPU
Modeling: CNNs, RNNs, Gradient Boosting, Attention/Transformer/BERT, Linear Regression, SVM
Python Packages: TensorFlow, PyTorch, scikit-learn, LightGBM/XGBoost, OpenCV, HyperOpt, NLTK
Experience with: C/C++, SQL, Apache Spark, AWS, Linux, Django, Unity Game Development

Work Experience

American Express — Machine Learning & Data Science Team Bangalore, Karnataka
Machine Learning Engineer (Level: Analyst) Jul 2019 - Present

- Received **SVP Star Achievement Award** for researching on improving Credit and Fraud RNN models
- **Bank Statement Transaction Classification**: Value: $20M PTI. Classify bank statement transactions to estimate revenue, generate cash-flow variables and extract signals to identify risky customers
  - Achieved **92%** classification accuracy with Word2Vec and Neural Network based classification model
  - Created inference API, reduced response time by **60%** and deployed US market model using Docker
  - Built transfer learning models for English speaking markets and contributed to merchant extraction tool
  - Experimented on Word Tokenization, FastText, Knowledge Distillation and Unsupervised Pretraining
- **Multi Objective Loss**: Possible Savings: $2M/year. Researched on designing custom loss functions for GBM models which optimizes both capture and catches high dollar defaulters/frauds for Risk models
  - Reduced credit losses by 2.3% by incorporating spending based weights for different risk portfolios
  - Increased overall fraud capture rate by 0.35% by incorporating changes in tree boosting algorithm
- **Others**: RNNSuite, Integrating Neural ODEs with RNNs, Company Financials Revenue Forecasting

Innoplexus — Innovation Team Pune, Maharastra
Data Science Intern May 2018 – Jul 2018

- **Named Entity Recognition Tool**: Developed novel self-attention based entity extraction tool for life science domain using PubMed data. Improved model F1 score using pseudo labeling and bayesian hyper-parameter tuning. Integrated a web based entity annotation & tool for real time data creation

Kaggle Competitions Expert

Riiid! Answer Correctness Prediction: Silver Medal - Top 3% - Created knowledge tracing models
- Achieved **78.1%** AUC by implementing **Transformer** based SAINT+ model from research paper
- Increased AUC by **1.3%** using lr scheduling, feature engineering and ensembling with LightGBM

Mechanisms of Action Prediction: Silver Medal - Top 2% - Built multi-label drug classification models
- Improved accuracy using feature engineering, label smoothing, data normalization, ensembling 7 models

Projects

- **Deep Sequence Models for Question Answering**: **B.Tech Project** - Archived F1 score of 83.1 on SQuAD dataset by developing self-attention based machine reading comprehension model in TensorFlow
- **Reinforced Navigation System**: Developed DQN based **Reinforcement Learning** agent to find an optimal path in a dynamically changing environment. Used **genetic algorithm** to tune hyper-parameters

Education

Indian Institute of Technology, Kharagpur Jul 2015 – Apr 2019
- B.Tech, Metallurgical and Materials Engineering, CGPA: 8.81/10, Department Rank: 3rd
- 2nd - HSBC Data Science Hackathon, Top 10 - AMEX AnalyzeThis 2018, Web Team Lead - COMPOSIT
- Courses: Data Structures, Design and Analysis of Algorithms, AI, Probability and Stochastic Processes
- MOOCs: Machine Learning, Computer Vision, Natural Language Processing, Full Stack Deep Learning