Rama Sai Mamidala (he/him)

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EDUCATION

University of Maryland Baltimore County (UMBC), MD *May 2024 (Expected)*
  M.S in Computer Science *GPA: 3.617/4.0*

Stanford University, CA *Aug. 2020*
  Professional certification in Natural language processing with Deep Learning *GPA: 4.0/4.0*
  Digital Credentials

National Institute of Technology Surathkal (NITK), Karnataka, India *April 2018*
  B.Tech Honors in Electronics and Communication Engineering *GPA: 3.6/4.0*

SKILLS AND RELEVANT COURSEWORK

- **Programming**: Python, Java, Go-Lang, C, C++, Matlab
- **Frameworks**: Scikit, NLTK, SpaCy, TensorFlow, Keras, Flask, Gensim
- **Tools and Platforms**: Docker, AWS, GIT, CI/CD, Linux, Windows, Arduino, Raspberry
- **Advanced courses**: Linear Algebra, Multi-variable calculus, Machine learning, NLP with Deep learning

RESEARCH EXPERIENCE

University of Maryland Baltimore County (UMBC), MD **(Sept 2022 - May 2023)**
Research Assistant (RA, part-time), Grader (part-time)

- **Optimization of Pruning and Adversarial Attack Models**: Successfully engineered and enhanced a hybrid algorithm that integrates pruning and adversarial attack methodologies, resulting in optimized performance across diverse data sets.
- **Engagement in Scholarly Community**: Actively participated in weekly literature review sessions, where I gained insights into various applied AI domains including Brain-Computer Interfaces (BCIs) and time-series analysis.
- **Present Focus on Robotic Arm Control Precision**: I am currently engaged in refining the accuracy of robotic arm control using EEG data.
- This involves the use of advanced feature extraction techniques such as Fast Fourier Transform (FFT) and Welch's method. Moreover, to evaluate the efficacy of these methods, I am rigorously comparing my findings with those derived from multiple previously published studies in the field

WORK EXPERIENCE

Target Corporation, Bangalore, India, *Senior Engineer (ML/AI)* **(July 2018 - July 2022)**

- **Automation of Reliability, Tools and Practices**: Tools based on recommendation engine, reliability and other services build by all other teams across the organisation.
- The Proof of Concept (POC) and production testing of the Error Budget Calibration tool ensured a gradual reduction in the net total number of tickets/incidents, reaching a target of 50% (from 20,000 to 10,000) or even lower with improved feedback loop efficiency
- **POCs till Prod level projects**: In teams from 5 to 50, I've honed a comprehensive skill set in AI software lifecycle: from raw data acquisition and preprocessing to discerning when machine learning is beneficial.
- From feature engineering to model creation, pruning, testing proofs of concept, and model deployment, my experience spans the entire AI modeling process.
- Working closely with product owners and leaders provided me with collaborative experience that enhanced my ability to communicate complex concepts and fostered a deeper understanding of the subject matter.

Projects

Dynamic Approach for Lane Detection using Google Street View and CNN (July 2017 –April 2018)

Bachelors Thesis Project, NITK Surathkal

– I introduced a unique technique utilizing Google Street View APIs to generate a large dataset of lane images for specific geographical locations, which were then processed through a CNN model based on the SegNet architecture.
– Iterating the entire process in a loop, covering a defined range of latitude and longitude coordinates, resulted in a comprehensive dataset of lane images. The implementation was performed on a cloud-based GPU cluster.

ErrorBudget Calibration, *Target Corporation* (Jan 2021 - July 2022)

– Developed a novel approach to calibrate one of the vital component of reliability, ErrorBudget, based on failure performance of applications effectively.
– As a unique endeavor, half of the project focused on validating the algorithm with cross-functional teams from various portfolios and ensuring a seamless installation experience through articulate documentation.
– The service was containerized and scaled up to enhance robustness and compatibility, enabling efficient evaluation of high-order applications with thousands of downstream applications.

Prediction of Top-5 causes for a given Incident, *Target Corporation* (Mar 2020 - Nov 2020)

– Designed a Machine Learning pipeline which obtains the custom feature map using NLP, from the context of the incident features, following a top-down approach.
– Created the embedding using Universal-Sentence-Encoder over a subset of custom features for historical-data, passing it to BlackBox, where model is implemented using MLPC.
– LSA using reduced-SVD is implemented to determine the topics, using TF-IDF's followed by the cosine-similarity between the topic vector and decomposed form taken for combination of custom-features.
– Implemented point-wise ranking algorithm for right matches between the output and the input ticket pair.

Air and Sound Pollution Monitoring and Control, *NITK Surathkal* (Jan - April 2017)

– Designed an embedded system on raspberry-pi using python and ThingSpeak.
– After being **shortlisted among 120 projects nationwide**, presented the approach at HackerEarth, an online coding platform, on World Environment Day.

Publications

1. **Rama sai Mamidala**, Uday Uthkota, Bhavani Shankar, Joseph Anthony & Narasimhadhan A.V, "Dynamic Approach for Lane Detection using Google Street View and CNN", Region-10, IEEE TENCON 2019, Kochi, Kerala, India. **https://ieeexplore.ieee.org/document/8929655/**

Achievements

- **Global CodeRED Hackathon 2020 Winner** of total 75 teams enrolled, issued by Target Corporation

- Secured a **State Rank of 815** among 400,000 applicants in EAMCET-2014 (top 0.01 %) which is a state wide engineering entrance exam

- Secured an **All India Rank of 5061** among 1.5 million applicants in IIT-JEE Mains-2014 (top 0.02 %) which is a country wide engineering entrance exam for all National Institutes.

- Secured an **All India Rank of 10081** in IIT-JEE Advanced-2014 (top 0.56 %), an advanced entrance test