

RAM KADIYALA

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Education

University of Maryland , College Park

Masters in Machine Learning

Aug 2022 – May 2024

College Park, MD

University of Maryland , College Park

Graduate Certificate in Data Science

Aug 2022 – May 2023

College Park, MD

R.V.R & J.C College of Engineering

Bachelors in Computer Science and Engineering

Aug 2018 – May 2022

Guntur, AP

Work Experience

Research Assistant | *RVR&JC*

Jan 2024 – May 2024

- Building models for automated data collection , annotation and classification using LLMs through data mining of social media texts for health applications as a part of SMM4H 2024. Testing various approaches and prompting techniques along with QandA models to achieve better results. Building pipelines for each use case.

Research Assistant | *VVIT*

Aug 2023 – Jan 2024

- Contributed to data collection, pre-processing, and the development of machine learning models for the task of identifying optical disk and optical cup regions for accurate diagnosis of glaucoma from an ensemble of multiple geographically diverse datasets.

Research Assistant | *RVR&JC*

Aug 2022 – Jan 2023

- Assisted in data collection and building models for bias detection in Telugu news articles from newspapers and websites. Contributed to building models to identify the reliability and accuracy of each of the news sources for each domain to assist LLMs to provide accurate information

IoT & ML Intern | *Bolt IOT*

Feb 2021 – Apr 2021

- Gained exposure to industrial IoT projects through hands-on experience with hardware equipment. Contributed to a smart humidity, lighting, and temperature management project using programmable IoT devices with Arduino and C++, enhancing the efficiency and automation of environmental controls in industrial settings.

Founder and Mentor | *Black Ops Esports*

Nov 2018 – Apr 2022

- Established and led an E-sports organization for over 3 years, mentoring teams across 14 games, managing the social handles and finances. Designed marketing strategies to improve reach and engagement of partnered influencers. Handled B2B in connecting products and gaming content creators and advertising products.

Teaching Experience

Academic Tutor | *University of Maryland*

Aug 2023 – May 2024

- Tutoring undergrad students in the "Operating Systems (CMSC 412)" course. Helping students understand course materials and work through the course projects.

Academic Tutor & Mentor | *VHS*

Aug 2011 – Aug 2014

- Served as an academic tutor and mentor during school days, aiding juniors in preparation for math Olympiads.

Technical Skills

Languages: Python, C, HTML/CSS, JavaScript, SQL, R, MATLAB, LaTeX

Cloud Platforms: Google Cloud Platform, Amazon Web Services

Editing / Creative: : Gradio, Prompt Engineering, SEO, UX Design, PhotoshopCC , AlightMotion, Google Sketchup

Co-Curricular Achievements

SemEval 2024 Task 8: Finished 1st out of 308 teams, published work at NAACL 2024.

WASSA 2023 Task 3: Finished 1st out of 121 teams, published work at ACL 2023.

GATE 2022 CS: Rank 2301 out of over 100K

GATE 2022 MATH: Rank 688 out of over 100K

JEE MAINS: Rank 233 out of over 120K

International Mathematics Olympiad 2015: Rank 283 out of over 700K

International Mathematics Olympiad 2014: Rank 183 out of over 650K

International Mathematics Olympiad 2013: Rank 389 out of over 650K

International Mathematics Olympiad 2012: Rank 110 out of over 650K

Additional Achievements: Won several more medals in National & International Math & Science Olympiads, got featured in local newspapers 18 times during school days.

Publications and Research

Multi-class Emotion detection on highly imbalanced data

ACL 2023

Tensorflow, Transformers, AWS

Published

- Devised a solution for detecting multi-class emotions from user essays on highly imbalanced data using fine-tuned RoBERTa-large. Finished 1st out of 121 teams. Presented the work at ACL.

Word-Level Text Boundary Detection in Partially machine generated texts.

NAACL 2024

Pytorch, CRF, Transformers, Google Cloud

Accepted

- Developed models with a novel approach to detect text boundary in partially machine generated texts i.e in instruct variants of LLMs. Our models outperformed existing proprietary systems by 22 percent at sentence level prediction accuracy. The current model works well on unseen domains and LLMs and very short texts hinting at a possible applicability in social media analytics. Finished 1st out of 300+ teams.

Can LLMs Understand Social Media Texts Without Context ?

LREC-COLING 2024

..., LoRA, LLMs, Google Cloud

Under Review

- Developed models for classifying threat level and target group(s) in social media hate texts in low resource code mixed languages. Compared the performance and drawbacks of each model, approach and other relevant criteria.

Automated data collection, annotation and classification of medical texts using LLMs

ACL 2024

..., LoRA, LLMs, Google Cloud

Ongoing

- Developing models for automated annotation and classification of medical text data as a part of SMM4H 2024 Task 3,5,6. Implemented prompt engineered QandA models as a baseline and currently on top of the leaderboard in the competition.

Cross-lingual emotion and trigger span detection

ACL 2024

..., PyTorch, AWS

Ongoing

- Developing models to classify texts on emotion and detection of trigger span (token classification) using just English texts for training and evaluating on multilingual data through WASSA 2024 shared task 2.

Multi-level Multi-modal Empathy Detection and Emotion Classification

ACL 2024

..., PyTorch, AWS

Ongoing

- Developing models to classify texts on emotion and empathy level in human-human and human-agent conversations through WASSA 2024 shared task 1.

Other Projects

Tuneable Generative Image AI | *PyTorch, Gradio, StableDiffusion, LoRA, Google Cloud Console*

- Developed an Generative image AI model for creative purposes without any censorship and limitations, using LoRA for better learning with fewer data items of each type along with StableDiffusion, Gradio for interface and GCP notebooks to build the models and test them.

Power Outage Forecasting | *RestAPI, FbProphet, Google Cloud, Anvil*

- Created a fullstack time-series application that updates daily with forecasted power outages for the next 7 days using meta's open-sourced fbprophet model using Rest API for accessing daily data and Anvil for the front end visualization.

Autonomous lunar lander | *DQN, Pygame, OpenAI Gym, Box2D, PyTorch*

- Implemented a lunar lander that accounts for miscalculation by working for random starting point in the landing environment along with factors like varying landing spot, wind, etc.. though deep learning.

Image/Video to Artistic Image/GIF Converter | *CLIP, PixRay, Scipy, Pygame, PyTorch*

- Implemented models that converts given Images to Image and Videos to GIF in the form of low poly art or animated pixel art. Incase of videos, chosen number of unique colors are chosen and each frame as a image is individually converted before stitching together as a GIF using Delaunay triangulation.

LLM generated text detection | *LLMs, Pytorch, CRF, AWS*

- Built models for detecting machine(LLM) generated texts to work on unseen domains and generators as part of SemEval 2024 workshop. Built different models with varying primary metrics: Precision, Recall and Accuracy

Sarcastic text generator for reddit | *LoRA, LLMs, Gradio, Google Cloud*

- Used Quantized version of Mixtral v2 to fragment into shards and finetune on free GPU of colab over r/copy pasta post texts to create a model that generates engaging and entertaining content for the subreddit's post texts from just the post title. performed far better than the average human posts in terms of user engagement and relevance.

Certifications

- Accelerated Computing - Nvidia
- Data Analytics - Google
- AWS Cloud essentials - Amazon

Relevant Coursework

- Probability and Statistics
- Principles of Data Science
- Principles of Machine Learning
- Convex Optimization
- Data Interpretation and Modelling
- Algorithms in Machine Learning
- Natural Language Processing
- Cloud Computing
- Robotics
- Big Data Analytics
- Artificial Intelligence
- Computing Systems
- Data Engineering
- Software Engineering
- Social Networks