Vineeth NC

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Skills

Languages: Python, C, Go, SQL (MySQL, Oracle, Redshift), HTML/CSS
Fields: Machine Learning, Data Visualization, Data Science, Natural Language Processing
Tools: Git, Amazon Redshift, Amazon Quicksight, VS Code, Jupyter, MySQL Workbench
Libraries: Pandas, NumPy, Matplotlib, Scikit-learn, Keras, Tensorflow, Seaborn
Others: Adobe Premiere Pro CC 2015, Adobe Audition CC 2015, Audacity

Education

University of Maryland, Baltimore County — Baltimore, MD
Master of Science in Computer Science | GPA: 3.86/4.00 — *Aug. 2021 – Present*

Birla Institute of Technology and Science — Hyderabad, India
Diploma in Artificial Intelligence and Machine Learning | GPA: 3.73/4.00 — *Apr. 2019 – Apr. 2020*

Jawaharlal Nehru Technological University - Hyderabad — Hyderabad, India
Bachelor of Technology in Computer Science | GPA: 3.44/4.00 — *Jun. 2014 – Jun. 2018*

Experience

Lab Research Assistant — Oct. 2022 – Present
University of Maryland, Baltimore County — *Baltimore, US*

- Working for UMBC's CSEE Department in the capacity of a researcher for different projects.
- Contributing to work pertaining to scientific visualizations in VR/MR.
- Currently working on optimizing point cloud rendering for Unity.
- Converting existing implementations of high-speed LOD centered rendering for the project.
- Diagnosed the Pi-Squared Lab's CAVE2 wall in order to identify areas that needed repair and restore.

Research Associate — Oct. 2018 – Mar. 2020
IT Wizlab — *Hyderabad, India*

- Authored beginner and specialized courses for Python and Machine Learning.
- Worked on the company's Learning Management System and wrote 1000+ Python and Machine Learning codes.
- Wrote beginner courses for: Regression, Feature Engineering, Supervised Learning and Classification.
- Handled sysadmin work for a network of about 50 systems.

Data Engineer – Intern — Jun. 2017 – Jun. 2018
Amazon Development Centre — *Hyderabad, India*

- Scripted ETL code to perform optimal database migration of tables totalling over 100 million rows of data.
- Studied existing relational databases on Oracle to design counterpart for Amazon Redshift.
- Built 30+ reports and analyses on Amazon Quicksight based on Redshift databases.
- Authored about 10 whitepapers about the limitations of the then-AWS technology in the context of the project.

Cybersecurity Researcher – Intern — Dec. 2016 – Jan. 2017
Spyry Technologies — *Bengaluru, India*

- Learned and gained real time experience about vulnerability assessment and penetration testing.
- Conducted a web vulnerability assessment for a client and wrote a report regarding the different issues on the site.
- Built a sample unsecure website from scratch and implemented incremental cybersecurity measures.
- Identified and patched different issues on the client site like SQL Injection and XSS.

Projects and Papers

Training Vision-Language Models for Image Classification Nov. 2022 – Dec. 2022
Natural Language Processing, Image Classification, Neural Networks, Transformers *Project, Affiliated with UMBC*

- Project to train a multimodal classification model that uses text and image data.
- Built a BERT+LSTM model for text based classification, an image classification model, and a stacking fusion model.
- Tested against various datasets to analyze and write about the current state of multimodal classification tasks.
- Emphasized the need of large open-sourced multimodal datasets.

Solar System Simulator to Model Celestial Motion and Predict Eclipses Oct. 2022 – Dec. 2022
Python, Simulation, Modelling *Project, Affiliated with UMBC*

- Project to simulate a solar system from scratch and find equations of motion for celestial bodies.
- Wrote Python code to solve n-body problem in 2D and 3D.
- Simulated motion of Earth, motion of moon, and the spin of Earth to generate a 350k+ row dataset.
- Used Fourier transforms to find the equations of motion as a function of time.
- Wrote a method to predict the first occurrence of an eclipse from a given timestamp.

Computational Humor: A Survey of the Literature Oct. 2022 – Dec. 2022
Computational Humor, Machine Learning, Natural Language Processing *Paper, Affiliated with UMBC*

- Literature review to discuss work done across some significant papers in the field of computational humor.
- Identified multiple papers stemming from the concept of incongruity-resolution (IR) theory.
- Analyzed different works across the last 40 years in order to track the development of computational humor.
- Synthesized the papers and tracked the developments in the field with the context of IR theory.
- Gave comprehensive constructive feedback to multiple peers on their papers and projects.

Fail-Silent Replicated Token Manager with Atomic Semantics Apr. 2022 – May. 2022
Go, Client-Server, Remote Procedure Calls *Project, Affiliated with UMBC*

- Project to simulate a client-server token management system with replication and (1,N) atomic semantics.
- Wrote Go code using gRPC system calls and Protobuf frameworks.
- Implemented the read-once-write-majority algorithm to ensure consistency in replication.
- Emulated fail-silent behaviour at the token level.

Data Augmentation Comparison Study Apr. 2022 – May. 2022
Python, Neural Network, Databases *Project, Affiliated with UMBC*

- Project to generate new augmented training dataset using GANs to train classification model.
- Construct a multiple-discriminator GAN to generate images and corresponding labels.
- Trained about 30 models by varying input dataset sizes and performing hyperparameter tuning.
- Contrast image classification model performance by varying the training datasets.

Benchmarking Multiple Image Classification CNNs Sep. 2021 – Dec. 2021
Neural Networks, Machine Learning *Project, Affiliated with UMBC*

- Project to compare performance of VGG16, VGG19, ResNet50, ResNet101.
- Wrote the entire VGG training and testing code.
- Analyzing and selecting best models among VGG and ResNet models for image classification tasks.
- Benchmarking included accuracy metrics and tracking system memory and energy usage.

Baltimore City Crime Data Dashboard Sep. 2021 – Dec. 2021
Data Visualization, Data Analysis *Project, Affiliated with UMBC*

- Built a data dashboard to track and visualize Baltimore city crime statistics.

- Analyzed over 400k rows of data to build over 15 graphs and charts to provide insights into crime trends.
- Performed data cleaning, feature engineering, data analysis, and built data statistics.
- Wrote code to build Python visualizations using Pandas, Numpy, Matplotlib, and Seaborn.

Quantifying Negative Sentiments in Music Jan. 2021 – Jan. 2022
APIs, Sentiment Analysis, Data Visualization, Data Analysis *Personal Project*

- Quantification done based on the lyrics and the sonic features of a given track.
- 30000+ tracks information extracted from Spotify, lyrics information scraped from Genius.
- Built multiple features and performed cluster analysis to find similarities between groups of artists.
- Results presented using different Python visualizations.

Mediclaim Processing Mar. 2020 – May. 2020
Machine Learning, Classification Models, Data Visualization, Neural Networks *Project, Affiliated with BITS Pilani*

- Project aimed at predicting whether a given medical insurance claim will be accepted or not.
- Performed data cleaning and feature engineering on a dataset of 150000 rows.
- Built 15 classification and neural network models and compared performance.
- Implemented SMOTE to handle the class imbalance.
- Wrote a 90+ page project report detailing tasks done at various phases of the project.

Codex - An Online Coding Platform Jan. 2018 – Jun. 2018
Web Development, Web Applications *Project, Affiliated with JNTU-H*

- Project to create an online code editor specifically for college use.
- Designed the editor to support coding in C, C++, Java, and Python.
- Handled relational database design following the best practices in database design.
- Co-authored a project report that tracked and detailed every step of the project.

Achievements and Awards

- Currently in the top 2 percentile of all one million users on Project Euler.
- Winner of multiple coding competitions at Technolites-2k17, Vardhaman College of Engineering, Hyderabad, 2017.
- Tied 3rd place at the South Zone round of QuantumCode, Techfest, IIT-Bombay, 2016.
- Won multiple coding and public speaking events at Technolites, Vardhaman College of Engineering, Hyderabad, 2016.
- 3rd Place at the national level round of Battlecode, Techfest, IIT-Bombay, 2015.
- Best Journalist winner, International Press department, Hyderabad MUN, Hyderabad, India.
- Finalist of National level of Excel 2013 – Microsoft Office Specialist competition at Delhi, 2015.
- Winner of Public Speaking competition by Centre For Good Governance, Government of India, at Hyderabad, 2014.
- Winner of Science Quiz at Indian Institution of Chemical Technology, Hyderabad, 2011.

Graduate Level Courses

- Data Visualization
- Advanced Computer Architecture
- Active Cyber Defense
- Advanced Operating Systems
- Introduction to Machine Learning
- Practical Malware Analysis
- Design and Analysis of Algorithms
- Numerical Computations
- Natural Language Processing

Positions of Responsibility

Team Lead Jan. 2017 – Jun. 2017
Engineering Projects in Community Service, Vardhaman College of Engineering *Hyderabad, India*

- Led a team of four in a project to develop an online platform for old age homes to sell handmade goods.
- Lead organizer of Community Outreach Proposal Exhibit, an event to showcase project ideas to garner public interest.
- Built and managed the database of projects and public attendance records.
- Handled task allocation to the volunteers and oversaw the event management end-to-end.

Technical Head Jun. 2016 – Jun. 2017
Computer Engineers' Technical Association, Vardhaman College of Engineering *Hyderabad, India*

- Unanimously elected the technical head of the association.
- Brainstormed and selected projects for the association to work on.
- Spearheaded a team of five to work on a project to generate unique student IDs and QR codes.
- Organized 10+ inter-departmental events and competitions and oversaw the event management.

Other Experience

Content Writer, Mathematics Dec. 2020 – Jul. 2021
Ekluvya *Hyderabad, India*

- Built a mathematics course for 9th-11th grade level students.
- Wrote 120 video scripts as a part of the course.
- Researched and implemented storytelling methodologies in teaching mathematics.

Subject Matter Expert - Computer Science Jul. 2020 – Oct. 2020
Dimentics Info Tech *Delhi, India*

- Solved questions in programming, computer organization, and networks textbooks.
- Wrote original solutions to over 500 questions.

Interests

Podcast Editing

- Lead editor on Have I Made It Yet? - A Podcast for Filmmakers.
- Edited 15/18 episodes on season 1.
- Currently editing season 2, which is due to be released soon.

Writing

- Wrote 100+ essays and poems.
- Published a poem in Verse of Silence, a literary magazine, Spring 2021.

Quizzing

- Participated in over 200 quizzes over the last five years.
- Wrote 300+ questions and conducted multiple quizzes at different venues, on different platforms.