Ram Selvaraj

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GitHub Profile

Bachelor of Technology in Computer Science & Engineering
PES University, Bangalore, Karnataka

LinkedIn Profile
Personal Website
(Links available in the last section if not working here)

Education

•Bachelor of Technology in Computer Science and Engineering *2020-24*
PES University, Bangalore Overall CGPA: 8.01/10.0
Last 2 years CGPA: 9.23/10.0
Machine Intelligence and Data Science Specialization (MIDS)

•12th Grade - Central Board of Secondary Education *2018-20*
Royale Concorde International School, Bangalore Percentage: 86%

•10th Grade - Central Board of Secondary Education *2018*
CMR National Public School, Bangalore Percentage: 90.2%

Exam Scores

•GRE- 322/340 (Q+V)
Aug 26th 2024
•164Q + 158V ; 5AWA

•TOEFL- 116/120
Oct 19 2024
•Reading- 30/30 || Listening- 27/30 || Speaking- 30/30 || Writing- 29/30

Projects

AI/ML

•Vidgen *Jan/23 - Feb/24*
A text to video model capable of generating long-form videos conditioned on story-based text input
– Generate long-form videos conditioned on story based text input that ensure temporal, narrative and visual consistency
– Addresses the limitations of current text-to-video models by allowing them to process large story-based text inputs, while also maintaining narrative and visual consistency in generated videos
– Implemented a novel Textual Inversion approach with pre-trained weights to ensure consistent character appearances across videos.
– Performant PyTorch code written to adhere to strict hardware constraints
– Technology Used: PyTorch with CUDA

•Swasth Seva - AI Medical Chatbot *Feb 2023*
GPT-3 trained Medical Chatbot and Health Monitoring App
– GPT-3 fine-tuned on MedQuAD dataset to answer medical related queries
– Includes a pulse-monitoring function that utilises phone's flash and camera to calculate the user's pulse
– Anomaly detection model trained for detecting abnormalities in user's pulse
– Technology Used: Python, Pandas, scikit-learn

•F1 Twitter Sentiment Analysis *Jun 2022*
Sentiment analysis of F1-related tweets after the controversial Abu Dhabi 2021 Grand Prix
– Trained sentiment classification models on previously custom scraped F1-Twitter Dataset
– Implemented multiple sentiment analysis models: SVM, Naive Bayes Classifier
– Additionally performed Data Engineering and Analysis on the scraped tweets
– Technology Used: Python, Pandas, scikit-learn

•Cardio Vascular Disease Data Analysis and Prediction *Sep - Nov 2022*
Data Analytics Course Project
– Thorough Data Engineering and Analysis on Cardiovascular Disease Dataset covering all topics learned as part of the course
– Prediction for Cardio Vascular disease using 3 models - SVM, Random Forest and Decision Tree.
– Technology Used: Python, Pandas, scikit-learn.

Embedded Programming

•OS for Raspberry Pi *Ongoing*

Developing an Operating System for Raspberry Pi Board

– To gain an understanding of hardware-software interaction fundamentals
– Technology Used: Assembly, C

•Audio Classification Model on Syntiant TinyML Board *Ongoing*

Training and running inference on Syntiant TinyML Board

– Technology Used: Arduino IDE, Edge-Impulse

Application/System Software

•Yet Another Kafka (Mini-Kafka Clone) *Sep - Dec 2022*

A mini-kafka clone to mimic the operations of Kafka.

– Mimics the core operations of Kafka along with error and fault handling.
– Complete with Brokers, Producers, Consumers and Zookeeper.
– Part of final project assessment for Big Data Course
– Technology Used: Python, Linux File-System

•Cloud Ready E-Commerce Microservices Application *Feb - April 2023*

E-commerce Microservices Application built using Cloud Computing fundamentals

– 3 NodeJS Microservices packaged together as one cohesive application, all communicating with REST API
– Obeys CI/CD principles, written to use Docker, Kubernetes, Git for integration and Jenkins for automation
– Technology Used: NodeJS, Docker, Kubernetes, Jenkins.

•Brick Breaker Game using OOP concepts *Mar - April 2023*

A Java based Brick-Breaker Game for Object Oriented Programming Course

– Built from the ground up to adhere to OOP concepts
– Follows standard design patterns, specifically Builder, Factory and Adapter for the various components in the game
– MySQL database is used with JDBC connecter to store user scores
– Technology Used: Java, MySQL.

•Online Video Game Rental System *Oct - Nov 2022*

An online video game rental system

– MySQL database, complete with videogame data, user data and order information.
– Always updated with the availability of the videogame, as per the database
– Supports concurrency of users, and fault tolerance for coincidental booking of same video-game
– Technology Used : MySQL, PHP, HTML, CSS.

Paper Publications

•Vidgen: Long-Form Text-to-Video Generation with Temporal, Narrative and Visual Consistency for High Quality Story- Visualisation Tasks

International Conference for Convergence of Technology (I2CT), 2024
Feb - April 2024

– https://ieeexplore.ieee.org/abstract/document/10544050
– A novel approach to generating long-form video content
– Addresses limitations of current text-to-video models by enabling them to process large story-based text inputs and generate corresponding long-form videos
– Generated videos are temporally(smooth high quality video), narratively (events occur in same order as input) and visually (all characters appear the same throughout the video)

Experience

•Cloud Analyst *Aug 2024 - Current*

Oracle

– Currently working in Oracle Fusion ERP Consulting team.
– Create Generative AI POCs and solutions for clients who use Oracle products.
– Create automation scripts and bots that automate Oracle product's processes, tailored to client needs and specifications

•Software Engineer Trainee *Feb - April 2024*

Logituit

– Designed and developed scalable, production-ready AI/ML systems for OTT player Logix Enrich
– Utilized modified version of OpenAI Whisper text-transcription model
– Architected RESTful API backends with multi-tenancy, load balancing, and optimized resource utilization
– Dockerized applications for seamless deployment on AWS EC2
– Collaborated with frontend team to deliver optimal backend APIs that were production ready and scalable
– Worked on and learnt from a team that performed development with AGILE and SCRUM principles

•Intern *Jun - Nov 2023*

Wipro Limited

– Worked on Generative AI solutions & demos for Wipro Automotive clients
– Worked with LLMs, created custom Chatbots, Vector Databases.
– Worked with Vector Databases and task-specific Text Embedding models for indexing data
– Worked on a Retrieval Augmented Generation API, allowing for natural language answers to questions on specialized knowledge bases (documents) and an RFQ Screener Application

•Teaching Assistant *Jan - April 2024*

PES University

– Teaching Assistant for the course: "Topics in Deep Learning"

Achievements

•1st Place - 2022 IBMz - Global Datathon *IBM, 09/2022*

•3rd Place - Hacktober Hacknight 4.0 Open Source Hackathon *PES University, 10/2022*

•MRD Scholarship Awarded to top 10% students of the Department *PES University, 6th Sem*

•Distinction Award Awarded to top 25% students of the Department *PES University, 5th Sem*

•Mentor AI/ML Mentor, IEEE Kalpana Hackathon *PES University, 02/2023*

Skills and Interests

Programming Languages: Python, R, C, C++, Java, PHP, MySQL
AI/ML: Tensorflow, PyTorch, NumPy, scikit-learn
Cloud/DevOps: Docker, Git, Jenkins, Flask
Documentation | Productivity Tools: LaTeX, BibTeX, Emacs Orgmode
Soft Skills: Quick & Constant Learner, Problem Solving, Self-Directed, Communication, Team & Player
Interests: PC Hardware, GPUs, UFC/MMA, Formula 1

Extra Curricular Activities

Cubing: Participated in Ranked Competition (Link to Ranking site)

Links- (If Embedded URLs are not working)

Linkedin- https://www.linkedin.com/in/ram-selvaraj-65b6a41b4/
Github- https://github.com/ramselvaraj
Personal Website- https://ramselvaraj.github.io/
Cubing Rank- https://cubing.com/results/person/2014SELV01