Harshad Varma Sagi

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EDUCATION

University of California San Diego   San Diego, CA
*Master of Science in Computer Science and Engineering (**GPA**: 3.86/4)*   *Expected: March 2023*

Graduate Researcher (Cardiac Mechanics Lab), **Teaching Assistant** (Cognitive Perspectives, Neurobiology)

Vellore Institute of Technology   Vellore, India
Bachelor of Technology - Computer Science and Engineering   *April 2022*

EXPERIENCE

Graduate Researcher (Software Developer)   San Diego, CA
CMRG Lab, UC San Diego   *September 2023 - Present*

– Developed an end-to-end data pipeline for biomechanical analysis in a rodent study, incorporating custom data collection, processing algorithms, and analytical modeling.

– Currently working on building the website from the ground up on AWS, taking responsibility for setting up infrastructure and handling the entire frontend and backend development.(**Tech Stack: React, TypeScript, Java, REST, S3, MongoDB, AWS Elastic Beanstalk**)

Machine Learning Intern   Santa Clara, CA
Emagia   *Jun 2023 - September 2023*

– Refined the information extraction process for a document processing platform. Achieved a 13% improvement in accuracy in table segmentation across multiple formats using OpenCV for image enhancement and segmentation.

– Deployed a text analysis pipeline using entity recognition capabilities and PaddleOCR for text extraction, resulting in a significant increase in data interpretation accuracy and error reduction. (**Tech Stack: Python, OpenCV**)

Research Intern   San Diego, CA
UC San Diego Jacobs School of Engineering   *June 2021 - Dec 2021*

– Developed a self-evaluative ML model inspired by human learning for breast histopathology classification task achieving an accuracy of 94.4%. The solution was implemented in four stages: Educational Feedback Loop, Adversarial Exploration, Enhanced Learning, and Architectural Refinement.(**Tech Stack: Python, Pytorch**)

Software Development Intern   Hyderabad, India
Blaze Automation   *January 2021 - May 2021*

– Built an Android application for monitoring the sleep patterns of the elderly, which integrates machine learning techniques to account for seasonal changes. This integration improved prediction accuracy by 10%(**Tech Stack: Python, Kotlin**)

PROJECTS

Fault-Tolerant Distributed File Storage System |*Go, gRPC*

– Implemented a distributed file storage system similar to Dropbox, with support for concurrent read/write accesses from multiple clients, and CRUD/Sync operations on the files. Integrated the RAFT consensus protocol to make the system resilient to the failure of 50% of the servers.

Product Recommendation Website |*AWS, NodeJS, React, GraphQL, Docker, Git*

– Built an AWS-based product recommendation website with over 3 million products, utilizing a user-friendly design and agile practices. The website features conversational and contextual recommenders.

TutorGPT |*Python, LLMs, LangChain*

– Developed "TutorGPT", an AI tutoring system using ChatGPT API with a student model and knowledge graph, improving outcomes for 200+ students, and a course-specific Piazza bot for query resolution.

LegalLex NER - Natural Language Processing |*Python, NLP, Machine Learning*

– Developed NER system for legal text entities. Utilized Few-shot learning with prompt engineering on LLMs: RoBERTa, ELECTRA, DeBERTa, GPT-3.5. Achieved an F1 score of 89.80 for GPT-3.5 one-shot learning.

TECHNICAL SKILLS AND COURSES

Languages and Tools: Go, Python, Java, C++, Matlab, Javascript, Kotlin, SQL.

Libraries and Tools: ReactJS, Kafka, MongoDB, AWS, Docker, Kubernetes, NodeJS, GraphQL, Django, Typescript, REST, S3, Pytorch, Tensorflow, OpenCV, scikit-learn, Airflow.

Graduate Courses: Algorithms, Recommender Systems and Web mining, Distributed Systems, Search and Optimization, Advanced Computer Vision, NLP, Robotics, Computer Architecture.