SHREERAM NARAYANAN

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PROFESSIONAL EXPERIENCE

Graduate Student Researcher, CPS-VIDA Lab, USC *Los Angeles, CA* **Feb 2023-Present**

- Trained a neural network for real-time monocular 3D object detection in a perception system
- Collaborated on the design of a Unity-based 3D simulator and extracted RTLS data for training, evaluation, and validation of perception system
- Conducted comprehensive analysis and verification of AI algorithms and models to identify and address safety risks and vulnerabilities

Software Development Engineer Intern, Amazon *Irvine, CA, USA* **May 2022-Aug 2022**

- Developed a web-based user interface (UI) for common services workflows, focusing on integration and seamless functionality
- Engineered solutions within services team at Amazon Game Studios (AGS), including development of a tool for end users to request Steam keys for New World game. Designed an admin dashboard for Steam key management
- Collaborated with DevOps team to deploy the application, supporting continuous integration and delivery processes

Machine Learning Engineer Intern, Tericsoft Technology Solutions *Hyderabad, India* **Jan 2021-Jul 2021**

- Collaborated with a 5-member team on a video analytics project, performing mask and safety-vest detection tasks on CCTV feeds. Trained object detection using Nvidia Transfer Learning Toolkit (TLT) and deployed using Nvidia Deepstream intelligent video analytics toolkit
- Led a project to develop a spell-check application based on Levenshtein Algorithm to correct names of brands entered by data entry engineers. Deployed the application using Flask API on a Dashboard
- Implemented data science project on customer behavior analysis based on purchase history, employing Apriori Algorithm. Constructed a recommendation system using Collaborative Filtering

Deep Learning Engineer Intern, Segmind Solutions Pvt. Ltd *Bangalore, India* **Jun 2020–Dec 2020**

- Integrated semantic segmentation networks like Feature Pyramid Network (FPN), LinkNet, object detection networks like FasterRCNN, and instance segmentation networks like MaskRCNN into CNN Research Abstraction Python Library (CRAL)
- Part of a 3-member team of a Client Python Library called Segmind Track to enable logging training metrics, system metrics (CPU & GPU), hyper parameters and artifacts of deep learning experiments on a tracking site
- Incorporated PyTorch Lightning callbacks into Segmind Track, allowing users to track performance of models trained using PyTorch Lightning Deep Learning Framework

TECHNICAL SKILLS

- **Programming Languages and OS:** Python, C, C++, Java, JavaScript, HTML, CSS, SQL
- **Libraries and Frameworks:** NumPy, Scipy, Pandas, Scikit-Learn, GluonCV, Apache Mxnet, PyTorch, Tensorflow, Matplotlib, Keras, OpenCV, NLTK, Flask, AngularJS, NodeJS, Apache Spark, Apache Hadoop
- **Databases, Platforms and Technologies:** MySQL, Docker, AWS (EC2, S3), GCP, MongoDB, DynamoDB, Unity

EDUCATION

University of Southern California *Los Angeles, CA* **May 2023**

Master of Science, Electrical Engineering **GPA: 3.68/4**

Related Courses: Algorithms, DBMS, AI and Machine Learning, Deep Learning, Applied Cloud Computing and Web Dev

Sardar Patel Institute of Technology, Mumbai University *Mumbai, India* **May 2020**

Bachelor of Engineering, Electronics and Telecommunications **GPA: 8.69/10**

ACADEMIC PROJECTS

Emulated Distributed File System: (Map Reduce, MongoDB, Flask, HTML, CSS) **Oct 2022**

- Built a Distributed File System (DFS) similar to Hadoop DFS, implementing various commands and utilizing MongodDB and MySQL for metadata and data storage respectively
- Developed a web application for user command input and display result on a web page

Code Summarizer - Encoder-Decoder Model for summarizing code: (PyTorch, Transformers, Neural Networks) **Nov 2022**

- Designed an encoder-decoder architecture to generate code snippet summaries
- Achieved a BLEU-4 score of 15.96 and an EM score of 0.4759 on the test set

Trip Expense Management Application: (NodeJS, GraphQL, HTML, CSS) **Dec 2022**

- Developed a web application for end users to manage expenses and upload trip media
- Integrated Google Places API to provide destination overviews within the application

TrojanMap – Implementing Graph Algorithms to build a map application: (Algorithms, Data Structures, C++) **Mar 2022**

- Implemented a C++ Map application to find location coordinates, calculate shortest paths, and identify nearby places
- Utilized BFS, DFS, and Topological Sort algorithms to enable these features in the application

Generating Monet Style Art using Generative Adversarial Networks: (PyTorch, CycleGAN, Neural Networks) **Nov 2021**

- Devised a modified CycleGAN architecture model to generate Monet Style photos from real images on the Monet2Photo Dataset
- Utilized PyTorch framework to train generator and discriminator CNN models, resulting in a Memorization-informed Fréchet Inception Distance score of 55.97. Featured in the Kaggle Competition titled “I’m something of a painter myself”