MANIKANDAN LAPASI PARTHASARATHY

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Education

Georgia Institute of Technology | ***MS in Computer Science. CGPA: 4.0/4.0*** *Aug 2022 - May 2024*

Courses: Graduate Algorithms, Information Security, Deep Learning, Data Analytics, Database Systems Design

Indian Institute of Technology Madras | ***BS-MS in Robotics. CGPA: 3.8/4.0*** *July 2015 - May 2020*

Courses: Computer Vision, Linear Algebra, Programming in C, Artificial Intelligence, Matrix Calculus

Projects

Image Generation - Stable Diffusion | ***Course: Deep Learning*** Feb-May 2023

- Developed a robust Denoising Diffusion Probabilistic Model (DDPM) from the ground up, leveraging a UNet architecture and integrating CLIP encoding for enhanced performance.
- Optimized the model's generation capabilities by implementing and fine-tuning diverse image-to-noise schedulers, including linear and cosine variations.
- Successfully trained the DDPM on CIFAR10 (60k images) for both single-class and multi-class image generations, achieving impressive accuracy in producing visually compelling images representative of their respective classes.

Music Recommendation System – click here, or view it from the link on my website! Feb-March 2023

- Built a customized music recommendation system using a combination of user preferences and audio features.
- Processed 1.5 Million datapoints and 30 features extracted using Spotify API, applying a neural network to learn weight priorities and cluster songs accordingly.
- Designed and implemented the software architecture for the website, utilizing AWS Lambda, ApiGateway, and RDS (PostgreSQL) services. Rewrote the middleware in Rust, significantly reducing runtime from minutes to seconds.

Experience

Software Developer / Machine Learning Intern | ***Georgia Tech*** *May 2023 - Aug 2023*

- Analyzed Geospatial data (100k spatio-temporal datapoints) to build ML models for geoprocessing.
- Programmed a web application with GIS functionality, providing mapping capabilities and enabling linear computations for enhanced spatial analysis and visualization.
- Integrated the web-app service with a backend web-server to enable real-time data updates.

Advanced Software Engineer / Site Reliability Engineer | ***Honeywell*** *Aug 2020 - Aug 2022*

- Orchestrated seamless software deployments across multiple regions (US, EU) by configuring and leveraging CI/CD pipelines for QA, non-production, and production environments.
- Boosted API response times by 100% and resolved customer-facing issues through the implementation of automated cleanup and maintenance activities on a distributed database cluster, utilizing Python and SQL packages.
- Scaled up applications by leveraging Kubernetes over Openshift to efficiently handle 100+ requests/second.
- Ensured high observability at application and system levels by integrating Prometheus to expose metrics.
- Slashed incident response time by 150% through proactive analysis of metrics, trend identification, and real-time visualization of Key Performance Indicators (KPIs) in Grafana, complemented by well-configured alerts.
- Automated the provisioning and configuration process of cloud resources, including Virtual Machines, Networks and Databases, using Terraform and Ansible runbooks, ensuring consistent and reliable resource deployment.
- Led a team of 4 in designing and developing an efficient onboarding tool using ReactJS and Python Flask integrated with Jira, resulting in a substantial 300% reduction in customer onboarding time.
- Contributed towards team planning/cooperation by employing Agile methodologies, stand-ups and scrum meetings.

Software Developer Intern | ***GreyOrange Robotics*** *May 2019 - July 2019*

- Significantly reduced path computation time of the Butler robot by approximately 300 hours over a 2-month period through the implementation of optimized binary-heap based data structures for path calculation algorithms.
- Implemented real-time plotting and predictive plotting of the robot's predicted and actual paths, using Python.

Skills

Languages : Python, C++, Rust, SQL, Powershell, Linux/Unix, Javascript

Tools/Cloud: Docker, Kubernetes, Openshift, Ansible, Terraform, Grafana, Azure, AWS, GCP, ElasticSearch

Frameworks: ReactJS, Python (Numpy, Pandas, Tensorflow, Pytorch, Scikit-learn, Flask), KQL, Prometheus

Achievements

Finalist | ***SpaceX Hyperloop Pod Competition - Team Lead*** *California, 2019*
Finalist | ***Indian National Mathematics Olympiad*** *India, 2014*