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Tarun Murugan

Software Engineer

GitHub: tarunm20
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Portfolio

Education

Bachelor of Science in Computer Science, *University of California, San Diego* Sept, 2021 — Present

- Relevant Coursework: Computer Vision, Computer Graphics, 3D AR/VR, Machine Learning, and, Database Systems
- Honors: Provost Honors
- Research: Worked with Prof.Edwin Solares on implementing UNet and SegNet in PyTorch and Tensorflow for the AbeloneVision project.

Skills

Languages	Python, HTML/CSS, JavaScript, TypeScript, Java, Markdown, C, C++, PostgresSQL, OpenCL, CUDA
APIs and Frameworks	Tensorflow, PyTorch, ReactJS, Django, MongoDB, Flask, Airflow, and Flutter
Other	Jira, Confluence, Outlook, Git, Bitbucket, Docker, Node.js GCP, AWS, Azure, Pandas, scikit-learn, Kubernetes, Full-Stack, and AGILE Methodologies

Work Experience

Student Engineer **Oct, 2022 — Present**
Information Technology Services(ITS), UCSD *San Diego, California*

- Designed, tested, and bug-fixed a variety of Airflow architectures and workflows including DAGs, custom operators, and helper functions for ITS's private Airflow Provider Package. Used Python, Airflow, and SQL.
- Developed a script for automating UCSD's billing process. Increased productivity by **300%**. Iteratively collaborated with the users to accurately implement what the users needed. Used Python.
- Prototyped different prompts for the initial version of UCSD's TritonGPT and generated a workflow to transcribe UCSD videos using the WhisperX model. Curated a variety of testing benchmarks and scripts to holistically assess how TritonGPT performs. Used Python, Kubernetes, and OpenAI API.
- Solved general bugs with UCSD's mobile app and researched a lecture watching feature for the app. Used Dart and Flutter.

Cyber Security Intern **Oct, 2020 — Aug, 2021**
CyberSecurityWorks *Chennai, India*

- Increased the content team's productivity by developing a library of web scrapers that helped increase productivity by **336%**. The library was developed in Python using Selenium and I created a minimalistic UI for the content team to interact with the web scrapers.
- Developed a fully automated docker vulnerability report system that reduced document generation time by **50%**. I used Python to interact with docker containers being stored on GCP.

Machine Learning Intern **Sept, 2020 — Dec, 2020**
nFactorial Analytical Sciences *Chennai, India*

- Researched multiple ML models using TensorFlow for classifying audio samples by emotion. I achieved a **92%** accuracy. The research was used to develop an HR product to detect employee satisfaction.

Software Engineering Intern **Jun, 2019 — Aug, 2019**
Ventuno Technologies *Chennai, India*

- Developed and tested several private REST APIs for their video platform. I did some initial research between Django and Flask to see which technology best aligned with the company's needs.

Projects

Path Tracer

- During CSE 168, I built a physically-based path tracer in C++ with the ability to use a variety of sampling methods for different effects. I also implemented photon mapping based on the original photon mapping paper by Henrik Wann Jensen.

4anime Web Scraper

- At the peak of my anime enthusiasm I wanted to understand how different websites structured their data for a better user experience. I used JavaScript and different web scraping technologies to extract as many data points from 4anime as I could for a better developer experience. I also added my package to NPM for others to use.