Vishwanath Seshagiri

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Work Experience

Teaching Assistant @ Emory University Aug 2019 - Present
CS453 Security in Fall 2019 and **CS326 Algorithms in Spring 2020**

Python Developer @ UMM Digital Sep 2018-Jun 2019
Worked as a Python Developer for Review Management Platform called Zceppa. Created the architecture for the API based on Microservice Architecture Principles, and developed the Data Pipelines using Celery with RabbitMQ Backend. Also developed the backend API in Python Flask. Used MySQL as Database, and deployed the application on an NGINX Server, and a Read-Only Database in a different server. Scaled the service to process more than 300GB of Text Data per day.

Backend Developer @ Warhorse Education Pvt. Ltd. Aug 2017-Jun 2018
Worked as a Backend Developer for Internal Online Systems of Warhorse. Implemented Collaborative Filtering based Recommender System for Test Taking Module. Structured the Coding Course taught to Students. Used Python Library Surprise, Word2Vec Models, and borrowed concepts from Computational Pedagogy for building the Test Taking Module.

Research Trainee @ WARAN Research Foundation July 2015 - March 2016
Worked on simulator for benchmarking High Performance Computing Systems. Implemented various Graph Algorithms such as SVD, LUD in C++. Worked with Shared Memory and IPCs in Linux for achieving the same.

Education

Emory University 2019 - Exp. 2025
PhD in Computer Science @ SimBioSys Lab. *Advisor: Dr. Avani Wildani*

College of Engineering Guindy, Anna University 2014-2018
B.E. Computer Science and Engineering.

Projects

QoS Violations in Microservices RESEARCH
Currently working on a framework to detect QoS Violations in Microservices.

Designing Multi-Tier Caches for Storage Cache RESEARCH
Worked on a framework to design the optimal multi-tier storage cache for a given budget, and workload. Maintaining the Multi Tier Simulator developed at SimBioSys. Submitted to Eurosys'21.

Workload Clustering for Storage Optimisation Poster/WiP Talk
Found effective ways for clustering block level traces for storage optimization. Appeared in FAST'20 as WiP Talk.

YouTree: ***A Visualization Paradigm of Statistically and Textually Similar Video*** RESEARCH
Worked on building data pipelines for fetching data using YouTube's Data API and sending it to NLP Module, and extracting results from the same. Code: GITLAB

TweetIt: ***Analyzing Topics for Twitter Users to garner Maximum Attention*** RESEARCH
Obtained the Tweet Data based on the Hashtag, and profiled it to understand the psyche of the user.Wrote an indexing algorithm for clustering the user profiles based on similar topics in their tweet. Code: GITLAB

Hippo: ***Hippocampus Simulator*** RESEARCH
Wrote a Hippocampus Simulator, in Python using Numpy and PyTorch. It replicated the pattern completion and separation taking place in the Human Hippocampus. Implemented the Pre-Integration and Lateral Inhibition taking place in Dentate Gyrus, and interfaced it with Hopfield Networks. Code: GITLAB

Dalalbull: ***A Fuzzy Logic Based Stock Market Simulator for Behavioural Analysis*** PROJECT
Built the application in Python (Flask) with Redis DB. Wrote an algorithm for generating the news based on Fuzzy Logic and used Weiner Process to determine the price fluctuations of a stock at any given point of time. Code: GITLAB

Multi Instrument Music Track Generation Using GANs Bachelor Thesis
Implemented a GAN for Music Generation based on MuseGAN. Optimised the code base for handling 4/4 beat patterns. Used Lakh Midi Dataset for training.

Publications

- Vidya Janarthanam, V., **Vishwanath, S.**, Shanthi, A.P. *A biologically plausible network model for pattern storage and recall inspired by Dentate Gyrus.* Journal of Neural Computing and Applications.

Skills, Interests, and Courses

- **Skills:** Python, C++, Go, Flask, Linux, Nginx, uWSGI, Microservices
- **Interests:** Distributed Systems, Machine Learning, Queuing and Control Theory.
- **Courses:** Parallel Processing, Machine Learning, Algorithms, Probablity and Queuing Theory, Graph Theory, Deep Learning(Udemy),