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Boulder, Colorado

Aravindakumar V M

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GitHub:
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Work Experience

Software Engineer Intern **May 2022 — Aug 2022**
Viasat Inc *Carlsbad, CA*

- Identified the key performance metrics to be tracked for the test scripts of the Fixed Terminal Automation team.
- Developed Metrics Library in SAM automation framework, in Python, for collecting the performance metrics and then pushing to Druid database.
- Built dashboards using Grafana which facilitated efficient visual analysis of daily test runs.
- Configured slack alerts in Grafana which helps in instant anomaly detection.

Software Engineer **Aug 2020 — Jul 2021**
Zomentum *Bangalore, India*

- Developed and maintained data integration API for a third-party PSA tool called Connectwise Manage.
- Streamlined Git-Lab workflows which eased the deployment process.
- Contributed to the rule discovery phase for the integration of a payment gateway called Stripe with Zomentum.
- Participated in weekly bug triage sessions and made the application robust.

Software Engineer **Jun 2018 — Apr 2020**
Soroco India Pvt Ltd *Bangalore, India*

- Created Offer Letter Bot to automate the process of generating offer letters and save time for the HR team.
- Built several scalable and fault-tolerant end-to-end process automation systems in Python for an insurance firm.
- Wrote a configurable python script for Synthetic Data Generation which generated data for testing new features in Scout.
- Built an automation system for the Fin-Ops team of a client which handles sensitive user permission data from multiple sources like RDS, Redshift, S3 buckets, etc., where, I gained knowledge on using design patterns like Singleton and Factory methods.
- Worked with the Input engine team which uses Machine Learning to parse PDF files.
- Developed back-end API's in Django for a client-specific dashboard that fetched data from Amazon S3, RDS, and several other client-specific endpoints.

Research Experience

Modelling Controllers for Cyber Physical Systems using Neural Networks **Fall 2022**
Independent Study - Advised by Prof. Sriram Sankaranarayanan *Boulder, CO*

- Investigated methods for successfully training neural networks in a control-based environment, such as trajectory tracking.
- Implemented Behavioral Cloning and DataSet Aggregation (DaGGER), two imitation learning techniques, to efficiently train neural networks.
- Conducted tests and evaluated the effectiveness of the aforementioned strategies using the Bicycle robot and Caltech Ducted Fan benchmarks.

Brain Tumor Segmentation (BraTS) **Spring 2022**
Independent Study - Advised by Prof. Geena Kim *Boulder, CO*

- As part of the BraTS challenge explored novel techniques and techniques for effectively segmenting brain tumors.
- In-depth examination of the reasons why the current Deep InfoMax strategy failed to outperform a traditional U-net-based architecture.
- Adopted the multi-scale dense U-net (MDU-net) architecture, which produced encouraging outcomes.

Teaching Experience

Teaching Assistant **Fall 2022**
CSCI 3155 - Principles of Programming Languages **Instructor:** Prof. Bor Yuh Evan Chang
Teaching Assistant **Spring 2022**
CSCI 3155 - Principles of Programming Languages **Instructor:** Prof. Sriram Sankaranarayanan

Projects

Restaurant Delivery **Fall 2022**
CSCI 5854 - Theoretical Foundations of Autonomous Systems *Boulder, CO*

- Used the Omega Threads tool to create controllers from an LTL specification. A bicycle's dynamics and basic drone dynamics were used to produce two distinct delivery modalities.

Music Generation **Spring 2022**
CSCI 5922 - Neural Networks & Deep Learning *Boulder, CO*

- Performed a comparative study on the quality of music generated by different deep learning models like RNN, LSTM, GRU, and Distill-GPT2 with over **1000** musical notes(ABC notation) obtained from Nottingham music database.

Sudoku Solver **Fall 2021**
CSCI 5622 - Machine Learning *Boulder, CO*

- Developed a Convolutional Neural Network (CNN) model that solves a 9x9 Sudoku puzzle one cell at a time with an accuracy of 100%

Netflix Movie Recommender **Fall 2021**
CSCI 5502 - Data Mining *Boulder, CO*

- Built a recommender system for movie recommendations using a subset of the Netflix Price dataset containing 50k users and 5k movies.
- The final XgBoost regressor was trained using the outputs of numerous baseline models from the Surprise library, including KNN, SVD, and SVD++, and it achieved an RMSE score of **0.9**..

Education

Master of Science in Computer Science, *University of Colorado Boulder* **CGPA 3.92** Aug 2021 - Present
Bachelor of Engineering in Computer Science, *Coimbatore Institute of Technology.* **CGPA 9.04** Jul 2014 - May 2018

Course Work

Machine Learning, NLP, Data Mining, Linear Programming, Neural Networks and Deep Learning, Theoretical Foundations of Autonomous Systems

Skills

Programming Languages	Python, Scala, C/C++
Databases	PostGreSQL, MongoDB, Druid
Frameworks	Django, Play
Technology	Git, AWS, Jenkins, Grafana

CertiFications

- Scala and Functional programming for beginners.
- Advanced Scala and Functional Programming.

Achievements

Received Outstanding Teaching Assistant award for my contributions in CSCI 3155
Secretary of National Service Scheme Club in CIT
Event Manager of a technical symposium named Interface'16
Bestowed with Best Student Teacher Award