Naila Fatima

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Experience

Software Engineer April 2022 – Present

Andromeda 360 (spinoff of Hypergiant)

- Spearheaded the maintenance and augmentation of the model development kit (MDK) by authoring comprehensive unit and regression tests (∼20% of the test suite) and revising appropriate documentation.
- Implemented model versioning to enable users to create multiple models with the same name and different versions, elevating workflow efficiency.
- Incorporated retraining functionality to the MDK by preserving the trained model artifacts in their native format enabling the retrieval and saving as distinct versions of the same model.

Software Engineer Aug 2021 – Jan 2022

Hypergiant

- Built datasources with SQLAlchemy to establish connection with SQL (MySQL, PostgreSQL, SQLite) and Snowflake databases, enabling expedient querying.
- Implemented hyperparameter tuning for Hyperdrive experiments using Optuna, culminating in an optimized trained model that maximized performance.
- Updated the Ariadne resolvers used by the local machine to handle AWSv2 credentials.
- Developed a dynamic scheduler utilizing Papermill to execute Jupyter notebooks hourly, with the capacity to append, remove, and modify scheduled tasks.

Computer Vision Researcher May 2017 – May 2019

IIIT Hyderabad

- Created video blur detection models with Python and OpenCV which used variations in video frame intensities and a neural network to achieve 90.13% accuracy; project done in collaboration with Qualcomm.
- Co-led the development of a film shot classification technique which utilized pose estimation (via OpenPose) and a rule-based approach in Python; could distinguish between close-ups, medium shots and long shots with 77.5% accuracy.
- Implemented video stabilization techniques using L1 optimal camera paths and content preserving warps in MATLAB; minimizing the effect of camera motion on video.

Education

Georgia Institute of Technology, Atlanta, GA Aug 2019 – Dec 2020

MS in Computer Science, Specialization: Machine Learning GPA: 3.9/4.0

Coursework: Artificial Intelligence, Computer Vision, Machine Learning, Natural Language, Deep Learning, Game AI

International Institute of Information Technology (IIIT) Hyderabad, India Aug 2015 – May 2019

B. Tech (Honors) in Electronics and Communications Engineering, Dean's List GPA: 8.65/10.0

Coursework: Algorithms & OS, Data Structures, Linear Algebra, Digital Image Processing, Statistical Methods of AI

Skills

Languages: Python, C, C++, MATLAB, SQL, HTML, CSS, Bash, Java
Libraries: OpenCV, TensorFlow, PyTorch, Keras, scikit-learn, NumPy, OpenPose, Optuna, SQLAlchemy, VLFeat
Technologies & Tools: Flask, Git, Docker, MySQL, Unix/Linux

Projects

Book Management System (Python, MySQL, Flask, HTML) Link

- Conceptualized and executed a feature-rich application that offers personalized book recommendations to users based on their prior reading preferences, leveraging Flask-MySQL to generate HTML web pages.
- Implemented a login functionality which allowed users to keep track of books read and the ratings they allotted to them.

Automatic Essay Scoring (AES) with Bias Prediction (Python, PyTorch, scikit-learn) Link

- Developed an AES system using machine learning models (Bayes classifier, LSTMs, BiLSTMs) with a 97% agreement among scorers on the ASAP-AES dataset.
- Processed data for feature extraction and trained models to predict the age and gender of the essay author to analyze the possibility of bias in essay scoring; indicated a possible gender bias in AES.

Generational Training in Reinforcement Learning (RL) (Python, PyTorch) Link

- Conceived a generational approach to train RL agents by exploiting the learning of the best performing agent from the previous generation; minimized runtimes by 50%.
- Programmed agents (DQNs) capable of playing the Atari game Super Invaders; reduced memory usage by eliminating the shared buffer.