Mokshagna Sai Teja Karanam

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Skills

Languages and Frameworks: Python, PyTorch, Tensorflow, Django, MySQL, Java, C++, C.
Web: AngularJS, JavaScript, ReactJS, HTML, CSS.
Technologies : Machine Learning, Deep Learning, Natural Language Processing, Statistical Shape Modeling, Data Analysis, Medical Image Analysis.
Cloud: Amazon Web Services (AWS)
Tools: Git/GitHub, Paraview, Intellj, Linux, ShapeWorks, Postman, Cloud9.

Work Experience

Graduate Research Assistant | *Scientific Computing and Imaging Institute*   **Aug 2022 – Current**
- Proposed an automated, computationally efficient, and on-the-fly adversarial data augmentation technique tailored for Statistical Shape Modeling and Regression Tasks which reduced approximately 60% training time.
- Introduced a novel regularization technique utilizing contrastive loss. This technique aimed to generate more task and data-specific samples, leading to a substantial 10% performance enhancement across diverse modalities.
- Designed ShapeWorks test systems for different modalities and deployed datasets in the shapeworks cloud.

Systems Engineer | *Tata Consultancy Services, India*   **Nov 2020 - Jul 2022**
- Worked on a web application project in AWS using Django Framework.
- Developed application's ORM layer and deployed an extensive suite of 50-plus REST APIs.
- Engineered web services and devised distinct lambda jobs, resulting in service optimization exceeding 25%.
- Identified and rectified performance bottlenecks, resulting in a notable 50% enhancement in page load speed.
- Executed over 15 stored procedures and performed operations within MySQL to improve the data retrieval and storage processes.
- Enforced access controls for 1000-plus users, enhancing systems security and aligning data access privileges accurately.
- Engaged in roadmap consultations, mentoring and guiding a team of 2.
- Collaborated with cross-functional teams to successfully execute a large-scale migration from Python 2.7 to Python 3.8.

Associate Software Engineer | *OpenText, India*   **Sep 2019 - Sep 2020**
- Implemented crucial User Access Control for the product TeamSite using AngularJS and ReactJS.
- Orchestrated the deployment of the project in the OT2 cloud environment.

Engineering Intern | *OpenText, India*   **Jun 2019 - Sep 2019**
- Created a Report Generation Tool with Python, enabling real-time monitoring of usage and provides performance metrics for over 100 usecases.

Publications

- Published "Adversarial Data Augmentation in Statistical Shape Models from Images" in the ShapeMI MICCAI Workshop 2023. **LINK**
- Contributed to "An NSF REU Site Based on Trust and Reproducibility of Intelligent Computation: Experience Report" which got published in SC23 Workshop: EduHPC. **LINK**

Projects

- **Road Object Detection:** Performed comprehensive analysis with different backbones, used YOLOv5 single-stage models, resulting in over 50% MAP improvement over multi-stage Faster-RCNN models.
- **Monkey Pox Detection:** Mitigated data scarcity via on-the-fly Adversarial data augmentation and Varational Auto Encoders (VAE), yielding a substantial 20% performance boost over conventional methods.
- **Predict Power Consumption in WIDS Datathon 2021:** Gathered and conducted data analysis by scraping information from five distinct sources on the web, including platforms such as World Weather and Wunderground, utilized ML and DL techniques (GBDT, GRUs, LSTMs, RNNs) for time series analysis and forecasted hourly electrical load across 8 distinct Texas weather zones.
- **Image Captioning:** Generated an appropriate caption based on Flickr8k dataset using Multimodal Recurrent Neural Network.
- **Case Studies:** Engaged in 5-6 case studies across varied domains, involving Graph mining for Facebook friend recommendations, Deep Learning-based music generation, and Recommender System techniques for Netflix movie recommendations etc.
- **Predict Loan Sanction Amount:** Applied advanced methods to effectively impute missing feature values, accounting for more than 50% of the dataset, enabling precise prediction of loan sanction amounts for over 500 diverse user-profiles.
- **Fruit Detection and Calorie Estimation:** Employed CNNs to identify fruits, yielding 95% accuracy. Reduced false positives by 10% through background removal and segmentation, estimated calories via volume analysis, with 3% average error.

Education

University of Utah   **Aug 2022 – May 2024 (expected)**
Master's in Computer Science — Cumulative GPA: 4.0/4.0   *Salt lake City, Utah*
B V Raju Institute Of Technology   **Aug 2016 – Aug 2020**
Bachelor's of Technology in Computer Science and Engineering — Cumulative GPA: 3.79/4.0   *Narsapur, India*

Achievements & Honours

- ∗ Selected among 500-plus students for Mission RnD 3-month Python training program.
- ∗ Achieved Top 10 position in WIDS Datathon Texas 2021.
- ∗ Ranked Top 3 in the college for Code Gladiators coding challenge organized by TechGig.