HIMANSHU PAHADIA

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Education

Arizona State University   **Aug 2021 – May 2023 (Expected)**
Master of Science in Computer Science   *Tempe, Arizona*
- **Graduate Teaching Assistant** - CSE 598: Intro to Deep Learning
- **Researcher** - Active Perception Group (Research topic - Monocular 3D Computer Vision)
- **GPA** - 4.22/4.00; **Coursework** - Artificial Intelligence, Statistical Machine Learning, Data Mining

IIIT Delhi   **Aug 2014 – May 2018**
Bachelor of Technology in Computer Science and Engineering   *Delhi, India*

Technical Skills

Languages:(Proficient) Python (Familiar) C++, Java, C#, JavaScript
Technologies/Frameworks: Keras, Tensorflow, OpenCV, Scikit-learn, Numpy, Pandas, Matplotlib, MLFlow, XGBoost, Django, Prophet, ROS, Flask, NLTK, PyTorch (Basics)
Databases: MongoDB, MySQL, PostgreSQL
DevOps and Cloud: AWS (Textract), Docker, Git

Professional Experience

Consultant II (Data Scientist), Hitachi Vantara, Pune   **Sep 2019 – Jun 2021**
- Spearheaded the development of Road surveillance and Analytics engine. Trained a Yolo-based ensemble model on GRDD 2020 dataset and object detection model with a traffic rules mapping module. **Won second prize in a prestigious national-level hackathon (among 2500+ participants)**.
- Developed a state-of-the-art solution for entity extraction from documents. Devised algorithms - spatial entity extraction, contextual OCR correction, checked-entity extraction - that resulted in 25% higher extraction accuracy.
- Forecasted query traffic on an in-house HR chatbot system by analyzing time series chat data using Prophet and spaCy. Reduced over 30% of HR tickets by incorporating more domain knowledge that was learned during the analysis.

Associate Innovation Engineer, ZenAIR Labs, Zensar Technologies, Pune   **Jun 2018 - Aug 2019**
- **Filed two innovation patents** (pending) on multi-modal hand gesture recognition & unmanned aerial vehicle.
- Engineered custom Drive-by-Wire systems for steering, acceleration, and braking actuators for ZenCruise - a self-driving golf cart. Collected real-time absolute encoder data and trained the steering angle prediction ConvNet. **Won Team Eureka Award 2019 (given to the most innovative team)**.
- Developed a visual analytics system for a retail client. Trained age, gender, and emotion detection models using VGGNet and ResNet. Researched and developed a bias correction matrix to remove facial expression bias in the age prediction dataset (APPA-Real 2018) that jumped the model's accuracy by almost 7%.
- Implemented a Content-based image retrieval system on the Fashion-MNIST dataset using Elasticsearch. Extracted hand-picked features/patterns from the clothes for a more diverse query matching and a better user experience.

Projects

ARGOS Project - Active Perception Group, ASU   **Aug 2021 - Present**
- Developed video stabilization module using point-feature matching and Lucas–Kanade optical flow.
- Implemented object detection and trajectory mapping module for the project that is being used in traffic analysis. (Working with a current Ph.D. student, Mohammad Farhadi Bajestani.)

Analysis of CGM time series data, Data Mining, ASU   **Sep 2021 - Nov 2021**
- Worked on CGM time-series data analysis to extract features via various methods like statistical analysis, Fourier & power transforms. Implemented and fine-tuned multiple classification (KNN, SVM, SGD, Logistic Regression) & supervised-clustering algorithms (K-Means, DBScan) to achieve 70% accuracy improving over the baseline of 60%.

Movie Recommendation Engine, ASU   **Oct 2021 - Nov 2021**
- Trained a collaborative filtering model (matrix factorization, K-means, Spectral Clustering, XGBoost) on the MovieLens 100K dataset. Achieved 0.771 RMSE using XGBoost on 80-20 splits.
- Trained a content-based filtering model (using TF-IDF) based on movie genres for comparative study.

Smart Retail System, Zenlabs   **Jan 2019 - Mar 2019**
- Built a smart interfaces proof-of-concept - A shopping retail catalog that uses facial recognition for user authentication and recommendation. And is interfaced by using hand gestures and voice commands.
- Improved the hand gesture recognition accuracy by training a light-invariant CNN on a custom dataset. Improved latency by 34% using CNN worker threads.