Ashwin Sateesh Kumar

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EDUCATION

Northeastern University **Boston, MA**
Master of Science in Data Science (GPA: 3.89/4) **September 2021 - December 2023**

- ***Courses:*** Supervised and Unsupervised *Machine Learning, Data Mining, Algorithms, Data Management and Processing, Deep Learning*

PES Institute of Technology **Bengaluru, India**
Bachelor of Engineering in Electronics and Communications **August 2015 - July 2019**

- ***Courses:*** *Linear Algebra, Artificial Neural Networks, Pattern Recognition, Image Processing, Signal Processing*

SKILLS

- **Programming Languages**: Python| R | C++ | MATLAB | SQL
- **Cloud Services:** Amazon Web Services | Microsoft Azure
- **Frameworks and Libraries:** Scikit-Learn | TensorFlow | Keras | PyTorch | OpenCV | Pandas | NumPy| Matplotlib | NLTK | dplyr
- **Tools/IDE:** Jupyter Lab | PyCharm | RStudio | Git | Tableau | IBM SPSS | MS Excel | SQLite| MySQL | NoSQL | Spark
- **Project Skills:** Agile (Scrum, Jira, Confluence)

WORK EXPERIENCE

Signify (Phillips Lighting) **Boston, MA**
Machine Learning Research and Development Intern **June 2022 – December 2022**

- Designed and implemented an AR based interactive system using Unity 3D by integrating REST-API calls to trigger shows on Phillips lighting devices
- Found a repetitive light usage pattern and customized the light scenes for a household by forecasting the scenes with SARIMAX, VARIMAX, and Xgboost models. Improved the accuracy to 97 percent by hyperparameter tuning using randomized search
- Discovered unusual patterns in survivability of plants and assisted grower with optimal lighting strategies for each cultivar
- Demonstrated the potential for personalized lightings in smart homes to the stakeholders by creating a proof of concept for User Re-Identification by leveraging omniscale feature learning with torchreid library

KPIT Technologies Ltd **Bengaluru, India**
Trainee **July 2019 - November 2020**

- Developed a custom semantic segmentation model using U-Net architecture for traffic scene understanding and ensured the confidence of spatial detections
- Conducted research to improve annotation of 1 million image inputs for a deep learning model of BMW Autonomous vehicle with Transfer Learning and Human-In-Loop (HIL) methods
- Devised an object detection prototype of Vision and Radar Sensor Fusion for Advanced Driver Assistance System and deployed the model design in Simulink

PROJECTS

Video Speech Detection and Caption Generation **Feb 2023 - April 2023**

- Orchestrated end-to-end data processing pipeline and model architecture development for MIRACL-VCI dataset, including face detection, lip region extraction using Haar cascade classifier, feature extraction with RESNET50/VGG16 and sequential modelling with attention based LSTM and Transformers
- Successfully implemented a lip reading and the caption generation system utilizing the developed pipeline to achieve classification and text generation for words and phrases in the video frame with 91.3 percent accuracy

Pet Classification and Facial Recognition Model **Feb 2022 - April 2022**

- Constructed convolutional neural nets with VGGNet based architecture for classification of cats and dogs, and built a custom face detection model by applying bounding box augmentation to detect cats and dogs in real time with the help of YOLOv5

Amazon E-commerce Capstone Project **July 2021 - September 2021**

- Performed Sentiment analysis of 4000 Amazon customer reviews. Found main topics of the reviews using Latent Dirichlet Allocator (LDA), and reviewed text to build a product recommender system using collaborative filtering
- Generated word embeddings from Word2Vec and built a LSTM model to predict the sentiments of reviews and boosted the performance to 85 percent accuracy

LEADERSHIP

- **Graduate Teaching Assistant (Machine Learning)** – Collaborated with professor in creating new assignments, held office hours to support over 30+ graduate students in solving technical problems, and graded quizzes and assignments