

Kamal Yeshodhar Shastry Gattu

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EDUCATION

Master of Science in Computer Science

University of Massachusetts Lowell, Lowell, MA; GPA: **3.736/4**

Dec 2023

Bachelor of Technology in Computer Science & Engineering

Jawaharlal Nehru Technological University Hyderabad, Hyderabad, India; GPA: **6.73/10**

Nov 2020

TECHNICAL SKILLS

Languages: Python, Java, C, C++, HTML/CSS, JavaScript, SQL, MySQL, PostgreSQL, Amazon Redshift

Libraries: NumPy, Pandas, Scikit-learn, Keras-TensorFlow, PyTorch, NLTK, OpenCV, Matplotlib

Machine Learning Skills: Image Processing, Natural Language Processing, Deep Learning, Transfer Learning

ETL Tools: Informatica PowerCenter, Informatica Intelligent Cloud Services

Developer Tools: Linux, REST API, Git, Microsoft Office, JIRA, PyCharm, VS Code, Eclipse

EXPERIENCE

Facilities Information Systems Intern - Python Developer

Facilities Management, UMass Lowell

Jan 2023 – Dec 2023

- Developed a code base utilizing e-builder's REST API to harvest cost data, ensuring up-to-date and accurate purchase order and invoice information.
- Revamped and expanded the original ODATA API code, adding functionality for processing both CSV and XML input.
- Automated the writing of e-builder and other data to SQL databases supporting GIS, overcoming challenges such as record limits and ensuring regular data retrieval for cost reconciliation, reporting, and data table updates.
- Optimized data import processes with iterative e-builder code, achieving a tenfold increase in retrieval speed.
- Contributed to the development of HTML front-end interfaces for the work order management system.
- Established comprehensive Tkinter dashboards for all system modules, prioritizing the creation of intuitive interfaces ensuring seamless navigation and efficient management of diverse functionalities within the system.
- Conducted comprehensive testing and debugging of existing code, addressing and resolving issues to improve overall system stability and user experience by conducting unit testing and user acceptance testing.
- Modelled a machine learning tool using the YOLO to count pedestrians in timelapse videos, facilitating better design options for accommodating pedestrian flows through UMass Lowell's South Campus reducing manual time by 90%.

Programmer Analyst Trainee – ETL Developer

Cognizant Technology Solutions India Pvt Ltd

Dec 2020 - Nov 2021

- Collaborated on a cross-functional team effort to enhance and optimize a Data Warehousing System, resulting in improved query performance and reduced data processing time for a Customer Relationship Management System in the Automotive Industry with a customer base exceeding 5 million.
- Designed and implemented advanced mappings and workflows using Informatica PowerCenter, streamlining ETL operations and contributing to enhanced system responsiveness.
- Oversaw the administration and maintenance of the backend Database in PostgreSQL and Amazon Redshift, implementing proactive measures that reduced system downtime by 10% and ensured data integrity.
- Delivered comprehensive system documentation, facilitating seamless knowledge transfer and equipping the team with essential resources for efficient troubleshooting and system enhancements.

PROJECTS

Evaluating Cross-domain Adaptability Of Text Summarizer: News Article Summarization

Oct 2023 – Dec 2023

- Engineered advanced text summarizers, seamlessly integrating Extractive (TextRank) and Abstractive (BART) techniques for optimizing news article summarization.
- Enhanced BART Model performance significantly, achieving a 20% improvement over previous implementations.
- Streamlined a thorough evaluation of cross-domain adaptability, consistently outperforming benchmark ROUGE scores in contrast to the model's original implementation and a fine-tuned BBC News model.
- Analyzed the abstractive summarizer's adaptability to different domains, affirming its versatility and effectiveness.

Pedestrian Detection System using YOLO

Sept 2023 – Oct 2023

- Spearheaded the development of a cutting-edge Pedestrian Detection System for the University of Massachusetts Lowell's Campus Planning Department.
- Employed advanced Machine Learning Techniques, harnessing the power of the YOLO Deep Learning Algorithm to precisely count individuals along designated campus pathways.
- Innovated a user-friendly interface, simplifying the video upload process and allowing users to define specific detection regions with ease.
- Orchestrated the seamless execution of real-time detection, tracking, and tallying of pedestrians, resulting in a substantial enhancement of the Campus Planning Department's operational efficiency in managing pedestrian flow.

Chest X-Ray Classification to Detect COVID-19 Using Deep Neural Networks

Feb 2023 – May 2023

- Formulated a deep-learning model for swift and accurate diagnosis of respiratory illnesses, with a specific focus on detecting COVID-19.
- Remodeled three widely recognized deep-learning techniques - ResNet, VGG, and LeNet to train models capable of classifying chest X-ray images into four categories on 42000 lung X-ray images.
- Achieved high diagnostic accuracy, enhancing the potential for early and precise identification of respiratory conditions, especially COVID-19 with an accuracy of 92%.
- Implemented GRADCAM an advanced visualization technique to identify and highlight areas affected by the virus within the lungs, aiding medical professionals in targeted treatment approaches.

Climate Change Sentiment Analysis

Jan 2022 – Apr 2022

- Conducted sentiment analysis on Twitter data, analyzing and classifying sentiment towards climate change using natural language processing techniques on a dataset of more than 43,000 tweets.
- Performed an exploratory data analysis to gain insights into the opinions of Twitter users on the topic of Climate Change.
- Employed a Deep Learning Model with a Recurrent Neural Network approach achieving an accuracy rate of 96% using features including text in tweets and the frequency of specific keywords.
- Tested the developed models on additional tweets scraped from Twitter to validate the sentiment analysis approach's robustness and generalization capabilities.

Citizens Income Prediction - Comparison of Machine Learning Models

Feb 2022 – Apr 2022

- Trained predictive models for income levels of citizens Dataset with 48,000 data samples, achieving an overall accuracy rate of 85% across various machine learning algorithms.
- Utilized the Adult Income Dataset from the UCI Repository to predict citizen income and classify individuals into two categories, showcasing a 15% reduction in misclassifications compared to baseline models.
- Developed models employing diverse Traditional Machine Learning Algorithms, resulting in a 20% improvement in precision and a 25% boost in recall when compared to industry-standard approaches.
- Performed a thorough analysis using evaluation metrics such as Confusion Matrix, F1 score, Recall, Precision, and Accuracy, revealing the Random Forest algorithm as the most suitable for the current scenario with a 92% accuracy rate.

Face Mask Detection

Oct 2020 – Nov 2020

- Engineered a sophisticated Face Mask Detection system achieving an impressive 90% accuracy rate in identifying mask-wearing individuals within images and videos, leveraging Deep Neural Networks and image recognition techniques.
- Adapted a Convolutional Neural Network using a Keras Sequential model with Adam Optimizer utilizing a comprehensive dataset of images, effectively classifying images into Mask and No Mask categories, with a 90% accuracy.
- Formulated testing using both video and photo inputs, integrating the OpenCV library for webcam access. Achieved binary output based on predictions, with a specific focus on real-time video analysis, providing instant results above each face and triggering a beep sound for non-compliance.

Recolored Images Detection Using Deep Discriminative Model

Jan 2020 – April 2020

- Coordinated the implementation of the IEEE paper of the same name which involved curating and pre-processing large datasets, fine-tuning model hyperparameters, and optimizing the network architecture using TensorFlow in Python.
- Evaluated the proposed algorithm on forged images generated by various color transfer methods and internet-collected images, achieving a 10% improvement in accuracy and demonstrating its effectiveness in real-world scenarios.

Aadhaar-Based Online Voting System

June 2019 – Nov 2019

- Implemented and deployed a secure and reliable alternative voting channel using Java Server Pages and SQL, contributing to a 20% increase in voter participation during the Student Body election.
- Achieved a 15% reduction in costs while ensuring utmost confidentiality and accuracy, with over 2000 students casting votes through the implemented system.