Kamal Yeshodhar Shastry Gattu

Lowell, MA | 571-732-7250 | kysgattu0502@gmail.com | Linkedin.com/in/kysgattu | Github.com/kysgattu

EDUCATION

Master of Science in Computer Science   *Dec 2023*
University of Massachusetts Lowell, Lowell, MA; GPA: **3.736/4**

Bachelor of Technology in Computer Science & Engineering   *Sept 2020*
Jawaharlal Nehru Technological University Hyderabad, Hyderabad, India; GPA: **6.73/10**

TECHNICAL SKILLS

Programming Languages: *Python, Java, C, C++, C#, HTML/CSS, JavaScript, Google Apps Scripts*

Databases: *PL/SQL, T-SQL, Oracle SQL, MySQL, MariaDB, Microsoft SQL Server, PostgreSQL, Amazon Redshift*

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

Application Deployment Tools: *Flask, Docker, Streamlit*

Machine Learning and AI: *Image Processing, Computer Vision, Natural Language Processing, Deep Learning, Transfer Learning, Generative AI, Prompt Engineering*

Machine Learning Tools: *Hugging face, Haystack, Ultralytics*

ETL Tools: *Informatica PowerCenter, Informatica Intelligent Cloud Services*

Developer Tools: *Linux, REST API, Git, JIRA, PyCharm, Jupyter, VS Code, Eclipse, Microsoft Office Suite, Google Workspace*

EXPERIENCE

Systems Engineer   *Mar 2024 – Present*
Hooke Laboratories, LLC

- Led a dedicated team to design and develop software solutions that digitize and enhance office operations, fostering efficiency and streamlined workflows.
- Designed and implemented advanced machine learning models to support tissue analysis, driving precision, automation, and scalability in research processes.
- Developed and maintained large language model (LLM) pipelines to empower the Operations team with enhanced data accessibility, enabling automated and accurate responses to complex queries.
- Created robust software solutions for managing and controlling analytical instruments, optimizing workflows and improving operational efficiency for research teams.
- Designed and built IoT devices to monitor and secure laboratory equipment, ensuring operational safety, data integrity, and reliable performance.
- Engineered and implemented Google Apps Scripts to automate project management tasks enabling dynamic data analysis, streamlined workflows, and improved collaboration between teams, significantly enhancing overall productivity and operational efficiency.
- Acted as a primary consultant on artificial intelligence and machine learning resources, providing strategic insights and promoting best practices to drive company-wide adoption and innovation.
- Delivered critical support for IT operations, contributing to the stability, reliability, and efficiency of the company's technology infrastructure.
- Collaborated with the IT department to ensure robust security protocols and maintain reliable data backup systems, safeguarding the company's digital assets and operational continuity.

Facilities Information Systems Assistant – Python Developer   *Jan 2023 – Dec 2023*

University of Massachusetts Lowell

- Developed a Python-based codebase utilizing e-builder's REST API to extract cost data in both CSV and XML formats, validating the accuracy of purchase orders and invoices, and automating report generation for various teams.
- Optimized data import processes with iterative e-builder code, resulting in a 70% decrease in retrieval time.
- Facilitated seamless integration of data from diverse systems into Microsoft SQL Server, overcoming challenges such as record limits to ensure regular data retrieval for cost reconciliation, reporting, and data table updates.
- Enhanced user experience by designing HTML front-end interfaces and intuitive Tkinter dashboards for the work order management system, ensuring seamless navigation and efficient management of diverse system functionalities.
- 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.
- Led the development of a Machine Learning powered Pedestrian Detection System for UMass Lowell's Campus Planning.
- Leveraged the power of YOLO, an advanced Deep Learning algorithm, to count individuals moving on campus pathways.
- Orchestrated the seamless execution of real-time detection, tracking, and tallying of pedestrians along the regions.
- Engineered an interface for uploading videos and effortlessly defining regions within the videos for algorithm application.
- Empowered the planning team to make informed decisions on campus modifications, leading to streamlined processes, heightened operational efficiency, and an outstanding 90% reduction in manual planning time.

Programmer Analyst Trainee - Data Integration (ETL) Developer   *Dec 2020 - Nov 2021*

Cognizant Technology Solutions India Pvt Ltd

- 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.
- 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.

Chest X-Ray Classification to Detect COVID-19 Using Deep Neural Networks   *Feb 2023 – May 2023*

- Crafted a deep-learning model for rapid and precise diagnosis of respiratory illnesses, focussing on COVID-19 detection.
- Remodelled 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 accuracy in the diagnosis of respiratory illnesses, especially COVID-19 with an accuracy of 92%.

- Implemented an advanced visualization technique GRADCAM 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 and exploratory data analysis on a dataset of over 43,000 tweets to understand public opinion on climate change using natural language processing techniques.
- Employed a Deep Learning Model with a Recurrent Neural Network approach using features including text in tweets and the frequency of specific keywords achieving an accuracy rate of 96%.

Citizens Income Prediction - Comparison of Machine Learning Models   *Feb 2022 – Apr 2022*
- Trained predictive models on the Adult Income Dataset, encompassing 48,000 data samples, to predict citizen income and classify individuals into two categories.
- Employed diverse machine learning algorithms, achieving an 85% overall accuracy rate and showcasing a 15% decrease in misclassifications compared to baseline models.
- 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*
- Developed a sophisticated Face Mask Detection system with 90% accuracy, adapting a Convolutional Neural Network and Computer Vision techniques.
- Formulated testing on both video and photo inputs, integrating Webcam using OpenCV for real-time 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 which involved curating and pre-processing large datasets, fine-tuning model hyperparameters, and optimizing the network architecture for detecting fraudulent images.
- 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 and 15% reduction in costs during the Student Body election.
- Ensured utmost confidentiality and accuracy, with over 2000 students casting votes through the implemented system.

CERTIFICATIONS
- Generative AI for Software Developers Specialization, *IBM*
- Generative AI for Data Scientists Specialization, *IBM*
- Introduction to C#, *Sololearn*
- Informatica PowerCenter - Beginner to Expert Level, *Udemy*
- SQL for Beginners: Learn SQL using MySQL and Database Design, *Udemy*
- Learn Python: The Complete Python Programming Course, *Udemy*
- HTML, CSS, & JavaScript - Certification Course for Beginners, *Udemy*
- Core And Advanced Java, *Sahasra SoftTech*