Yash Girishbhai Amethiya

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Education:

Master of Science in Computer Science (Grades: 8.9)
***Lakehead University**, Thunder Bay, Ontario, Canada*

Bachelor of Technology, Computer Engineering (Grades: 8.7)
***Dharmsinh Desai University**, Nadiad, Gujarat, India*

Skills:

- Programming: C, C++, Python
- Technologies: Machine Learning, Data Analysis & Visualisation, Deep Learning
- Databases: SQL, MySQL, MongoDB, SQLite3
- Familiar: AWS, GCP, OAuth, MEAN, MERN, Next.js
- Tools: Tableau, Power BI, Excel, Powerpoint presentation, Git, Postman, Labelme, Labelimg

Experience:

Table Detection, Structure Recognition and Tablular Data Extraction (MSc. Project) September 2023 – April 2024
***Lakehead University**, Thunder Bay, ON*

- Developed a comprehensive method utilizing a Region-Based Convolutional Neural Network (RCNN) with VGG19 to achieve a 93% detection accuracy in PDF pages, while deploying smart pre-processing techniques like Smudging.
- Fine-tuned a split-and-merge technique for table structure recognition, yielding a weighted average F1 score of 52.3%, surpassing SOTA CascadeTabNet's score of 23.3%, ensuring generalizability across diverse document sets.

Teaching Assistant January 2024 – April 2024
***Lakehead University**, Thunder Bay, ON*

- Facilitated C and C++ programming labs, enhancing coding proficiency and problem-solving skills for over 100 undergraduates through personalized support and structured assessments.
- Evaluated academic performance by grading assignments and exams, ensuring equitable and precise feedback for a class of 45 students.

Deep Learning for Object Detection in Live Video Feed December 2021 – April 2022
***Institute for Plasma Research**, Gandhinagar, Gujarat, India*

- Led a research team in developing advanced neural network models for image classification and object detection, achieving over 95% accuracy and contributing to R&D through the creation and processing of a 15,000-image dataset.
- Engineered a secure, Django-based web application integrating deep learning models, facilitating real-time object detection and enhancing project deliverables.

Publications:

- Amethiya, Y., & Bajwa, G. (2024). Automatic Table Detection and Tabular Data Extraction from Scanned Documents. Springer-Smart Innovation, Systems and Technologies (SIST). *(Accepted)*
- Amethiya, Y., Pipariya, P., Patel, S., & Shah, M. (2022). Comparative analysis of breast cancer detection using machine learning and biosensors. Intelligent Medicine, 2(2), 69-81. *(Published)*

Projects:

Medical Image Captioning on Chest X-Rays *(Skills: Python, LSTM, CheXNET Model)*

- Utilized Indiana University's extensive dataset consisting of 7500 images and 4000 reports to extract key information and enhance data balance through strategic pre-processing, including up-sampling and down-sampling techniques.
- Applied GloVe vectors for semantic analysis and fine-tuned the CheXNET Model, achieving a high encoding accuracy of approximately 90% with minimal loss.

Currency Recognizer *(Skills: Research, Computer Vision, CONGAS, SIFT, Data Collection, Python)*

- Spearheaded a project to replicate a research paper, leading to the development of a fine-grained currency recognizer for the visually impaired using advanced image processing and machine learning techniques.
- Curated a comprehensive dataset of 2100 US banknotes under various conditions, facilitating robust model training and evaluation for improved accuracy and reliability.

Volunteering:

- **International Orientation Volunteer** for **Lakehead University** for the Winter, Spring, Fall - 2023 and Winter - 2024.