Vivek Modi

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Education

Degree	Institution	Year
MS in Computer Science	Rutgers University	2022 - 2024
B.Tech in Computer Science	Indian Institute of Technology, Gandhinagar	2018 - 2022

Professional Experience

- **Graduate Research Assistant, Machine Learning & Bioinformatics Lab, Rutgers University [Jan, 2023 - May,2024]**
  - Initialted a comprehensive deep learning pipeline to **identify human activities**, enhancing machine's understanding of complex movements.
  - Streamlined a ML learning-based pipeline to identify **protein subcellular sequences** working under the guidance of Dr. Iman Dehzangi.
- **Machine Learning Intern, Capgemini, Gandhinagar [May,2020-Aug,2020]**
  - Developed **'Priority Mailbox'** and Sentiment Analysis **COM add-in** for **Microsoft Office Outlook**, streamlining email management and improved user experience by utilizing sentiment analysis to prioritize mails.
  - Employed Django, **ML algorithms** utilizing two distinct models, and SQLite database as the core technologies, Improved mail prioritization using multiple parameters, including initial click time and mail read duration.
  - Contributed a pivotal role in **optimizing mail organization** and enhancing productivity within the Outlook platform during the internship.

Projects

- **NLP research paper "ComicBot: ChatBot Generating Jokes along with GIF" [Aug,2020-Jan,2021]**
  - Authored an innovative research paper focused on the creation of jokes paired with GIFs utilizing the **knowBERT** model.
  - Implemented sarcasm recognition and an emotional classification system to align GIFs with the corresponding sentiment with **most related GIFs**.
  - Introduced "**EmotionGIF**," a novel dataset curated to categorize GIFs based on emotive labels and proposed a unique **style transfer** methodology for producing humorous content.
- **Protein Subcellular Localization Prediction Using Machine Learning [Sep,2023-Jan,2024]**
  - Utilized machine learning techniques to predict **protein subcellular localization** in Gram-positive bacteria, focusing on four cellular locations.
  - Extracted and analyzed protein sequence features like Occurrence and Composition, attributes like structural **hydrophobicity** and **polarizability**, generating **87.237% accuracy** and prepared labeled datasets for multi-class classification tasks.
  - Enhanced understanding of protein functionality in cellular processes, contributing to advancements in bioinformatics and computational biology.
- **Human Activity Recognition(HAR) Using Machine Learning under Prof. Iman Dehzangi [Nov,2022-May,2023]**
  - Employed CNN, LSTM, **Multimodal** Transformer, and **Action Transformer**, improving detection accuracies.
  - Modernised and fine-tuned machine learning models with diverse datasets like mPOSE-21, and UCI HAR and achieved notable performance metrics: Multimodal (**84.05%** F1-score), Action Transformer **(88.4%** accuracy).
  - Contributed to advancing Human Activity Recognition through machine learning.
- **Captcha-Breaker to recognize captcha using Machine learning models. [Jan,2021-May,2021]**
  - Explored various strategies for deciphering captchas across multiple classifications.
  - Created a machine learning algorithm specifically designed to tackle **anti-recognition** captcha challenges.
  - Addressed **anti-segmentation** captchas by applying advanced deep learning techniques.

Achievements

- **Vice President,** Graduate Student Organization, Rutgers University.
- **Teaching Assistant** at LEAP Academy University Charter School, New Jersey.
- Secured an **All India Rank of 701** out of 1.3 million students in the JEE ADVANCED 2018.
- **Organizer, Jashn'18 IITGN,** cultural fest, and **CCL'19 IITGN**, Intra college Cricket Tournament.
- Ranked **4th** in INTER **IIT Tech meet** at IIT Bombay for Campus Sustainability Challenge.

Skill Summary

- **Languages:** Python, C, C++, JavaScript, React, Node, HTML, CSS, SQL, ML, NLP
- **Tools:** Tensorflow, MySQL, Pytorch, Django, Flask, Github, Latex, AWS, Matplotlib, MongoDB, Docker