Nikhil Reddy Yerragondu

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SUMMARY

Computer Science Major specializing in data analysis and algorithm development, with a robust foundation in applying advanced statistical methodologies and data-driven decision-making within the technology and software sectors. Proficient in the development and implementation of cutting-edge algorithms for data processing, signal analysis, and pattern recognition to extract meaningful insights from large datasets. Skilled in utilizing programming languages such as Python to manipulate, clean, and transform data effectively. Extensive expertise in visualizing and interpreting complex data to support accurate predictions and informed decision-making.

WORK SUMMARY

Demonstrated mastery in applying machine learning algorithms, including convolutional neural networks (CNNs), generative adversarial networks (GANs), and deep learning techniques, for tasks such as data analysis, pattern recognition, and predictive modeling. Proficient in leveraging large-scale datasets across various domains to train and validate machine learning models effectively. Experienced in data preprocessing techniques, including normalization, denoising, and feature extraction, to enhance model performance and robustness. Adept at experimental design and rigorous statistical inference methodologies tailored to complex data analysis tasks. Thorough understanding of data acquisition protocols, data quality assurance measures, and pipeline optimization to ensure data integrity and accuracy throughout the analysis process. Familiarity with regulatory requirements and ethical considerations in data handling, ensuring compliance with standards and best practices. Strong communication and collaboration skills to work effectively with interdisciplinary teams, stakeholders, and technical experts in developing and deploying advanced data-driven solutions. Proficient in utilizing tools such as Power BI and other visualization platforms to facilitate data-driven decision-making and research endeavors. Ability to integrate advanced algorithms with existing software systems for seamless deployment in production environments.

EDUCATION

Master of Science (MS) in Computer Science   Jan 2024 – May 2025
University of Alabama at Birmingham (UAB).   GPA: 3.4
Relevant Courses: Machine Learning, Deep Learning, Data Science, Computational Theory, Algorithms, Statistical Analysis, Advanced Data Processing, Computational Modeling, Software Engineering, Advanced Image Processing, Calculus, and Natural Language Processing (NLP/LLM).

Bachelor of Technology in Computer Science and Engineering   Aug 2019 – June 2023
Guru Ghasidas Vishwavidyalaya (GGV)   CGPA: 3.3
Relevant Courses: Python, Algorithms, Data Structures, Machine Learning, Neural Networks, Artificial Intelligence (AI), Computational Systems, Software Engineering, Computer Architecture, Embedded Systems, Digital Logic Design, Operating Systems, Database Systems, Networks, and Cybersecurity.
Presentation and Submissions at Conferences: ICLTEM 23, ISPEC 21

TECHNICAL SKILLS

Languages: Python, HTML, CSS, PostgreSQL, JavaScript
Developer Tools: VS Code, Google Colab, Jupyter Notebook, Github
Technologies/Frameworks: Tensorflow, Pytorch, Flask, Node.js, React.js

EXPERIENCE

Machine Learning Intern at PanTech Solutions - India   June 2022 – July 2022
- Innovative Machine Learning Model Development: Designed and built cutting-edge models to tackle complex problems and drive results.
- Strategic Data Preprocessing and Feature Engineering: Crafted robust data pipelines and engineered features to enhance model performance and reliability.
- Precision in Algorithm Selection and Tuning: Applied a keen analytical approach to select and fine-tune algorithms, optimizing outcomes and ensuring accuracy.
- Rigorous Model Evaluation and Validation: Implemented thorough evaluation strategies to validate model effectiveness and ensure real-world applicability.
- Insightful Data Visualization and Interpretation: Transformed data into compelling visualizations, delivering clear, actionable insights that drive strategic decisions.

RESEARCH PROJECTS

Human Activity Recognition | Python, Detectron2, LSTM | Aug 2021 – Nov 2021
- Seamlessly integrate Detectron2's object detection capabilities with LSTM's temporal modeling for comprehensive human activity recognition.
- Ensure the system is scalable and adaptable to various input sizes and types for robust performance in diverse environments.
- Conduct rigorous testing and validation to evaluate and enhance the accuracy of activity recognition across a wide range of scenarios.

Image-Based Search Engine | Python, TensorFlow, Keras, Flask | Dec 2021 – Mar 2022
- Develop an image-based search engine that leverages VGG16 for feature extraction to facilitate image retrieval from a dataset.
- Employ VGG16 to encode input images into feature vectors and compare these vectors with those in the dataset to identify and rank similar images.
- Implement a robust comparison mechanism to ensure accurate retrieval of the most relevant images based on feature similarity.
- Optimize the search engine for efficiency and scalability to handle large datasets and provide quick search results.

Facial Detection using CNN | Python, MesoNet, MesoInception4 | Aug 2022-Nov 2022
- Develop a facial detection model that leverages pre-trained CNN weights and architectures, specifically MesoNet and MesoInception4, to assess the authenticity of videos.

- Analyze facial features and movements to detect potential signs of forgery or manipulation within video content.
- Integrate advanced algorithms to enhance detection accuracy and minimize false positives in identifying tampered videos.
- Implement a comprehensive evaluation framework to validate the model's effectiveness across various types of video manipulation and forgery techniques.

Video Forgery Detection Using a Hybrid Architecture | CNN, RNN, ML | Dec 2022 – April 2023
- Develop a video forgery detection system using a hybrid architecture that combines Convolutional Neural Networks (CNNs) with Recurrent Neural Networks (RNNs) to enhance detection capabilities.
- Analyze diverse video features, including spatial and temporal information, to accurately distinguish between authentic and manipulated content.
- Leverage CNNs for feature extraction and RNNs for temporal analysis to improve the robustness and precision of forgery detection.
- Implement a rigorous evaluation process to assess the system's performance and effectiveness in identifying various types of video forgery.

Dynamic Portfolio Website Deployment with AWS EC2 | Leveraging JavaScript, HTML, and CSS| Feb 2023-Mar 2023
- Objective: Design and develop a personal or professional portfolio website to effectively present your work, skills, and achievements, utilizing HTML for content structure, CSS for styling, and JavaScript for interactive and dynamic features.
- AWS EC2 Hosting: Deploy the website on an Amazon EC2 instance to leverage cloud-based scalability, ensuring that the site can handle increasing traffic and demands efficiently. Benefit from AWS's robust security measures to protect your website and data, and enjoy the flexibility to easily adjust server resources and configurations based on your needs.

Advanced Cloud-Based File Upload and Secure Sharing Platform May 2024 – Aug 2024
- Developed a Secure and Scalable System: Built a cloud-based file upload and sharing platform with a robust and scalable architecture, ensuring secure operations.
- Seamless User Experience: Enabled users to log in, upload files, and share them with up to five recipients via email with ease and efficiency.
- Reliable Storage and Automated Sharing: Implemented secure file storage using Amazon S3, with automatic delivery of download links to recipients through Amazon SES, orchestrated by a serverless Lambda function.
- 100% Accurate File Tracking: Integrated a DynamoDB table to maintain a precise record of all uploaded files, guaranteeing 100% accuracy in tracking and retrieval.
- Comprehensive AWS Integration: Leveraged multiple AWS services, including EC2 for hosting, IAM for access management, and Lambda for serverless computing, to deliver a highly reliable, scalable, and secure solution.

Blockchain Based e-Voting System Using Facial Recognition | React.js, Blockchain, Ethereum, MongoDB | May 2024 – Aug 2024
- Project Overview: Developed an advanced online voting platform integrating blockchain technology with facial recognition to ensure maximum security and transparency.
- Database Management: Utilized MongoDB for efficient management of candidate, election, and user data collections.
- Smart Contracts & Ethereum Transactions: Deployed smart contracts using Truffle and Ganache, with MetaMask facilitating Ethereum-based transactions.
- Enhanced User Authentication: Implemented user authentication through facial recognition, using Python libraries like OpenCV and face recognition, combined with email verification for added security.
- Comprehensive Setup Instructions: Provided detailed guidance on MongoDB configuration, smart contract deployment, and facial recognition setup, addressing challenges in dependency management.
- Key Impact: This solution showcases the seamless integration of blockchain and AI, creating a secure, transparent, and user-centric voting system.

ACCOMPLISHMENTS
- Awarded an Appreciation Certificate by the ISPEC 8th International Conference and the ICLTEM 4th International Conference for outstanding contributions and participation.

- Earned Course Completion Certificates from leading online platforms including SoloLearn, Coursera, Udemy, and Udacity, highlighting a commitment to continuous learning and professional development.