AYUSH SHUKLA

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Technical Skills

Languages and Databases: Python, Pandas, NumPy, Java, C, SQL, MySQL, MongoDB
Visualization Tools: Tableau
Other Skills: Data Structures, Algorithm, Machine Learning, Aws

Projects

Person Identification Using Speech Recognition **April 2024 – June 2024**

- **Developed an innovative voice identification system using TensorFlow's Dense Net**, which resulted in **200 hours of annual time savings** for the customer service team by **automating manual verification processes**.
- Utilized **audio spectrograms** to capture both frequency and time characteristics of speech, allowing the model to **analyses and distinguish unique vocal patterns** for accurate identification.
- The system **efficiently processed spectrogram data**, enabling fast and reliable identification of individuals in real-time, with applications in **security, authentication**, and **personalized user experiences**.
- **Implemented sophisticated machine learning techniques** to train Dense Net models, ensuring the system's ability to **accurately differentiate between speakers**, achieving high performance even in noisy environments.
- Conducted **extensive testing and validation** to enhance the model's generalization, resulting in **increased identification accuracy** and robustness across various conditions and speaker variations.
- **Optimized model performance** using TensorFlow's deep learning capabilities, reducing the **identification latency by 20%**, and making it suitable for high-demand use cases such as secure voice-based logins and biometric authentication.

Sorting Algorithm Visualizer **June 2024 – August 2024**

- **Created an interactive Sorting Algorithm Visualizer** to showcase various sorting algorithms like **Quick Sort, Merge Sort, and Bubble Sort**, presented in a **visually intuitive format**.
- **Leveraged HTML, CSS, and JavaScript** to create a dynamic and responsive UI that **animates the sorting process** in real-time, providing users with a clear understanding of how different algorithms operate.
- **Incorporated customizable features**, enabling users to adjust the size of the array, change the speed of the visualization, and select from a variety of **sorting algorithms**, enhancing user interaction and learning experience.
- **Utilized canvas and DOM manipulation** to create real-time visual effects, ensuring smooth and clear animations that help in **demonstrating the step-by-step sorting process**.
- **Optimized sorting algorithm simulations**, ensuring minimal lag and smooth transitions, resulting in **improved user engagement** and making it a valuable educational tool for understanding sorting techniques.

Personal Project

The wafer fault detection project | *Python, Machine Learning, Deep Learning* **August 2024 - September 2024**

- **Designed an automated fault detection system using CNNs**, achieving **over 95% accuracy** in detecting defects in semiconductor wafers from high-resolution images.
- **Integrated TensorFlow and OpenCV** for real-time image processing, resulting in a **20% reduction in processing time** and enabling faster, more efficient fault detection in production environments.
- Conducted extensive testing to detect a wide range of wafer defects, including surface scratches and contamination, significantly **reducing false positives** and improving overall manufacturing quality.

Education

Inderprastha Engineering College **Aug 2019 – July 2023**
Bachelor of Technology (Computer Science and Engineering) *Ghaziabad, UP*

Center For Development of Advanced Computing **March 2024 – August 2024**
Post Graduate Diploma in Big Data Analytics *Bangalore, Karnataka*