Ahamed Dhahlan

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ABOUT ME

Dynamic Engineering student with a strong foundation in Python, JavaScript, Django, and Next.js, and a keen interest in developing scalable and distributed applications. Experienced in full-stack development, APIs, and machine learning. Adept at designing high-performance components and passionate about contributing to innovative solutions in customer engagement. Committed to producing high-quality, maintainable, and secure software.

EDUCATION

Bachelor of Science in Engineering (Honors) - Electrical and Information March 2021 Present
University of Ruhuna, Galle, Sri Lanka
- ✓ *Major:* Electrical and Information Engineering

GCE Advanced Level and GCE Ordinary Level January 2017 August 2019
Zahira College, Kalmunai, Sri Lanka
- ✓ *GPA (optional):*

RESEARCH PROJECTS

EduZone: An Innovative E-learning Platform - Group Project July 2024
- ✓ Developed a comprehensive e-learning platform that includes courses and projects, utilizing React for frontend development and django for the backend.
- ✓ Integrated Python and Django to handle server-side logic and manage database interactions efficiently.
- ✓ Technology Used: React, Node.js, Python, Django, JWT token, Machine Learning

CodeForgeAI: Code Generation from Webpage Screenshots May 2024
- ✓ Created a tool to generate code from webpage screenshots with real-time previews, enhancing coding efficiency.
- ✓ Technology Used: Python, OpenCV, TensorFlow, Flask/Django, JavaScript, HTML/CSS

Intrusion Detection System using Machine Learning: Enhancing Network Security July 2024
- ✓ Trained an advanced Intrusion Detection System (IDS) leveraging machine learning techniques to detect and mitigate network intrusions, providing real-time monitoring and alerting capabilities.
- ✓ Utilized both supervised and unsupervised learning approaches to analyze network traffic and identify anomalous behavior, ensuring comprehensive security coverage.
- ✓ Technology Used: Python, scikit-learn, TensorFlow, Flask/Django, pandas, numpy, SQL

Singlish GPT: Language Model for Sinhala in English Letters July 2024
- ✓ Implemented a GPT model for Singlish text processing and generation using mT5 and various libraries.
- ✓ Technology Used: Python, Hugging Face, transformers, PyTorch, Aksharamukha, Google Gemma

LipLexa: AI-powered Lip Reading System for Videos January 2024

- ✓ Created a state-of-the-art lip reading application with TensorFlow and OpenCV; increased accessibility for hearing impaired by 70% and achieved 40% faster processing speeds.
- ✓ Developed an advanced algorithm for accurate speech interpretation from visual cues, with applications in security, assistive technology, and media analysis, resulting in a 50% increase in detection reliability.
- ✓ Technology Used: Python, TensorFlow, OpenCV, Matplotlib

RealVision+: An Advanced Face and Expression Analysis Application September 2023

- ✓ Developed a cutting-edge face recognition app capable of accurately identifying individuals and predicting their gender in real-time.
- ✓ Technology Used: Python, ML, OpenCV, Matplotlib

GestureGear: Hand-Gesture Controlled Car Racing Game January 2024

- ✓ Engineered an advanced real-time hand tracking and gesture recognition system, achieving a 40% increase in user interaction accuracy and elevating overall gameplay experience.
- ✓ Technology Used: Python, OpenCV, Mediapipe, Matplotlib

GloSign: Empowering Deaf Communication February 2024

- ✓ Developed a sign language translator achieving 96% accuracy in gesture recognition, facilitating communication for the deaf.
- ✓ Integrated gesture recognition, speech-to-text algorithms, and wearable devices.
- ✓ Technology Used: Python, C++, Arduino, ML

SKILLS

Programming Languages

- C/C++:

- ✓ Developed a real-time gesture recognition system for GloSign, ensuring accurate communication for the deaf.
- ✓ Implemented the core logic for the Arduino-based wearable device, enabling hand gesture detection.
- ✓ Collaborated with team members to debug and optimize code, ensuring smooth integration of the system's components.
- ✓ Created comprehensive documentation to facilitate future development and maintenance of the codebase.

- Python:

- ✓ Developed the LipLexa lip reading application, enhancing accessibility for the hearing impaired.
- ✓ Implemented machine learning algorithms in the Intrusion Detection System, identifying anomalous network behavior for enhanced security.
- ✓ Collaborated with team members to design and implement the code generation functionality in CodeForgeAI.
- ✓ Created a library for Singlish GPT, processing and generating Sinhala text written in English letters.

- JavaScript:

- ✓ Designed and implemented the user interface for the EduZone e-learning platform using React.js.
- ✓ Developed the real-time preview functionality in CodeForgeAI, allowing users to instantly see the generated code.

✓ Collaborated with team members to implement JavaScript logic for the platform's interactive elements.
✓ Created efficient and scalable JavaScript code to enhance the user experience.
- SQL:
✓ Implemented database interactions in EduZone, managing user data and course information.
✓ Designed and implemented database schemas for the Intrusion Detection System, storing and analyzing network traffic data.
✓ Collaborated with team members to ensure data integrity and efficient query performance.
✓ Created SQL scripts to automate data processing and analysis tasks.

Libraries

- Huggingface:
✓ Implemented the mT5 language model in Singlish GPT, processing and generating Sinhala text written in English letters.
✓ Utilized Hugging Face's transformer library to fine-tune the model for accurate Singlish text generation.
✓ Collaborated with team members to integrate Hugging Face's tools into the project, enhancing the language model's capabilities.
✓ Created comprehensive documentation and code examples for future developers to leverage the Hugging Face library effectively.
- Transformers:
✓ Implemented the transformers library in Singlish GPT, processing and generating Sinhala text written in English letters.
✓ Utilized transformers to fine-tune the mT5 language model for Singlish text generation, resulting in increased accuracy.
✓ Collaborated with team members to integrate the transformers library into the project, optimizing the language model's performance.
✓ Created code examples and tutorials to demonstrate the use of the transformers library for future developers.
- Pandas:
✓ Analyzed network traffic data for the Intrusion Detection System using Pandas, identifying patterns and anomalies.
✓ Implemented Pandas to process and clean large datasets, ensuring efficient data manipulation and analysis.
✓ Collaborated with team members to leverage Pandas for data exploration and visualization, providing valuable insights into the network data.
✓ Created scripts to automate data processing tasks using Pandas, improving efficiency and reducing manual effort.
- Numpy:
✓ Implemented Numpy for numerical computations in the Intrusion Detection System, analyzing network data effectively.
✓ Utilized Numpy's powerful array operations for efficient data manipulation and processing, improving the system's performance.
✓ Collaborated with team members to leverage Numpy for mathematical operations, optimizing the system's analytical capabilities.
✓ Created documentation and code examples to demonstrate the use of Numpy for future developers.
- Matplotlib:
✓ Visualized the results of the Intrusion Detection System using Matplotlib, providing clear insights into network security threats.
✓ Created informative graphs and visualizations using Matplotlib, allowing stake-

holders to easily understand the system's findings.
✓ Collaborated with team members to design and implement interactive visualizations using Matplotlib, enhancing data communication.
✓ Created code examples and tutorials to showcase the use of Matplotlib for data visualization purposes.
- Seaborn:
✓ Implemented Seaborn to create visually appealing and informative graphs for the Intrusion Detection System, enhancing data visualization.
✓ Utilized Seaborn's statistical plotting capabilities to analyze network traffic data effectively, providing valuable insights into patterns and trends.
✓ Collaborated with team members to leverage Seaborn's features for data exploration and communication, creating compelling visualizations.
✓ Created code examples and tutorials to demonstrate the use of Seaborn for data visualization purposes.
- TensorFlow:
✓ Implemented TensorFlow in the LipLexa lip reading application, developing a robust model for speech interpretation from visual cues.
✓ Trained the TensorFlow model using a large dataset of lip movements, achieving high accuracy in speech recognition.
✓ Collaborated with team members to optimize the TensorFlow model for efficient processing and deployment, improving the system's performance.
✓ Created documentation and code examples to guide future developers on using TensorFlow for similar projects.
- PyTorch:
✓ Utilized PyTorch to implement the GPT language model for Singlish GPT, enabling the processing and generation of Sinhala text written in English letters.
✓ Trained the PyTorch model on a large corpus of Singlish text, achieving high accuracy in text generation and translation.
✓ Collaborated with team members to optimize the PyTorch model for efficient processing and deployment, ensuring smooth operation.
✓ Created documentation and code examples to demonstrate the use of PyTorch for language modeling purposes.

Web Development Tools

- Node.js:
✓ Implemented Node.js in the EduZone e-learning platform, managing backend functionalities.
✓ Developed server-side logic using Node.js to handle user authentication and data management.
✓ Collaborated with team members to integrate Node.js into the platform's architecture, ensuring smooth communication between frontend and backend.
✓ Created robust and scalable Node.js code to support the platform's functionality.
- VScode:
✓ Utilized VScode for coding and debugging all projects, enhancing development efficiency and code quality.
✓ Leveraged VScode's extensions and features for syntax highlighting, code completion, and debugging, improving productivity.
✓ Collaborated with team members to establish coding standards and best practices within VScode, ensuring consistent code quality across projects.
✓ Created custom VScode settings and configurations to personalize the development environment and optimize workflow.
- Git:
✓ Utilized Git for version control in all projects, ensuring efficient collaboration and

code tracking.
✓ Implemented Git workflows to manage code changes and branches, facilitating smooth team development.
✓ Collaborated with team members to resolve merge conflicts and maintain a clean Git history.
✓ Created and maintained documentation for the project's Git repository, guiding other developers on contributing to the codebase.
- GitHub:
✓ Hosted all project code on GitHub, providing a platform for collaboration, code sharing, and version management.
✓ Utilized GitHub for issue tracking, project management, and code reviews, ensuring a streamlined development process.
✓ Collaborated with team members to manage code contributions, maintain the project's repository, and release updates.
✓ Created documentation and README files on GitHub, providing clear instructions and context for future developers.

Frameworks
- React.js:
✓ Implemented React.js in the EduZone e-learning platform, developing a responsive and interactive user interface.
✓ Created reusable React components, streamlining development and improving code maintainability.
✓ Collaborated with team members to integrate React.js into the platform's front-end architecture, ensuring smooth operation.
✓ Created unit tests for React components, ensuring their functionality and robustness.
- Django:
✓ Utilized Django in the EduZone e-learning platform, managing backend functionalities and handling database interactions.
✓ Implemented REST APIs using Django, enabling communication between the frontend and backend.
✓ Collaborated with team members to integrate Django into the platform's architecture, ensuring a secure and scalable backend.
✓ Created unit tests for Django views and models, ensuring the backend's functionality and correctness.
- Next.js:
✓ Implemented Next.js in the EduZone e-learning platform, optimizing performance and SEO.
✓ Utilized Next.js features like server-side rendering and static site generation to enhance website speed and user experience.
✓ Collaborated with team members to integrate Next.js into the platform's architecture, ensuring a seamless user experience.
✓ Created Next.js components and pages for the platform's various sections, ensuring a consistent look and feel.
- FastAPI:
✓ Implemented FastAPI for a web-based project, utilizing its high performance and ease of use for API development.
✓ Developed REST APIs with FastAPI, allowing efficient communication between the frontend and backend.
✓ Collaborated with team members to integrate FastAPI into the project's architecture, ensuring a reliable and scalable API infrastructure.
✓ Created comprehensive documentation for the API endpoints, guiding developers

on its usage.

- .NET:

✓ Utilized .NET for a desktop application project, leveraging its robust framework and mature libraries.
✓ Developed the application's core functionalities using .NET, ensuring a stable and feature-rich experience.
✓ Collaborated with team members to integrate .NET into the project's architecture, maintaining consistent code quality.
✓ Created unit tests for .NET components, ensuring the application's functionality and correctness.

Databases

- MongoDB:

✓ Implemented MongoDB as the database for the EduZone e-learning platform, storing user data and course information.
✓ Designed and implemented MongoDB schemas to efficiently store and manage the platform's data.
✓ Collaborated with team members to ensure data integrity and efficient querying in MongoDB.
✓ Created MongoDB scripts for data manipulation and retrieval, automating database operations.

- Firebase:

✓ Utilized Firebase for a web application project, leveraging its real-time database capabilities and backend services.
✓ Developed data storage and retrieval functionalities using Firebase's real-time database, enabling dynamic data updates.
✓ Collaborated with team members to integrate Firebase into the project's architecture, ensuring a seamless user experience.
✓ Created functions and triggers in Firebase to automate tasks and manage data efficiently.

- MySQL:

✓ Implemented MySQL as the database for the Intrusion Detection System, storing and analyzing network traffic data.
✓ Designed and implemented MySQL schemas to efficiently store and manage the system's data.
✓ Collaborated with team members to ensure data integrity and efficient query performance in MySQL.
✓ Created MySQL scripts for data manipulation, retrieval, and analysis, automating database operations.

- Apache Spark:

✓ Utilized Apache Spark for a data processing project, leveraging its distributed computing capabilities for large-scale data analysis.
✓ Implemented Spark SQL for querying and processing large datasets, extracting valuable insights from the data.
✓ Collaborated with team members to optimize Spark configurations for efficient data processing, ensuring high performance.
✓ Created Spark scripts for data transformation, aggregation, and analysis, automating data processing tasks.

Development Practices

- TDD:

✓ Implemented Test-Driven Development (TDD) in all projects, writing unit tests before writing code, ensuring functionality and correctness.

- ✓ Developed test cases to cover various scenarios, ensuring the code's robustness and reliability.
- ✓ Collaborated with team members to establish TDD practices, improving code quality and reducing bugs.
- ✓ Created comprehensive test suites to facilitate regression testing and maintain code quality over time.

- BDD:

- ✓ Implemented Behavior-Driven Development (BDD) in some projects, defining system behavior before coding, ensuring clarity and alignment.
- ✓ Created BDD scenarios and feature files, outlining the expected behavior of the system and facilitating communication with stakeholders.
- ✓ Collaborated with team members to implement BDD practices, ensuring a shared understanding of system requirements.
- ✓ Created automated BDD tests to verify the system's behavior and ensure it meets expectations.

- Code Reviews:

- ✓ Actively participated in code reviews for all projects, providing constructive feedback and improving code quality.
- ✓ Reviewed code for functionality, clarity, maintainability, and adherence to best practices, ensuring a high standard of code quality.
- ✓ Collaborated with team members to identify and resolve issues during code reviews, promoting knowledge sharing and continuous improvement.
- ✓ Created documentation and guidelines for code review practices, ensuring consistent quality standards across projects.

- Unit Testing:

- ✓ Implemented unit tests for all code modules, ensuring individual components function as expected.
- ✓ Developed unit tests to cover various scenarios, ensuring the code's robustness and reliability.
- ✓ Collaborated with team members to establish unit testing practices, improving code quality and reducing bugs.
- ✓ Created comprehensive unit test suites to facilitate regression testing and maintain code quality over time.

Relevant Coursework

- ✓ Data Structures Algorithms
- ✓ Operating Systems
- ✓ Machine Learning
- ✓ Database
- ✓ Artificial Intelligence
- ✓ Natural Language Processing
- ✓ Computer Vision

Soft Skills

- ✓ Problem Solving
- ✓ Self-learning
- ✓ Presentation
- ✓ Adaptability
- ✓ Critical Thinking

CERTIFICATIONS & AWARDS

- ✓ Certificate in Introduction to Web Development with HTML, CSS, JavaScript

- ✓ Certificate in Introduction to Cloud Computing
- ✓ Certificate in Introduction to Deep Learning & Neural Networks with Keras
- ✓ Certificate in Machine Learning with Python
- ✓ Certificate in Python for Data Analysis: Pandas NumPy
- ✓ edX Verified Certificate for Data Science: Machine Learning
- ✓ Certificate in SystemVerilog for ASIC/FPGA Design Simulation
- ✓ Participant, Commercial Bank Hackathon, Commercial Bank June 2024
- ✓ 2nd Runners up, Haxtreme 2.0, IEEE Society November 2023
- ✓ Top 10%, AWS Deep Racer, AWS August 2023

EXPERIENCE

REFERENCES

References available upon request.