Moussa Omrane

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Education

School of Bouaissi   Nov 2021 - May 2023
Electrical engineering   *Algiers, Algeria*
- **Relevant Coursework:** Logic Gates and Design, Sequential Logic, Prob & Stat, Memory, Circuit Simulation, Linear Algebra, Calculus

Experience

Origify   Jan 2023 – Present
Founder & Software Engineer – A plagiarism detection ML model & software.   *Algiers, Algeria*
- Built an extensive data and web scraping system from various exam sources, and performed preprocessing including OCR and PDF-to-text conversion, to establish comprehensive datasets of educational materials.
- Developed a comprehensive text preprocessing pipeline using NLTK, including tokenization, stop word removal, and lemmatization, ensuring accurate document analysis.
- Implemented TF-IDF vectorization and cosine similarity calculations using Scikit-learn, improving plagiarism detection accuracy.
- Developed a multi-threaded data processing pipeline to handle concurrent document processing tasks, significantly reducing overall processing time.
- Designed and deployed a FastAPI backend with secure endpoints for comparing documents and managing data uploads, facilitating seamless integration and data handling.
- Created a responsive front-end interface with React Native, enhancing user experience and engagement.
- Utilized tools like Logsnag for events tracking and Sentry for performance monitoring, ensuring robust application performance and error tracking.
- Integrated continuous integration/continuous deployment (CI/CD) pipelines using GitHub Actions, automating the build, test, and deployment processes for faster and more reliable releases.
- Integrated automated testing processes, increasing test coverage and reducing defects, contributing to the overall reliability of the system.
- Led marketing efforts across social media platforms, email campaigns, and public outreach, effectively promoting the software to students and educators.

Sonelmap   Dec 2022 – Jun 2024
Co-Founder & Software Engineer – An electricity infrastructure GIS management.   *Algiers, Algeria*
- Developed and designed a dynamic UI and UX front-end using React.js, Typescript, and Tailwind CSS to create an engaging user experience.
- Integrated Mapbox maps provided API for interactive map implementation, displaying Geo-spatial data effectively, and also handled various datasets for optimizing data retrieval and visualization.
- Utilized Zustand and Jotai for efficient and scalable state management, ensuring excellent data flow and optimal performance, maintaining a smooth data Flow.
- Scraped and handled a variety of GIS datasets from multiple sources using Python and Playwright to improve data efficiency and availability, (e.g., OpenStreetMap, Overpass, and Wikimapia).
- Built an admin dashboard, that enables administrators to effectively manage user accounts and keep an eye on their activity within the software.
- Implemented a robust back-end infrastructure, utilizing PostgreSQL for data storage and Redis for caching to enhance performance in managing and updating map-related data instantly.
- Optimized PostgreSQL database queries by migrating to SQL from the non-SQL joins Prisma Rust Engine, improving API response time by 25% and enhancing application overall experience.
- Developed it to a Progressive Web App (PWA) to make it mobile usable, friendly, and responsive.
- Implemented a service-worker caching system that is in sync with the Redis database to facilitate real-time and offline data flow and updates.
- Integrated Sonelmap with SCADA API systems using industry-standard protocols like MQTT and Modbus to ensure real-time monitoring and event-driven updates through synchronization with SCADA through an MQTT broker.

Projects

Kreads | *Svelte Kit, Google Drive API, Service Workers, Google OAuth, Stripe, ElevenLabs API*
- Developed a personal e-book library software application to enhance reading experiences across devices with precise progress tracking and offline syncing capabilities.
- Implemented a fully decentralized system using Google Drive storage, ensuring data security and privacy without storing user data.
- Handled various book formats like PDF and EPUB, allowing users to customize their reading experience.
- Developed mobile-friendly PWA with offline syncing using service workers, ensuring compatibility with mobile apps.

- Features included personal book uploads, public tracker overlay, progress tracking, AI TTS subscription, and more.
- Integrated Google OAuth for user authentication and Stripe for payment processing (in progress).
- Created comprehensive mobile UI for home, book upload, book search, book page, bookmark page, and profile page.

- Planned integration of ElevenLabs API for TTS functionality and other premium offers.
- Marketing strategies include social media promotion on Reddit and Product Hunt.
- Planned monetization through subscriptions for TTS and additional storage.

LumoBits | *Python, Next.js, APIs*
- Developed a web and desktop application interface to enable content creators to input search criteria or specific YouTube video URLs.
- Implemented backend services to handle YouTube data scraping and real-time analysis of long-form content.
- Used YouTube Data API to fetch video metadata and web scraping techniques to extract "Most Replayed" segments from YouTube videos.
- Designed and implemented algorithms to analyze viewer engagement patterns and rank video segments based on engagement metrics.
- Developed an automated pipeline to generate downloadable video clips from identified high-engagement segments using video processing tools.
- Integrated a content management system to organize and manage extracted clips for seamless integration into editing workflows.
- Implemented authentication and authorization mechanisms to ensure secure access to the application.
- Configured a continuous integration and continuous deployment (CI/CD) pipeline to streamline deployment processes and ensure consistent and reliable releases across both web and desktop platforms.

Technical Skills

Languages: Javascript, Typescript, Python, Go
Technologies: React.js, React Native, Preact, Flask, FastAPI, TensorFlow, Scikit-Learn, PyTorch, Tailwind, ASP.NET, Node, Bun, Electron, Tauri, Git, PostgreSQL
Concepts: Compiler, Operating System, Virtual Memory, Cache Memory, Data Science, DOM Manipulation, Encryption, Decryption, Machine Learning, Neural Networks, API, Database Normalization, Agile Methodology, Cloud Computing, Web Security