Moussa Omrane

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SUMMARY

Versatile software engineer with solid experience in full-stack development using JavaScript, TypeScript, and Go. Skilled in building scalable and secure systems, designing robust APIs, and setting up efficient CI/CD pipelines. Experienced in developing custom tools to solve specific problems and continuously improving engineering practices.

EXPERIENCE

Cabby Rentals – Maurits Autoverhuur   Jun 2024 – Dec 2024
Lead Software Engineer (Remote)   *Amsterdam, Netherlands*

- Developed and maintained the backend integration (Node.js, Express.js, TypeScript) with the Tesla Fleet API using axios, implemented Partner Token authentication (JWT, JWKS-RSA), and built a continuous token refresh system (node-cron) for uninterrupted vehicle control (lock/unlock). Improved client-side error handling for greater reliability.

- Led mobile development using Flutter, creating complex custom widgets (interactive graphs) and integrating features with the Express.js/Prisma backend API for a consistent cross-platform (iOS/Android) user experience.
- Significantly reduced deployment time and effort by automating the CI/CD pipeline using Fastlane and GitHub Actions, incorporating build processes, automated testing (Jest, Supertest), code signing, and app store deployment.
- Addressed critical security vulnerabilities in the Express.js application, including preventing arbitrary admin user creation by implementing robust input validation (class-validator, zod) and secure database interactions (Prisma), safeguarding business operations.
- Corrected server-side order validation logic within Express.js middleware to enforce strict access control for vehicle operations using user session data (JWT) and Prisma queries, mitigating unauthorized access.
- Secured document handling by implementing non-guessable name generation (uuid) for sensitive files uploaded via Multer, storing them securely in Google Cloud Storage, and updating database records (Prisma) to prevent unauthorized public access.
- Patched a user management vulnerability by implementing strict Role-Based Access Control (RBAC) logic and input validation (zod) within the Express.js API, preventing unauthorized privilege escalation to admin status.
- Integrated Sentry SDK (@sentry/node) into backend services (Express.js) and mobile apps, configuring custom error grouping, environment tagging, and integrating with Winston for enhanced logging and efficient debugging.
- Provided technical leadership and mentorship to Flutter developers, performing code reviews, advising on best practices, and driving performance optimizations across the TypeScript/Node.js/Express.js/Prisma backend and mobile codebases.

Achieve   May 2024 – Aug 2024
Software Developer & UI/UX Designer   *Part-Time – Remote*

- Worked with multiple clients to design and develop user-centric web and mobile applications, ensuring seamless user experiences.
- Collaborated with cross-functional teams to deliver scalable backend solutions, including API integrations and database management.
- Designed intuitive and responsive UI/UX interfaces, creating wireframes, prototypes, and high-fidelity mockups for client projects.
- Supported the development of data processing pipelines, including data extraction, transformation, and storage for various client needs.
- Contributed to front-end development using modern frameworks and libraries, ensuring high performance and responsiveness.
- Participated in code reviews, debugging, and performance optimization across multiple projects for agency clients.

Origify   Jan 2023 – Dec 2023
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.
- Compiled and published a dataset of **25,672 official exam papers** from Algeria's education system, spanning primary, middle, and high school levels.

- 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 by 50%.
- Designed and deployed a FastAPI backend utilizing **MongoDB** for flexible storage of document metadata and comparison results, with secure endpoints for comparing documents and managing data uploads, facilitating seamless integration.
- 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.

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.

Certifications

Meta Front-End Developer Professional Certificate   Jan 2025
- Built responsive websites using HTML, CSS, and JavaScript to create visually appealing and interactive content.
- Learned React to build dynamic web applications and worked with Bootstrap to streamline UI design.
- Gained hands-on experience with GitHub for version control and collaborated on projects, ready to showcase during job interviews.

Microsoft Back-End Developer Professional Certificate   Jan 2025
- Demonstrated proficiency in designing, implementing, and deploying scalable .NET Core solutions, with a focus on performance and security.
- Applied Object-Oriented Programming (OOP) principles in creating modular, efficient back-end systems in C#.
- Optimized system performance and security, utilizing advanced algorithms and caching techniques for improved efficiency.
- Enhanced development workflows through CI/CD practices for faster and more reliable deployments.

Google Cybersecurity Professional Certificate   Jan 2025
- Gained a deep understanding of cybersecurity practices and their critical role in protecting organizations.
- Learned to identify common risks, threats, and vulnerabilities, and applied mitigation strategies.
- Developed skills in protecting networks, devices, and data using SIEM tools and hands-on experience with Python, Linux, and SQL.
- Built a solid foundation for defending against cyberattacks and securing sensitive information.

Education

Khan Academy   2023 - 2024
Mathematics
- **Relevant Coursework:** Algebra 1 & 2, Linear Algebra, Precalculus, Calculus

Badges & Achievements

Hackthebox Pro Badge & CTF Creator

- Mastered the exploitation of web vulnerabilities such as SQL Injection, Cross-Site Scripting (XSS), and Server-Side Request Forgery (SSRF) through real-world scenarios.

- Gained extensive experience with reverse engineering binaries, leveraging tools like Ghidra, IDA Pro, and Radare2 to deconstruct and analyze compiled executables.

- Developed proficiency in exploiting buffer overflows and format string vulnerabilities, understanding memory corruption techniques in low-level languages such as C/C++.

- Acquired hands-on experience with network penetration testing using tools like Nmap, Wireshark, and Metasploit to identify and exploit network-based vulnerabilities.

- Deepened knowledge of post-exploitation techniques, including persistence mechanisms, lateral movement, and data exfiltration in enterprise environments.

TryHackMe Badge

- Gained comprehensive knowledge of networking fundamentals, including TCP/IP, OSI model, subnetting, and common protocols (HTTP, DNS, DHCP) through hands-on labs.

- Developed a strong understanding of operating system internals, including process management, memory allocation, and file system structures in both Windows and Linux environments.

- Acquired skills in Active Directory security, focusing on user authentication, access controls, group policies, and common attack vectors such as Kerberoasting and Pass-the-Hash.

- Enhanced capabilities in network defense techniques, implementing strategies such as network segmentation, firewalls, and intrusion detection systems to protect enterprise networks.

- Practiced incident response methodologies, including identifying, containing, and mitigating threats within virtual environments simulating real-world cyber attacks.

- Built and configured vulnerable environments to explore exploitation techniques and defensive measures, reinforcing knowledge of security best practices in system and network configurations.

- Completed challenges focused on enumeration and exploitation of Active Directory environments, utilizing tools like BloodHound and PowerView for privilege escalation and lateral movement analysis.

Technical Skills

Languages: Javascript, Typescript, Python, Go, PHP HTML, CSS, BASH, Dart, SQL, Assembly
Technologies: React.js, React Native, Flutter, Preact, Express, Flask, Laravel, FastAPI, TensorFlow, Scikit-Learn, PyTorch, Tailwind, Node.js, Bun, Electron, Tauri, Git, PostgreSQL, MongoDB
Concepts: Compiler, Operating System, Virtual Memory, Cache Memory, Data Science, DOM Manipulation, Encryption, Decryption, Machine Learning, Continuous Integration / Continuous Deployment (CI/CD), Neural Networks, API, Database Normalization, Agile Methodology, Cloud Computing, Web Security
Project management: Asana, Slack