

MAHMOUD AYMAN

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PROFESSIONAL SUMMARY

Full-Stack Developer and Web Security Practitioner with hands-on experience delivering production web systems for 500+ users using React, Node.js, and MongoDB. Strong focus on secure coding (OWASP Top 10), robust authentication (JWT, session management), and proactive defence against common web attacks. Proven ability to architect real-time features (Socket.io), design secure REST APIs, and lead development teams. Also experienced in ML pipelines (TensorFlow, scikit-learn) and technical instruction (60+ students taught).

EDUCATION

Egyptian E-Learning University – Aswan

Aswan, Egypt

B.Sc. in Information Technology (Level 3), CGPA: 3.79

2023 – 2026 (Expected)

- Focus: Software Development, Data Structures & Algorithms, Network Security, Machine Learning
- Relevant Coursework: Web Development, Java Programming, Databases, Pattern Recognition, NLP

EXPERIENCE

Web Committee Head – IEEE Aswan SB

Nov 2024 – Present

Aswan, Egypt

- Led full-stack development of the IEEE Aswan SB website (React + Node.js), scaling it to 10+ pages serving 500+ active student members.
- Architected and built REST APIs for event registration, member dashboards, and dynamic content, secured with JWT and MongoDB.
- Managed a 4-person development team using Git workflows, code reviews, and component-based architecture standards.
- Delivered critical hotfixes during live events with zero downtime.

Java Programming Instructor – Bein8 Event

2025 (Event)

Aswan, Egypt

- Designed and delivered a 1-day intensive Java workshop for 30+ beginners covering OOP and core syntax; achieved 90%+ completion rate and high satisfaction.
- Independently produced all course materials, including live-coding demos, slide decks, and graded exercises.

Web & C++ Programming Instructor – EELU Aswan Student Branch

2025

Aswan, Egypt

- Ran two parallel tracks (front-end web and C++ fundamentals) for 40+ students simultaneously, designing project-based curricula from scratch.
- Mentored students through debugging and code reviews; simplified advanced concepts, improving comprehension outcomes.

Training Team Member – Rally Society

Oct 2024 – May 2025

Aswan, Egypt

- Co-facilitated 5+ technical workshops on entrepreneurship and business tech; built interactive live-coding demos.
- Strengthened communication and feedback skills by guiding learners through hands-on problem solving.

PROJECTS

IEEE Aswan SB Full Website | React, Vite, Node.js, MongoDB

Nov 2024 – Present

- Architected and expanded the complete student branch website with public pages, member dashboard, and event management.
- Built a secure admin panel for creating/updating events, managing registrations, and broadcasting announcements.
- Engineered a REST API with Express and MongoDB; applied JWT authentication.
- Optimized performance with lazy loading, reaching a 95+ Lighthouse score on key pages.
- Repo:** github.com/zAyman01/ieee-aswan-sb

Codestorm 1v1 Competition System | React, Node.js, Socket.io

2025

- Built a real-time 1-vs-1 competitive programming platform with lobby, matchmaking, and live problem-solving rooms.

- Applied Socket.io for bidirectional communication: code locks, timers, and instant verdict updates.
- Executed a scoring and leaderboard microservice that processes contest results and updates rankings in real time.
- Handled concurrent match sessions efficiently, maintaining low latency for 50+ simultaneous users.
- **Repo:** github.com/zAyman01/codestorm-1v1

IEEE Olympics Judging System | *React, Node.js, Socket.io, MongoDB*

2025

- Built a real-time scoring and ranking platform for a multi-sport student Olympics event, enabling judges to submit scores through a secure web interface.
- Integrated live leaderboard updates using Socket.io, instantly reflecting ranking changes as scores were entered.
- Created an admin panel for configuring sports, assigning judges, and generating final certified result sheets.
- Provided a fully responsive mobile-first UI that supported 200+ participants and judges throughout the event weekend.
- **Repo:** github.com/zAyman01/olympics-judging

eCommerce Web Application - React SPA | *React, CSS Modules, Mock API, React Hooks*

2024

- Built a fully functional single-page store with product listing, detail views, cart management, and mock CRUD admin.
- Managed complex state with React hooks, lifting state up for shared cart and product data; applied client-side form validation.
- Applied CSS Modules for scoped styling and built a responsive layout using Flexbox/Grid.
- **Repo:** github.com/zAyman01/ecommerce-react

Fake Product Review Detection System | *Python, scikit-learn, TensorFlow, NLTK, Tkinter*

2024

- Engineered an NLP system distinguishing computer-generated fake product reviews from real ones using a multi-model ensemble (SVM, Logistic Regression, Random Forest, Naive Bayes, LSTM/GRU).
- Attained 91.26% accuracy with SVM (TF-IDF unigrams-trigrams) and 90.23% with TensorFlow-based LSTM/GRU word embeddings.
- Built a Tkinter GUI for real-time review analysis and executed a full pipeline from raw text preprocessing to model persistence.
- Documented all steps in Jupyter notebooks; exported confusion matrices and ROC curves for every model.
- **Repo:** github.com/zAyman01/FakeReviewDetection

IEEE-CIS Fraud Detection Pipeline | *Python, XGBoost, LightGBM, scikit-learn, pandas*

2024 – 2025

- Constructed an end-to-end ML pipeline on the IEEE-CIS Fraud Detection dataset (434 features, 3.5% fraud rate) covering EDA, preprocessing, feature selection, and model evaluation.
- Reduced dimensionality from 358 features to the top 50 using mutual information and feature importance (retaining 97% of AUC performance) and applied PCA to 39 components with 95% variance.
- Trained and tuned XGBoost, LightGBM, Random Forest, and Logistic Regression, handling extreme class imbalance via class weighting; the optimized XGBoost model reached an AUC-ROC of approximately 0.93.
- Exported all processed datasets (Parquet/CSV), saved trained models, and generated a comprehensive 5-notebook evaluation report.
- **Repo:** github.com/zAyman01/fraud-detection

TECHNICAL SKILLS

Front-End: React.js (hooks, functional components, routing), Angular 16+ (components, services, reactive forms), Next.js (pages, routing, SSR), HTML5, CSS3, JavaScript (ES6+), TypeScript, Responsive Design (Flexbox, Grid), CSS Modules

Back-End: Node.js, Express, RESTful API design, JSON Web Tokens (JWT), MongoDB, SQL (PostgreSQL)

Web Security: OWASP Top 10 awareness, secure authentication/authorization (JWT best practices, session management), input validation/output encoding, XSS/CSRF prevention, basic penetration testing with Burp Suite

Real-Time / Tools: Socket.io, Git & GitHub (branches, PRs, code review), Vite, NPM, VS Code, Chrome DevTools, Postman

Programming & CS: Java, Python, C++, OOP, Data Structures & Algorithms, Pattern Recognition, NLP, Machine Learning

Libraries: scikit-learn, TensorFlow, XGBoost, LightGBM, pandas, NumPy, NLTK, spaCy