

Abir Barouni

Software Engineer · PhD Researcher, AI & Blockchain for FinTech Security

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PROFILE

Software engineer with a track record of end-to-end delivery, from requirements analysis and system architecture to native mobile app development, web platforms, and cloud infrastructure. I've built and shipped enterprise web platforms, as well as iOS and Android apps published to both major stores. Alongside my engineering work, I'm completing a PhD in AI and blockchain for FinTech security, a combination that keeps my research grounded in real-world systems and my engineering informed by the current state of the field.

EXPERIENCE

Software Engineer

TechnetMedia

09/2025 – Present

Le Bardo, Tunisia

- Develop native iOS and Android applications, from interface implementation through to integration with backend services.
- Manage the complete release process on both the App Store and Google Play: build signing, store listings, submission, review, and updates.
- Build and maintain full-stack platforms for institutional clients using Python (FastAPI), Angular with PrimeNG, and PostgreSQL.
- Provision and administer production environments on Infomaniak Public Cloud, handling server instances, networking, web server configuration (Nginx, HAProxy), and deployment.
- Carry out the analysis and design phase of each project, including requirements gathering, UML modelling, and database architecture.
- Manage development workflows in Jira and Git/Bitbucket, working in Agile sprints.
- Currently designing the machine-learning features planned for one of the platforms.

Software Engineer Intern

TechnetMedia

01/2025 – 06/2025

Le Bardo, Tunisia

- Developed both native mobile versions of the same product: Android in Kotlin with Jetpack Compose, and iOS in Swift with SwiftUI.
- Built the client-side data layer consuming the existing REST API, and implemented the complete user interface on both platforms.
- Managed publication on both stores: release builds, store listings, and developer console submissions.

Software Developer Intern

ERNST

06/2024 – 08/2024

Mahdia, Tunisia

- Designed and built a native Android application in Kotlin with Jetpack Compose, using Firebase for authentication and data storage.
- Developed the accompanying web application in Laravel and Livewire.
- Handled the full project cycle alone: system conception, database design, development, and deployment.

Software Application Developer

Digital City Innovation

08/2023 – 09/2023

Sfax, Tunisia

- Designed and developed an internal web portal from conception to deployment using Laravel, with secure login and role-based profiles for managers and employees.
- Built real-time operational dashboards with Laravel Livewire and Larapex Charts, surfacing active rides and daily revenue.

Software Engineer

ERNST

02/2022 – 06/2022

Mahdia, Tunisia

- Led full-stack development of a hotel reservation platform in Laravel, from UML design and database architecture through production deployment.
- Designed and implemented a machine-learning recommendation engine in Python (pandas, NumPy, scikit-learn) analysing user behaviour to suggest personalised hotels.
- Integrated third-party APIs (Google Maps, Twilio) for location services and SMS notifications, and built real-time admin dashboards for booking trends, revenue, and occupancy.

- Designed and developed a Laravel web application for internship recruitment, from conception to deployment.
- Architected the database schema and implemented user management, internship postings, and applications, with responsive interfaces in Blade.

RESEARCH

PhD in Computer Science (in progress)

University of Tunis El Manar — LIMTIC Laboratory

2025 – Present

Tunis, Tunisia

- Dissertation: *AI and Blockchain-based Solutions for FinTech Security*.
- Built a fraud-detection prototype pairing a Random Forest classifier (AUC 0.979, F1 0.84) with a Solidity audit contract achieving full audit completeness at 0.122 s latency over 1,011 on-chain records; extended with SHAP explainability, PSI drift detection, and automated smart-contract responses.
- Survey paper on AI and blockchain-based solutions for FinTech security — under review at *SN Computer Science* (Springer Nature).

EDUCATION

Engineering Degree, Software Engineering — *Mention Bien*

Higher Institute of Computer Science of Ariana

09/2022 – 06/2025

BSc Computer Science, Big Data & Data Analysis — *Mention Très Bien*

Higher Institute of Multimedia and Computer Science of Sfax

09/2019 – 06/2022

Mathematics Bacculaureate

Technical High School, Djerba

09/2018 – 06/2019

TECHNICAL SKILLS

AI & machine learning	scikit-learn, pandas, NumPy, TensorFlow/Keras, XGBoost, SHAP, genetic algorithms, multi-agent systems (JADE), expert systems
Blockchain	Solidity, smart contracts, Hardhat, Ganache, web3.py, Ethereum
Native mobile	Kotlin, Jetpack Compose, Swift, SwiftUI, App Store and Google Play publication
Web & backend	Python (FastAPI), Angular, PrimeNG, Laravel, Livewire, Spring Boot, TypeScript, React
Data & infrastructure	PostgreSQL, MySQL, MongoDB, Firebase, Infomaniak Public Cloud, Nginx, HAProxy, CI/CD, networking
Delivery	Requirements analysis, system architecture, database design, UML modelling, testing, production deployment, Agile/Scrum, Jira, Git, Bitbucket

AWARDS & LANGUAGES

Scholarship	International Chinese Language Teachers Scholarship, Dalian University, China — four-week immersive programme (07/2025 – 08/2025)
Award	3rd place, NASA International Space Apps Challenge, Sfax edition (2021) — AI and IoT concept for marine debris detection using LoRa coastal stations and autonomous drones
Languages	Arabic (native), French (fluent), English (fluent), Chinese (HSK3 in progress), Italian (basic knowledge)