



CYBERSECURITY & IOT SERVICES

INTERNSHIP CATALOG 2026



About Us



IronHex is a technology company specializing in Cybersecurity, Internet of Things (IoT), and advanced digital solutions.

Founded in 2025 in **Tunisia**, IronHex is committed to becoming a leading provider of secure, intelligent, and scalable digital services.



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Our Services



Cybersecurity

Security audits, penetration testing, cloud security, and incident response to protect digital assets.

Internet of Things (IoT)

End-to-end IoT development, smart system integration, remote monitoring, and secure connected solutions.

Digital Solutions

Custom web & mobile apps, automation tools, dashboards, and data-driven digital services.

Consulting

Technical advisory, system architecture, cloud migration, and digital transformation support.



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TOPICS



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Cybersecurity



Topic 1 : Development and Design of a Next-Generation Antivirus

Internship Objectives :

- Design and develop a lightweight and functional antivirus for Windows.
- Integrate three detection engines:
 - Signature-based detection (YARA).
 - Heuristic analysis.
 - Behavioral monitoring (files, processes).
- Implement a quarantine and removal system.
- Conduct tests in an isolated sandbox environment.

Required Skills :

- Proficiency in Python.
- Knowledge of offensive security & malware analysis.
- Understanding of Windows internals (processes, registry, file system).
- Rigor, autonomy, and analytical thinking.

Duration

4-6 months

Modality

100% remote

Interns

2



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Cybersecurity



Topic 2 : Development and Design of a SIEM with Artificial Intelligence Integration

Internship Objectives :

- Design a functional SIEM capable of log collection, processing, storage, and analysis.
- Integrate an AI module for:
 - Anomaly detection (Machine Learning).
 - Intelligent event analysis.
 - Partial automation of incident response.
- Develop a web interface for visualization and investigation.

Required Skills :

- Python (Flask/FastAPI, Pandas, Machine Learning).
- Knowledge of networking and log protocols (Syslog, Suricata, Windows Event Logs).
- Machine learning / anomaly detection.
- Understanding of SOC concepts and cybersecurity.

Duration

4-6 months

Modality

100% remote

Interns

1



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Internet of Things



Topic 1 : Intelligent Routing & Interference-Aware IoT Mesh Network (with AI-based Failure Prediction)

Internship Objectives :

- Build a simulated IoT network and generate performance data (RSSI, latency, packet loss).
- Develop an AI/ML model that predicts node or link failure based on historical metrics.
- Implement a dynamic, interference-aware routing strategy that adapts in real time.
- Evaluate the solution through simulations and performance comparison (baseline vs enhanced).
- Produce clear technical documentation and a final demonstrable prototype/dashboard.

Required Skills :

- Basic networking & IoT concepts (RPL, RSSI).
- Good Python and ML fundamentals (Pandas, Scikit-learn).
- Ability to run simulations (Cooja, NS-3, or OMNet++) and analyze data.
- Autonomous and structured in documentation.

Duration

4-6 months

Modality

100% remote

Interns

1



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Internet of Things



Topic 2 : IoT Security Sandbox (Attack & Defense Simulation)

Internship Objectives :

- Build virtual IoT devices with known vulnerabilities.
- Simulate attacks (MITM, spoofing, replay, DoS, brute-force).
- Implement defense mechanisms (auth, rate limiting, anomaly detection).
- Build a dashboard to visualize attacks and alerts.

Required Skills :

- Python (Flask/FastAPI), basic networking/security.
- Knowledge of common attacks (MITM, sniffing, brute force).
- Docker or virtualization tools.
- Basic frontend skills for a small dashboard (React/HTML/Chart.js).

Duration

4-6 months

Modality

100% remote

Interns

1



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Application process



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You apply



CVs Review

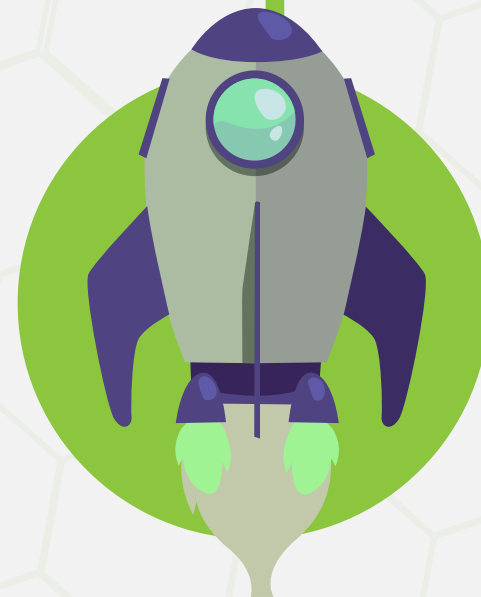
Contact



Selection



**Online
Interviews**



Onboarding



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Application link 



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