Tiago Almeida | Curriculum Vitae

Aveiro – 3800-319 Aveiro – Portugal
+351 965553155 • tiagojralmeida04@outlook.com
TiagoJRAlmeida • tiago-almeida-540647249

Education

Escola Secundária Homem Cristo **Aveiro**
High-school Diploma, 16 *2019 – 2022*

Universidade de Aveiro **Aveiro**
Bachelor's Degree in Computer Engineering, 15 *2022 – 2025*

Skills

Languages: Python, Java, Javascript, SQL, C, Matlab, Assembly (MIPS), LaTeX

Libraries: NumPy, Pandas, requests, BeautifulSoup, Faiss, Flask, Levenshtein, SentenceTransformers, ANTLR4

Databases: SQL Server, SQLite3

DevOps: Docker, Git, Bash, zsh

Networking & Security Tools: GNS3, Wireshark, Burp Suite, NMAP, Netcat

Embedded Systems & IoT: Arduino, PIC MCUs (Programming, ADC, PWM), Raspberry Pi, Circuit Design, Sensor Integration (e.g., Ultrasonic, Humidity), Real-time Systems

Operating Systems: Debian-based Linux, Windows 10/11

Projects

Second Derivative Filter Implementation on FPGA **Aveiro**
Project made within LSD class *Mar 2023 – May 2023*

- Designed and implemented a digital signal processing system in VHDL to apply a second derivative filter to a test signal stored in ROM.
- Developed structural components including address generators, delay registers, and an arithmetic unit to compute the second derivative over 3 samples.
- Integrated the full system on a Terasic DE2-115 FPGA board, using 7-segment displays to show real-time input and filtered output signals.
- Built a finite state machine (FSM) for system control, including memory reset, start logic, and filter toggling via hardware switches and buttons.
- Validated functionality through simulation and hardware testing, matching output to reference data; received a final grade of 18/20.

Enterprise Network Design and Simulation in GNS3 **Aveiro**
Project made within RC1 class *Oct 2023 – Dec 2023*

- Designed and implemented a complete IPv4/IPv6 enterprise network architecture for multiple organizations (ISP, Amazing Inc., GR8 Inc.) using GNS3.
- Assigned and justified public/private IPv4 and IPv6 address spaces, including NAT/PAT configurations and subnetting for office, WiFi, and factory networks.
- Configured static routing, DHCP, VLANs (Layer 2 and 3), and interconnections between routers and switches to ensure end-to-end connectivity.
- Deployed virtual DNS and HTTP servers with custom webpages; implemented a socket-based client-server application with message tracking per IP.
- Graded 20/20, reflecting a complete, well-documented, and fully functional implementation of all project objectives.

Operating System Simulator **Aveiro**
Project made within SO class *Nov 2024 – Dec 2024*

- Designed and implemented a modular simulator in C/C++ to replicate the behavior of a uniprocessor system with contiguous memory allocation and job scheduling.
- Developed core modules for job management (JDT), process control (PCT), memory allocation (MEM), and ready/swap queues (RDY, SWP).
- Built a central controller (SIM) to coordinate job submission, admission, swapping, and execution over simulated time.
- Simulated process states (NEW, READY, RUNNING, SWAPPED, TERMINATED) with realistic transitions based on system constraints.
- Handled address space management and memory fragmentation using frame-based contiguous allocation.
- Project GitHub repository: `https://github.com/ua-so-fso/somm24nm-so-g14`

Secure Document Repository Project **Aveiro**
Project made within SIO class *Oct 2024 – Dec 2024*

- Developed a secure command-line based document repository for organizations, enabling encrypted file storage and fine-grained access control.
- Implemented role-based access control (RBAC) using ACLs, allowing dynamic assignment of roles and permissions to subjects within organizations.
- Designed and established secure sessions via hybrid encryption (RSA + symmetric key), with signature validation, HMAC, NONCEs, and session expiration.
- Enforced confidentiality, integrity, and anti-replay protection across all payloads; session keys securely stored server-side.
- Graded 18/20, demonstrating strong understanding of secure system design and implementation.
- Project GitHub repository: `https://github.com/detiuaveiro/sio-2425-project-113106_114629_113093`

For more projects and detailed descriptions, see: https://tiagojralmeida.github.io

Affiliations

IT - Instituto de Telecomunicações **Aveiro**
Member *Feb 2025 – Present*

Experience

Past Positions

Gres Panaria Portugal **Aveiro**
Internship *Jul 2022 – Sep 2022*

- Provided technical support to employees, including hardware diagnostics and software troubleshooting in a corporate environment.
- Assisted system administrators with routine maintenance tasks and issue resolution within enterprise systems.
- Gained hands-on experience with business critical computer systems and user support tools.
- Developed foundational technical skills and workplace competencies that proved valuable throughout university studies.

Scientific Performance

Project's Collaboration

Data curator for the dataset used in the following publication (credited in the ack): "Semantic and Numerical Feature Clustering for Automated Privacy Quantification" (`https://www.researchgate.net/publication/392064590_Semantic_and_Numerical_Feature_Clustering_for_Automated_Privacy_Quantification`)

Extracurricular Activities

Member of the school's Chess Club **Aveiro**
Escola Secundária Homem Cristo *2019 – 2022*

- Developed strategic thinking and decision making skills in a competitive environment.

Dec 2024 – Present: Pursuing two practical job-role paths on offensive security through the **HTB Academy** platform: *Bug Bounty Hunter* and *Penetration Tester*. Both are approximately 50% complete and involve hands on labs, real world tools, and attack simulation exercises. These paths are pursued alongside regular CTF participation.

2024 – Present: Active participant in international cybersecurity competitions and workshops, including:

- **Advent of Cyber 2024** – TryHackMe (Dec 2024)
- **Hackfinity Battle CTF** – TryHackMe (Mar 2025)
- **Cyber Apocalypse 2025** – Hack The Box (Mar 2025)
- **SwampCTF 2025** – University of Florida (Mar 2025)
- **PlaidCTF 2025** – Carnegie Mellon University (Apr 2025)

Ongoing: Personal interest in embedded systems and IoT, previously building small projects using Arduino and Raspberry Pi boards. Examples include servo-controlled mechanisms, smart plant watering with humidity sensors, and basic auto stop system on toy car using ultrasonic sensors. These explorations enhanced my understanding of hardware-software interaction and real-time problem solving.