Henrique Lopes

SUMMARY

I have a background in digital interactivity and scientific simulation, with a strong interest in immersive experiences and creative applications of engineering and artificial intelligence. I enjoy exploring ways to unite science and design with purpose.

SKILLS

- Advanced knowledge of Linear Algebra, Vector Calculus, and Fourier/Complex Analysis
- Solid background in Classical Mechanics, Electromagnetism, and Quantum Physics
- Experience in Algorithms and Computational Complexity
- Proficient in Parallel Programming and high-performance computing
- Competence in Signal Processing (discrete and continuous) for physical and digital systems
- Familiarity with Microtechnology and Silicon-Based Electronics
- Strong foundation in Systems Architecture and Operating Systems
- Effective use of Git and VS Code in collaborative software development environments

LANGUAGES

- Inglês | Advanced
- Portuguese | Native

CONTACT INFORMATION

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Fafe

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Oct 30, 1999

Portugal

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EDUCATION

BSC IN ENGINEERING PHYSICS — SEP 2017 - JUN 2023
UNIVERSIDADE DO MINHO. BRAGA.

MASTER'S DEGREE IN MULTIMEDIA - SPECIALIZATION IN INTERACTIVE TECHNOLOGIES AND DIGITAL GAMES — SEP 2023 - JUL 2025
FEUP. PORTO.

PROJECTS

- SafeGuard — Critical system modeled with UML
- Physics Game in C — Simulation of forces and collisions
- StoryShow — Interactive website with secure PHP backend
- Virtual Moderator in VR — Unity + Python + GPT in collaboration with INESC TEC (Thesis)
- ThinkAlike — UI with AI for collaborative learning

ACHIEVEMENTS

- Developed interactive applications using GPT-based AI systems for co-creative and adaptive conversational agents
- Built and deployed embedded systems with PIC microcontrollers, sensors, and serial interfaces (RS-232), using MPLAB X, TINA, and LabVIEW
- Designed immersive and responsive audio systems with Pure Data and Reaper for interactive applications
- Developed full-stack web platforms using React, HTML, CSS, REST APIs, and JSON with a focus on usability and accessibility
- Created virtual reality environments in Unity for social interaction studies, integrating conversational AI and usability testing
- Simulated physical and quantum systems using MATLAB, Simulink, QuTiP, SPICE, and UPPAAL for scientific modeling and verification
- Laboratory-based experimentation in mechanics, electromagnetism, and electronics, combining empirical measurement with theoretical analysis
- Applied UX and HCI design principles to develop accessible interfaces tailored to older adult users, including user-centered evaluation

PROFESSIONAL EXPERIENCE

SHAKE II - Waiter and bar assistant (2019-2023)
Rilhadas Turismo - Recreational activities monitor (2024)

LANGUAGES

Portuguese | Native
English | Advanced