



# Gonçalo Pascoal

Software Developer Trainee  
Vestas

- 2001/01/20
- goncalojpascoal@gmail.com
- +351 915 980 575
- goncalopascoal
- GoncaloPascoal
- [Website / Portfolio](#)
- Porto, Portugal

## About

I hold a Master's degree in Informatics and Computing Engineering conferred by FEUP. My Master's dissertation leveraged deep reinforcement learning to compile quantum algorithms more efficiently for realistic architectures. I was distinguished with several awards for merit during my Bachelor's degree. My main areas of interest include algorithms and data structures, low-level / systems programming, distributed systems and performance-critical software. I consider myself to be rigorous, organized, and hard-working. I am also a hobbyist game developer and keenly interested in game design.

## Languages

**Portuguese** Native  
**English** Professional proficiency (C1/C2)  
**French** Elementary proficiency (A1)

## Hobbies

- Drawing
- Music (Guitar, Mandolin)
- Game Development

## Professional Experience

Feb. 2024 – Present **Software Developer Trainee** Vestas  
**Python • Django • Microsoft Azure • C# • Angular • Java • Git**  
**REST APIs • Scrum • E2E Testing**  
Simulation Development – Tower Structural Design Tool

- Developed new features, improvements, and bug fixes for a complex web application used for structural analysis, modeling, and design of wind turbine towers.
- Contributed to the development and maintenance of CI/CD pipelines featuring build, near-zero downtime cloud deployment, testing, static analysis, and automatic versioning tasks.
- Worked fully in Scrum with two-week sprints.

## Education

**Faculty of Engineering, University of Porto (FEUP)**  
Porto, Portugal

Sep. 2021 – Oct. 2023 **Master's Degree, Informatics and Computing Engineering**  
Final Grade: 19.23 / 20  
Thesis: *Noise-Adaptive Reinforcement Learning Strategies for Qubit Routing* (graded 20 / 20)

Sep. 2018 – Jul. 2021 **Bachelor's Degree, Informatics and Computing Engineering**  
Final Grade: 19.03 / 20

## Awards / Grants / Scholarships

2024 **Prof. Doutor Raul Vidal / Deloitte Award** Deloitte  
Granted to a FEUP M.EIC or M.ESW graduate that has distinguished themselves for the quality and innovation of their work in Software Engineering, and for their social, solidarity or student support activities

2023 **STSM Grant** COST (European Cooperation in Science and Technology)  
Granted under [COST Action CA191935 – CERCIRAS](#) to visit the [SIMULA](#) research laboratory (Oslo, Norway) in the context of my M.Sc. thesis and discuss our methodology with other quantum computing researchers

2022 **Bondalti / Fundação Amália de Melo Award** Bondalti  
For concluding the Bachelor's in Informatics and Computing Engineering at FEUP with the highest final grade

2021 **Merit Scholarship** DGES  
For the average grade obtained during the 2019/2020 academic year

2020 **Merit Scholarship** DGES  
For the average grade obtained during the 2018/2019 academic year

2020 **Prémio Incentivo / Incentive Award** University of Porto  
For concluding the first year of the Bachelor's in Informatics and Computing Engineering at FEUP with the highest grade

## Skills

### Programming Languages

- Most Experience:** C++, Python, Java
- Experience:** C, Rust, SQL, C#, Dart, HTML, CSS, JavaScript, TypeScript
- Some Experience:** PHP, Bash, Prolog

### Technologies

Git, Linux, Microsoft Azure, Angular, LaTeX, Flutter, PyTorch, Qiskit, Godot Engine

### Knowledge Areas


Deep Reinforcement Learning, Algorithms and Data Structures, REST APIs

### Other

Problem Solving, Resourcefulness, Autonomy, Time Management, Project Management, Leadership, Technical Writing (English)

## Publications

---

Jul. 2024      **Deep Reinforcement Learning Strategies for Noise-Adaptive Qubit Routing**   
Gonçalo Pascoal, João Paulo Fernandes, Rui Abreu  
2024 IEEE International Conference on Quantum Software ([IEEE QSW 2024](#))

## Projects

---

**Master's Thesis**  Oct. 2023

[Python](#) • [PyTorch](#) • [Qiskit](#) • [Ray RLLib](#) • [NumPy](#) • [Pandas](#) • [LaTeX](#)

[Deep Reinforcement Learning](#) • [Quantum Compiling](#)

- Leveraged deep RL (PPO) to compile quantum algorithms more efficiently for realistic architectures, helping to mitigate the adverse effects of noise on the outcome of computations.
- Tackled the NP-complete qubit routing problem, which consists of inserting auxiliary operations to ensure that programs adhere to the connectivity constraints between qubits in a specific quantum architecture.

**Interactive Satellite Megaconstellation Simulation**  Jan. 2023

[Rust](#) • [Python](#) • [Godot Engine](#) • [Modeling and Simulation](#)

- Analyzed effectiveness of different satellite connection strategies and orbital configurations for maintaining connectivity in the event of failures.

**Solver for Capacitated Vehicle Routing Problem**  Jul. 2022

[C++](#) • [Data Structures](#) • [Map Matching](#) • [Search Algorithms](#) • [Metaheuristics](#)

- Algorithms for solving large-scale CVRP instances (finding routes for a fleet of vehicles with multiple deliveries and a limited carrying capacity). Implemented variants of popular metaheuristics found in the literature for CVRP (ant colony optimization, tabu search).
- Uses real-world OpenStreetMap data from Brazilian cities and performs map-matching of GPS coordinates from test instances to graph vertices (using quadtrees / k-d trees).

**Unified Search System for Steam Games**  Jan. 2022

[Apache Solr](#) • [Python](#) • [Pandas](#) • [Data Processing & Analysis](#) • [Information Retrieval](#)

- Aggregates Steam game data from multiple sources (public datasets, APIs, website scraping).

**Peer-to-Peer Distributed Backup Service**  Jun. 2021

[Java](#) • [Distributed Systems](#) • [Threads & Non-Blocking I/O](#) • [TCP Sockets w/ SSL](#)

- Implements the Chord distributed hash table protocol. Files are divided into chunks stored across multiple peers.
- Tackled scalability and fault tolerance concerns (thread pools, periodic tasks to manage peer failures).

## Extra-Curricular Groups

---

Oct. 2019 – Oct. 2023      **Tuna de Engenharia da Universidade do Porto**  
Traditional academic group with over thirty years of history, bound by the values of music and friendship. Participating in the organization of events such as our festival (*PortusCalle*) has helped me develop and strengthen a diverse set of skills, such as multimedia, communication, teamwork, leadership, and working under time / resource pressure.