

# Pedro Castro

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## PROFILE

Informatics and Computing B.E. student at FEUP with a strong interest in problem-solving and algorithm design. Passionate about learning new technologies and contributing to projects. Open-source supporter.

## EDUCATION

### Faculty of Engineering of the University of Porto

Bachelor in Informatics and Computing Engineering

Relevant Coursework:

Porto, Portugal

Sep 2022 – Present

- Mathematical Analysis, Linear Algebra, Physics, Discrete Mathematics, Theory of Computation, Programming.
- Algorithms and Data Structures, Operating Systems, Software Engineering, Databases, Web Development.
- Compilers, Parallel and Distributed Computing, Artificial Intelligence, Computer Security, Computer Graphics.

## EXPERIENCE

### Member

NIAEFEUP

Oct 2024 – Present

Porto, Portugal

- Developing a mobile app in Flutter made for students to help them organize their academic life and schedule.
- Developer of the College Student's Association website using Svelte, Tailwind CSS, Kotlin and Spring Boot.

## PROJECTS

### Pacman | Java, SOLID Principles

Dec 2024

- Developed a text-based adaptation of the classic Pac-Man game using Java.
- Designed the project following SOLID principles for maintainability and scalability.
- Implemented object-oriented programming (OOP) techniques to modularize game logic and improve code reusability.

### Hotel Reservation Database | SQL, Database Design, Normalization

Nov 2024

- Designed and implemented a relational database schema for hotel room reservations.
- Developed a SQL database to manage bookings, cancellations, and room availability efficiently.
- Applied database normalization techniques to ensure data integrity and reduce redundancy.

### Water Supply Management Analysis Tool | Max-Flow Graph Algorithms

Apr 2024

- Developed a graph-based tool to assist the Management Team of a water supply network in Portugal.
- Implemented Max-Flow Graph Algorithms to analyze network metrics, evaluate resilience and optimize resource allocation.
- Provided data-driven insights for resource allocation and identified potential improvements.

### L.EIC Schedules Management System | Schedule Management, Sorting, Searching

Nov 2023

- Created a system for managing a course schedule efficiently.
- Integrated algorithms for modifying, searching, viewing, sorting, and listing schedules.
- Designed an intuitive CLI interface for improved accessibility and usability.

### Image Editing Program | C++, CLI, Image Processing

May 2023

- Developed a simple C++ command-line tool for image manipulation tasks.
- Implemented key features such as cropping, mirroring, inverting, and pasting images.

## TECHNICAL SKILLS

**Programming Languages:** C, C++, RISC-V Assembly, Java, Python, SQL, HTML, CSS, JavaScript, Dart

**Frameworks:** JUnit, Mockito, Flutter, Vue.js

**Software Development:** Object-Oriented Programming, Software Architecture, Design Patterns, Refactoring, Unit Testing, Debugging, Linux, Git

**Algorithms and Data Structures:** Algorithm Analysis, Algorithm Design, Graph Algorithms

**Databases and Data Analysis:** SQLite, PostgreSQL, MySQL, Pandas, Relational Algebra, Database Design

## LANGUAGES

**Portuguese:** Native | **English:** Highly Proficient