

# PEDRO MARTINS PEREIRA

## Full Stack Software Engineer

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## TECHNICAL SKILLS

### TypeScript

Presently, as the technical lead for a volunteer project at the Instituto de Educação Superior de Brasília, I am actively engaged in making critical architectural and organizational decisions. This encompasses essential configurations such as **TSC**, **ESLint**, **Prettier**, database selection, and the overall design of the backend. Functioning as an advisor to the backend team, I contribute to the assimilation of pertinent technologies, **Typescript**, **Node**, and **NestJS** being the most important.

- **Backend Development Experience:** I have developed backend applications using **Express** and **NestJS**. Implemented automated tests with **Jest** and **Supertest**, and documentation using **Swagger**.
- **Frontend Versatility:** I have built apps leveraging frameworks such as **React** and **Svelte**.
- **Mobile development with TypeScript:** I've used TypeScript to develop mobile applications with **React Native**.
- **Proficiency in the Type System:** I possess advanced proficiency in the TypeScript type system, encompassing nuanced aspects like union and intersection types.
- **Polymorphism and Generics:** I bring to the table a robust background in polymorphism with generics, facilitating the creation of resilient contracts through interfaces.
- **Asynchronous Programming:** Proven ability to efficiently implement asynchronous programming.

### Go

I have a solid command of the fundamentals of the Go language, showcasing the following skills:

- **Code Organization:** Experience in organizing code using modules and packages. Ability to export functions, methods, and struct fields, as well as define tags for JSON.
- **Efficient Pointer Manipulation:** Proficiency in operating efficiently with pointers and references, applying these concepts as needed.
- **Error Handling:** Solid understanding of error handling, including the use of *panic* and *recover* functions.
- **Concurrent Programming:** Advanced knowledge of concurrent programming, utilizing the **sync** package and its elements such as *mutexes*, *channels*, *pools*, and *wait groups*.
- **Networked Applications Development:** Construction of various networking applications, including servers, REST APIs, gRPC APIs, and network analysis tools. Familiarity with both the standard library, **net/http**, and third-party libraries such as **httprouter**, **gorilla**, and **gin**.
- **Testing and Documentation:** Writing tests using the **testing** package, including the application of techniques like table testing. Maintenance of commented code to facilitate the automatic generation of documentation with **GoDoc**.
- **Diverse Applications:** Building desktop applications, command-line tools, and games using various libraries such as **fyne**, **go sdl2**, and **gopherjs**.

### Java

- **Experience at Itaú:** I played a crucial role in building and maintaining REST APIs for Itaú bank's account opening system. During this period, I practiced **TDD** (Test-Driven Development) and **SCRUM**.
- **Integration with BPMN:** Part of my responsibilities included integrating the Java codebase with **BPMN** (Business Process Model and Notation) flows, using the **camunda modeler** tool.

## WORK EXPERIENCE

### Backend Technical Leader

#### IESB

09/2023 - Current

Technical backend leader for the "Bay Area" volunteer project at the Instituto de Educação Superior de Brasília. Working on the development of electronic medical records for the university's social nucleus.

### Backend Developer

#### NTT Data

January 2022 - June 2022

During my tenure at NTT Data, I contributed to projects for Itaú Bank, where I developed robust solutions utilizing Java, Spring Boot, Kafka, Camunda, Docker, Postman, AWS-CLI, and MySQL.

### Backend Internship

#### NTT Data

09/2021 - 01/2022

After being selected from thousands of candidates at a DIO bootcamp to participate in a selection process, I was hired as an intern by NTT Data. During this period I worked on the development of RESTful APIs with Java, Spring Boot, MariaDB, MySQL. Unit testing with JUnit and Mockito. Integration with Angular frontend.

### Paid research

#### FUB

2019

Entitled "Non-Monotonic Formalisms and Scientific Reasoning". She was nominated for the Outstanding Scientific Initiation Congress of the Federal District Award.

### Teaching assistant

#### UnB

2017- 2018

TA of the compulsory subject of first-order logic for the philosophy course at the University of Brasília.

# NOTABLE PROJECTS

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## Raycasting Engine with Go and SDL2

 <https://github.com/pedro-git-projects/go-sdl2-raycasting-engine>

Development of a raycasting engine using the **Go** language and the **SDL2** library, providing 3D projections of 2D coordinates. The following aspects stand out:

- **Raycasting Implementation:** Development of a raycasting engine using Go bindings for SDL, enabling the creation of realistic 3D projections.
- **Interoperability between C and Go:** Creation of a struct to represent the color buffer, using the less conventional "unsafe" library to pass Go objects to the C library via **CGo**.
- **Automatic documentation with godoc:** Comprehensive comments have been included in the code, enabling automatic generation of documentation using the **godoc** tool.
- **Automation with Makefile:** Simplification of the build process and access to documentation by creating a **makefile**, making it easier to compile and consult the documentation.

## School Attendance Control System with Flutter and Go

 <https://github.com/pedro-git-projects/carteirinha-digital-flutter>

 <https://github.com/pedro-git-projects/carteirinha-digital-api>

Development of an innovative school attendance control system using **Flutter** and **Go** technologies, providing a consistent experience for iOS and Android users.

- **QR Code scanning:** Implementation of an intuitive solution that allows students to register their attendance by scanning unique QR Codes within the app.
- **Instant notifications:** Integration of a real-time notification system, ensuring that parents are immediately informed when the student enters the school, strengthening communication between the institution and guardians.
- **Friendly interface with Flutter:** Development of the user interface using Flutter to provide an attractive and consistent visual experience on both iOS and Android platforms.
- **Efficient Backend with Go:** Building a robust and efficient backend in Go, ensuring fast and reliable processing of presence information.
- **Advanced Security:** Implementation of rigorous security measures to protect sensitive student data, ensuring compliance and privacy.

## Full Stack Chess with Go and React

 <https://github.com/pedro-git-projects/go-chess>

Development of a Chess web application with Full Stack architecture, using **Go** on the backend and **React** on the frontend. The following aspects stand out:

- **Websockets for Real-Time Communication:** Implementation of the **Websockets** protocol to enable real-time communication between clients, offering a dynamic gaming experience.
- **Creation and Entry into Rooms:** Functionality that allows players to create rooms and share codes so that other players can join the same room, facilitating multiplayer matches.
- **Chess Engine Development:** In-house implementation of the chess engine, guaranteeing an autonomous and personalized game environment.
- **Advanced React features:** Exploration of React's advanced features, such as the creation of customized hooks and providers, to optimize the structure and logic of the frontend.

# MISCELLANEOUS

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## Agile Methodologies

I completed comprehensive courses in project management, software engineering and agile methodologies during my academic training. My practical experience includes applying SCRUM at NTT and Itaú bank, as well as using pipelines with GitLab and Vercel to ensure continuous delivery. I am proficient in tools such as JIRA and Pivotal Tracker, and achieved the Scrum Foundation Professional certification in 2022.

## MongoDB

I have experience dealing with MongoDB both in its pure form and using an ODM such as Mongoose. I built an API that performed non-trivial operations on the database, using techniques such as projection and matches.

## SQL

I have a good understanding of relational algebra, the mathematics behind relational databases. I am also able to operate with SQL languages, in practice via databases such as MariaDB and PostgreSQL. I make constant use of relational databases in languages such as Typescript, C and Go, with and without ORMs.

## Git

I've mastered the use of git, I'm able to make commits, open pull requests and solve merge conflicts. I use github in my personal life and gitlab at work, but I think I can learn another wrapper without any problems.

## Linux

I have a thorough grasp of the operating system. I understand groups, permissions, the main functions of the command line, package management and good administration practices. Gnu/Linux is one of my biggest hobbies outside of work.

## Information Security

I have a deep interest in information security. In early 2022 I completed IBM's Cyber Security Analyst specialization. I am therefore familiar with the CIA triad, the most common forms of attack and basic digital forensics tools.

## CERTIFICAÇÕES E DEGREES

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Software Engineering Specialization

**PUC-Rio**

📅 2023 -2024

Systems Analysis and Development Degree

**IESB**

📅 2021 - 2023

Security Analyst Fundamentals Specialization

**IBM**

📅 2022

Scrum Foundation Professional Certificate

**CertiProf**

📅 2022

AWS Partner: Accreditation

**Amazon Web Services**

📅 2022

Test of English as a Foreign Language

**ETS**

📅 2019

Certificate of Advanced English (C1)

**Cambridge University**

📅 2016

## ABOUT ME

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I bring solid software development experience to the table, specializing in Go (Golang) and TypeScript. My expertise encompasses a deep understanding of algorithms, data structures, and design patterns, coupled with the ability to construct scalable and resilient software architectures. I possess advanced skills in back-end development using Go and Node, with a proven track record in crafting RESTful APIs, Websockets, and gRPC.

My knowledge extends to both relational and non-relational databases, and I am well-versed in crucial practices such as unit testing, continuous integration, and continuous delivery (CI/CD). Emphasizing software engineering best practices, I navigate version control and collaborative team workflows seamlessly. Fluent in English, I am ready to contribute to innovative and efficient development projects.