Eduardo Brito

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ABOUT ME

With 8 years of experience in the IT industry following 8 years of academic research, I bring a unique blend of practical and theoretical expertise. My academic background is rooted in High-Performance Computing and Formal Methods, with a Master's degree focused on the formal verification of SPARK, a subset of the Ada programming language used in safety-critical systems.

As a senior developer, I have honed my ability to adapt to new technologies and independently tackle complex problems. My experience includes reading and reviewing code, conducting unit and component testing, and mentoring junior developers as they integrate into new teams.

In the past two years, I've found that while my work in the industry is fulfilling, it lacks the depth and artistry I seek. This has inspired me to explore new fields in Computer Science, Engineering, and the Arts.

Currently, I am building my own business with the goal of providing services and developing products that enrich lives through interactive multimedia experiences. My mission is to create tools that empower users and businesses to craft their own innovative experiences.

WORK EXPERIENCE

17/07/2024 – CURRENT Barcelos, Portugal
FOUNDER OF NABIA STUDIOS (IN PROGRESS)

Nabia Studios is the business I'm currently developing.

Nabia Studios motto is: *Experiences Enriching Lives.*

We are an indie studio dedicated to creating rich interactive multimedia experiences and the tools necessary to achieve them. In addition to our creative work, we actively promote cultural events related to gaming, music, and the arts, believing that fostering an artistic community is essential not only for our growth but also for the people who support and surround us.
Our focus areas include:
- **Sound Design and Audio Integration:** We specialize in sound design, songwriting, and the implementation of audio in game engines such as Unity and Godot.
- **Web Games Development:** We create small web games with a focus on delivering fun and engaging experiences.
- **Audio Technology Innovation:** We develop new audio engines and effects for real-time processing and procedural generation of sounds and music.
- **Serious Games for Business:** We assist companies in implementing serious games to enhance their business processes.
- **Steam Game Development:** We create games aimed at releases on Steam, ensuring they meet the platform's standards and audience expectations.

Additionally, we are passionate about supporting new media artists in realizing their visions for art installations. We leverage game engines and related technologies to bring their concepts to life, including VR, AR, and MR experiences that interact with and respond to the environment.

01/10/2023 – 07/2024 Porto, Portugal
SENIOR DEVELOPER CRAFTERE

Worked on an app for a health insurance company that uses gamification principles to improve user health.
My responsibilities at the company included:
- Designing the architecture of the backend and the database;
- Developing the service's backend;
- Testing and documenting;

- Developing the architecture for the mobile app;
- Implementing new widgets for the mobile app.

Our tech stack included Java 8, Redhat Fuse, Apache Camel, MySQL, Flutter 3, and git.
We use the Atlassian suite of tools for everyday work and management, IntelliJ for Java development, and Visual Studio Code for Dart/Flutter.

03/2023 – 09/2023 Porto, Portugal
SENIOR BACKEND DEVELOPER KORBER DIGITAL PORTO

At Korber, I worked on a digital twin for a packaging solution for pharmaceutical products. My role focused on backend development, and the application interacted with other desktop applications running on an embedded computer, including a web app developed by our team.

The team followed Scrum methodology, using the Atlassian suite of products to manage sprints and documentation. We had a hybrid and flexible work environment with no mandatory office days except for team-building activities.
As a Senior Backend Developer at Korber, my main responsibilities included:
- Designing and implementing new features
- Creating user stories for the backlog
- Fixing bugs
- Mentoring junior backend developers
- Performing code reviews
- Presenting sprint results to the team and stakeholders
- Conducting job interviews for backend development positions

The main technologies we used were: Java 11, PostgreSQL, Quarkus, Git, Jenkins, Docker, Postman, Swagger/OpenAPI, IntelliJ, Jira, and Confluence.

01/01/2022 – 02/2023 Belfast, United Kingdom
SOFTWARE ENGINEER II SIGNIFYD

Signifyd specializes in fraud protection for online sellers.

The company manages hundreds of Java projects (with occasional Scala and Clojure), utilizing a Functional Programming approach to Java. Teams are not assigned to specific projects but should be able to pick up any project that has gone through the Signifyd New Project Protocol (SNPP).

All submitted code must be unit tested with at least 80% code coverage. Without dedicated QAs, developers also implement component and integration tests, in addition to unit tests.

We used agile methodologies (Scrum and Kanban) and operated fully remotely, although I visited the office once for a 3-day in-person collaboration.
My main tasks included:
- Implementing new features from SNPP
- Fixing bugs
- Mentoring junior developers
- Creating new projects following SNPP
- Performing code reviews
- Updating configuration files for clients

Tools, technologies, and programming languages used: Java 9+ (primarily Java 11), Play Framework, gRPC, Guice, GitHub, TeamCity, and IntelliJ.

09/2019 – 12/2021 Braga, Portugal
APPLICATION SECURITY ANALYST CHECKMARX

Working on CxSCA (Software Composition Analysis).

Main tasks:
- Go over open vulnerability databases and data sources (NVD, GHSA, etc);
  - Extract information about vulnerabilities;
  - Find the vulnerable source code and fixes in the projects' repository.
- Find new vulnerabilities in open source packages;
- Review vulnerabilities/analysis made by other analysts;
- Create new scripts and tools to scrape package managers and databases;
- Fixing bugs for internal products;
- Code reviews;
- Reviewing and approving advisories for vulnerabilities found by Cx.

Other tasks:
- Writing documentation;

- Creating and improving guidelines and process workflows for the team;
- Maintaining Checkmarx's advisory website and implementing new features.

Main tech used:
- Python, Docker, MySQL, Gatsby, git, bash, PyCharm, Confluence, Trello, Jira

11/2018 – 08/2019 Braga, Portugal
BACKEND DEVELOPER SÉTIMA WEB & MOBILE APPS

(Outsource) Developing and integrating Omnia v3 at Primavera Software (supporting the company numbersbelieve);
- Tech: .NET (C#), PostgreSQL, Omnia V3, Triskell

(Nearshore)
- Several backend projects using Node.js, Knex, TypeScript, ant design, React, styled components, MySQL and TypeORM;
- React Native project using OpenCV for detecting (using heuristics) and painting walls.
- Tech: React Native, Python 3, Java, C++, Objective-C, OpenCV

06/2016 – 11/2018 Braga, Portugal
SOFTWARE ENGINEER ENANCER ELECTRÓNICA S.A.

Development tasks:
- Responsible for maintaining a domotics gateway
- Adding new features to the gateway's backend and frontend
- Creating unit tests and documentation for outsourced components and in-house developments
- Integrating new hardware devices into the gateway's software

Consultancy Tasks (for Outsourced Team):
- Consultant for backend, frontend, and database security, as well as architectural design
- Consultant for a Portugal 2020 R&D proposal

Leadership:
- Team leader for the software development team during summer internships
- Supporting member for the firmware development team during summer internships
- Team leader for part-time employees at the company
- Industry supervisor for 2 master's students from UMinho (1 in Artificial Intelligence & Machine Learning, 1 in Human-Computer Interaction & Natural User Interfaces)

Production Tasks:
- Linux configuration/sysadmin for a domotics gateway
- Managing deployment flow for the gateway's hardware and firmware

Programming Languages, Technologies, and Tools Used:
- Java 7 and 8, Java EE, JAX-RS, Apache Tomcat 7, MySQL/MariaDB, JUnit
- JavaScript, jQuery, Bootstrap v3, Python 3.x, Vue.js 2.0, React, React Native
- Linux, bash, C, Mender, VirtualBox, SVN, Git

Address Rua Max Grundig, N9, 4705-820 Braga, Braga, Portugal | **Website** http://only-smartbuildings.com/

09/2011 – 02/2013
TEACHING ASSISTANT UNIVERSIDADE DO MINHO

Teaching assistant for first year university students of LEI (BSc in Informatics Engineering) at LI1 (Lab class, first semester).

The purpose of the course was to teach the following skills: documentation writing, linux, shell scripting, programming and testing. There was also an introduction to backend development, media extraction/conversion and unit testing.

Tools, technologies and programming languages used:
LaTeX, Linux shell (bash), Haskell, happstack, ImageMagick, ffmpeg

06/2009 – 12/2010
RESEARCH ASSISTANT PROJECT RESCUE (RELIABLE AND SAFE CODE EXECUTION FOR EMBEDDED SYSTEMS) - HASLAB

Use of the SPARK programming language and framework as a case study for the development of a subset with full formal semantics and program logic (mSPARK).

Tools, technologies and programming languages used:

SPARK/Ada (8, 9), Java, Antlr, Haskell, qemu, LaTeX, SVN

02/2009 – 08/2009
MSC STUDENT PROJECT SUPERVISION MFES / UNIVERSIDADE DO MINHO - CRITICAL SOFTWARE

Assisting a group of first years MSc students of MFES (Formal Methods in Software Engineering).

Project:
- Modelling, testing and automatic generation of programming rules;
- Automatic extraction of source code examples from the rule specifications;
- Target programming language: Java

Tools, technologies and programming languages used: Java, Antlr, Alloy, SemmleCode .ql, PMD, Graphviz

03/2007 – 03/2009
JUNIOR RESEARCH ASSISTANT CCTC – HPG (CENTRO DE CIÊNCIAS DA TECNOLOGIA E COMPUTAÇÃO – HIGH PERFORMANCE AND GRAPHICS)

2008/2009
Developing methods and techniques for self-adaptation of scientific applications running in clusters, using checkpointing and restarting mechanisms, concurrency libraries and DSLs, targeting several source languages at the source code and compiled level.

2007/2008
Creating a DSL for the specification of parallelism in applications using AOP.

Tools, technologies and programming languages used: Java, Antlr, AspectJ, Eclipse, SVN, C, llvm, AspectC/C++, Fortran 77/90

CREATIVE WORKS

12/07/2024
Void Climber: The FMOD Edition

Void Climber is a boss rush style of game developed by Huntrt and made available as an Open Source Unity project.

I've redone all the audio for the game and created a soundtrack for it.
The audio implementation was also changed from Unity's sound system to the FMOD middleware.

Link https://edbrito.itch.io/void-climber-fmod

20/07/2024
"Multiplicidade/Impostor" - Presented at "O coração não é onde está" at Cave Colectivo

Mixed media work based on our own interpretation of our own sense of self.

Presented at the "Cave Colectivo" atelier in Braga during the "O coração não é onde está" exhibition.

Link https://www.instagram.com/stories/highlights/18447202717000775/

15/06/2024
"Liberdades. De todos tamanhos." at the opening of the new studio space of "CEA - Cooperativa de Ensino Artístico", Braga

Work done using several coloured india inks.

Descriptive memory of the work:

Freedom takes on many forms, depending on each person's experiences and context. When ink is released onto paper, it follows its own path, constrained by the limitations of water and paper. Despite this freedom, the artist can still influence and shape the outcome of the work based on their own perceptions and aesthetic/artistic ideals.

Much like an individual in a democratic society, the artist also has the freedom to choose what to represent in their work and how to represent it. The abstract language used liberates the artist from the necessity of depicting any

external object, allowing the ink and paper to become the very subject of the artwork. The piece, therefore, needs to represent nothing more than the ink itself within the work.

05/2024
"Benkei" - A linocut engraving

"Benkei" was a linocut engraving I did as a project with the intent of gathering funding for the APNagi - Associação Portuguesa de Naginata.

It is an original work based on Japanese woodcut prints and descriptions of Musashibo Benkei, a Japanese warrior monk famous for using the Naginata.

Link https://www.instagram.com/p/C60t-75CiCN/?img_index=1

24/03/2024
Before the monsters are here

Submitted a song for the "Game Music Jam 2024". Themes were: "Minimalist" and "Mecha/Kaiju".

Link https://edbrito.itch.io/before-the-monsters-are-here

02/07/2023
"Refúgio" series at "Reflexo" exhibition at SETRA, Braga

Series of two mixed media artworks using charcoal and India ink on rice paper.

These spontaneous, *alla prima* drawings blend my musical and visual tastes with figures that hold personal significance. The works explore themes of isolation, doubt, and uncertainty, incorporating portraits inspired by musicians, artists, and friends with whom I primarily communicate online.

03/07/2023
"A vida de onde me sento" at "Reflexo" exhibition at SETRA, Braga

Original artwork made in acrylic for the "Reflexo" exhibition at SETRA, Braga.

Work done as self-reflection of where I was standing during and after the corona virus pandemic.

Link https://www.instagram.com/p/CpOg6p4Ic2f/

01/2023 – 12/2023
Baixista na ODE (Orquestra de Dispositivos Electrónicos)

ODE is an annual project by Braga Media Arts, in partnership with GNRation, where several musicians from Braga and the surrounding areas come together to create original music using electronic devices.

In this edition, we had two live performances, each featuring an original piece composed specifically for the occasion, as well as the composition and recording of a piece sent by the group "Guildhall Live Electronic Ensemble" from the "Guildhall School of Music and Drama," titled "Pleasures." ODE was directed by Ece Canli.

In this project, I played electric bass and used various effect pedals to process the sound. I also played the keyboard during the recording of "Pleasures."

Link https://www.youtube.com/watch?v=TjMv9RihSbI

08/2023 – CURRENT
Songwriting for Game Jams

Games:
- Bullets Symphony
- Amgine
- Cubbec the cube
- World Light & Dark
- My friend the chick

Link https://soundcloud.com/ragingbass2020/sets/videogame-music

PROJECTS

07/2024 – CURRENT
Metal Infestus

Music festival dedicated to local metal music bands.

We are a group of 3 people that are creating this new music festival in the city of Braga. Our goal is to have local garage bands perform more often, to have them engage with the local scene, thus promoting them and the local musical talents we have in the city.

My responsibilities are:
- Managing social media;
- Creating the visuals for our social media posts;
- Contacting the bands and negotiating with them;
- Managing the bands' expectations and making sure everything is as best as possible for both parties.

Link https://www.instagram.com/metalinfestus/

06/2024 – CURRENT
Gamedev Meet Barcelos

Founder and organizer of the Gamedev Meet Barcelos.

Gamedev Meet Barcelos (GMB) is an event dedicated to the promotion of the local Gamedev scene in the areas of Barcelos and Braga.

I was responsible for:
- Creating the event;
- Hiring of a graphic designer to take care of the visual identity of the event;
- Inviting speakers to the event;
- Directly inviting game developers from the area to attend the event;
- Promoting the event on social media, including the creation of texts for the posts;
- Negotiating the space for the event;
- Setting up the event at the venue;
- Taking care of the food and beverages for the event;
- Transportation to and from the event.

Link https://www.instagram.com/gmb.barcelos/

EDUCATION AND TRAINING

10/2023 – CURRENT Barcelos, Portugal
MSC IN VIDEO GAME DEVELOPMENT IPCA

Website www.ipca.pt

01/10/2010 – CURRENT Braga, Portugal
ENROLLED IN PHD (MAP-I) - ON HIATUS SINCE 2014 Universidade do Minho, Aveiro e Porto

Thesis: Formal verification of concurrent programming constructs and software developed in the context of critical systems. Verification of fine- and coarse-grained concurrency.

09/2007 – 12/2010
MSC IN INFORMATICS Universidade do Minho

Specialization in:
- Formal Methods in Software Engineering
- Concurrent, Parallel and, Distributed Computing.

Integtrated class project:
- Leader of the testing team

Master Thesis: Developing formal semantics and a formal program logic for a subset of SPARK (a subset of the Ada programming language used in the development of software for High Integrity Systems).

Final grade 17/20

09/2003 – 08/2007 Braga, Portugal
BENG IN INFORMATICS ENGINEERING - LEI Universidade do Minho

Final grade 14/20

09/2000 – 08/2003 Viana do Castelo, Portugal
HIGH SCHOOL - TECNOLÓGICO DE INFORMÁTICA Escola Secundária Pluricurricular de Santa Maria Maior

Final grade 16/20

LANGUAGE SKILLS

Mother tongue(s):   **PORTUGUESE**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

Formal Methods

- E. Brito. A Formal Approach for a Subset of the SPARK Programming Language, MSc Thesis,Universidade do Minho, 22 December 2010
- E. Brito. A (Very) Short Introduction to SPARK: Language, Toolset, Projects, Formal Methods & Certification. In INForum – Simpósio de Informática 2010 Electronic Proceedings, 2010
- E. Brito and J. S. Pinto and L.Pinto. Enhancing Program Verification for SPARK. In Suplemental Volume of the Eighth European Dependable Computing Conference Proceedings, 2010;
- E. Brito and J. S. Pinto. Poster "A Formal Approach for the mSPARK Programming Language". At Eighth European Dependable Computing Conference, 2010
- E. Brito and J. S. Pinto. Program Verification in SPARK and ACSL: A Comparative Case Study. In Proceedings of the 15th International Conference on Reliable Software Technologies (Ada-Europe'10), Lecture Notes in Computer Science Volume 6106. Springer-Verlag, 2010

High Performance Computing

- E. Brito. Adding self-adapation to scientific applications. Draft, 2008;
- E. Brito. Tool for combining re-usable aspects – PSL. Technical Report, 2008.

CONFERENCES AND SEMINARS

Formal Verification

- Full paper "A (Very) Short Introduction to SPARK: Language, Toolset, Projects, Formal Methods & Certification" no INForum 2010, 2010, Braga;
- Full paper "Program Verification in SPARK and ACSL: A Comparative Case Study" na 15th International Reliable Software Technologies Conference – AdaEurope 2010, 2010, València, Spain;
- Fast Abstract at Eighth European Dependable Computing Conference (EDCC 2010), 2010,València, Spain;

ORGANISATIONAL SKILLS

Interviewing prospective employees

- At Enancer, for part-time functions and master thesis, alongside HR people;
- At Körber, for Junior Backend Developer alongside HR people.

TALKS

Informal

- "Shaders, Unity e Bytebeat: Do Shadertoy a Gameplay no Unity - WIP" - Gamedev Meet Barcelos, 26th July 2024, Koberto (Plátano Café), Roriz, Barcelos
- "Será que funciona?" - PubhD UMinho, 27th February 2016, Braga