# Bernardo Luiz Padilha Zamin

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Bernardo Zamin | Bernardo-Zamin

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## Objective

Passionate about advancing in the field of Artificial Intelligence, with a strong desire to work on state-of-the-art models and technologies. Committed to continuous learning and contributing to innovative, high-impact AI solutions through hands-on experience with LLMs, model optimization, and scalable backend systems.

## Experience

- **INFRA TI INFORMÁTICA LTDA [🌐]** *March 2023 - April 2023*
  *IT Infrastructure Support Intern* Porto Alegre, Brazil
  - Managed network switches, ensuring stable and secure connectivity across the company's infrastructure.
  - Updated the company's password database, enhancing security protocols and safeguarding sensitive information.
  - Created comprehensive IT reports, providing key insights for the management team on infrastructure performance.
- **MALTA Lab (Machine Learning Theory and Applications Lab) [🌐]** *August 2023 - June 2024*
  *Research Intern* Porto Alegre, Brazil
  - Participated in research on sign language recognition using AI, focusing on the translation of Brazilian Sign Language (LIBRAS) to Portuguese. Leveraged deep learning techniques to extract and enhance keypoints from high-definition video datasets.
  - Utilized Python and libraries such as Pandas, Scikit-learn, MediaPipe, OpenCV, OS, and NumPy to develop and refine AI models, leading to significant improvements in model accuracy and robustness.
- **LIS (Software Innovation Laboratory) (HP/PUCRS) [🌐]** *June 2024 - December 2024*
  *Software Development Intern* Porto Alegre, Brazil
  - Applied multimodal Large Language Models (LLMs) to constrained hardware environments, exploring efficient methodologies to optimize performance under limited resources.
  - Designed and maintained data pipelines to enable efficient processing and analysis of large datasets, leveraging Python for data transformation and extraction of meaningful insights.
  - Deepened knowledge in advanced AI techniques to enhance the understanding and performance of multimodal LLMs in various applications.
- **HP [🌐]** *January 2025 – Present*
  *Machine Learning Development* Porto Alegre, Brazil
  - Designed and deployed enterprise-grade LLM-based agents to automate and streamline complex internal workflows across HP's business units.
  - Developed backend services in Python using **FastAPI** to expose **REST API** endpoints that integrated LLM agents with HP's internal systems.
  - Architected scalable, production-ready pipelines with Python, LangChain, and Azure OpenAI to process text inputs for domain-specific tasks.
  - Optimized inference performance through quantization, model parallelism, and distributed serving on cloud and on-premise hardware.
  - Implemented monitoring frameworks and automated evaluation suites to track key metrics (latency, throughput, error rates) and drive continuous system improvement.

## Education

- **Colégio Anchieta** *02/2008 - 11/2021*
  *Fundamental & Secondary Education* Porto Alegre, Brazil
- **Pontifícia Universidade Católica do Rio Grande do Sul** *03/2022 - Ongoing*
  *Computer Science, 6th semester* Porto Alegre, Brazil

## Projects

- **Cat Identification in Images Using Computer Vision** *April 2024*
  *Tools: Python, OpenCV, Scikit-learn, NumPy, Matplotlib* [GitHub]
  - Developed a cat recognition system using machine learning, focusing on color analysis of faces.
  - Implemented K-Nearest Neighbors (KNN) algorithm to classify images with high accuracy.
  - Created a preprocessing pipeline using OpenCV, optimizing face detection with haarcascades.
  - Applied feature extraction techniques to analyze RGB color histograms for precise classification.
- **Scraping-High: Automated Image Scraping for High Clothing Brand** *March 2024*
  *Tools: Python, BeautifulSoup, Pandas* [GitHub]
  - Developed a data scraping system specifically designed to extract all images from the High clothing brand's website.
  - Implemented parsing features to efficiently handle and process volumes of image data.
- **Asteroids-Remake: Classic Arcade Game Remake** *April 2024 - May 2024*
  *Tools: Python, PyOpenGL, GLUT, GLU* [GitHub]
  - Developed a remake of the classic arcade game "Asteroids" using Python and PyOpenGL, focusing on 2D graphics and real-time rendering.
  - Implemented custom game mechanics, including player movement, shooting, and collision detection using bounding boxes.
  - Created modular components for enemies, projectiles, and environment objects, allowing for scalable game design and easy updates.
  - Designed a user interface for start and game over screens, including real-time score tracking.

## Skills

- **Programming Languages:** Python, Java, C, C++, Go, SQL
- **Web Technologies:** HTML, CSS, JavaScript, React
- **Database Systems:** PostgreSQL, MongoDB, Oracle SQL, SQL Server
- **Data Science & Machine Learning:** Python, LangChain, Pandas, Scikit-learn, FastAPI, MediaPipe, OpenCV, NumPy, Matplotlib
- **Cloud Technologies:** AWS, Microsoft Azure
- **DevOps & Version Control:** Git, GitHub, Docker, Kubernetes, Postman
- **Mathematical & Statistical Tools:** Calculus, Linear Algebra, Probability, Statistics, Discrete Mathematics
- **Other Tools & Technologies:** Visual Studio Code, Jupyter Notebook, Google Colab, LaTeX, macOS, Linux, Windows, Microsoft Office

## Volunteer Experience

- **Programming Monitor** *August 2023 - December 2023*
  *PUCRS - Fundamentals of Programming in Java*
  [Website]
  - Assisted new students in understanding and applying fundamental programming concepts in Java.
  - Provided one-on-one support, helping students overcome challenges in coding exercises and assignments.

## Additional Information

- **Languages:** Portuguese (Native), English (Advanced), Spanish (Basic)
- **Interests:** Artificial Intelligence, Machine Learning, Data Science, LLMs

## References

1. **Dr. Rodrigo Coelho Barros**
   Coordinator, MALTA Laboratory
   PUCRS
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2. **Anderson Silva**
   Project Manager, Software Innovation Laboratory
   HP/PUCRS
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