ams.pedro@gmail.com; **(+44)07482148522**

Pedro M. Silva

COVER

During my career I've had the chance to have many roles. In academia I had to find solutions for undefined problems by coming up with hypotheses and validating them. As an engineer, I've dealt with legacy systems and monoliths that had to be kept afloat, but also worked on the design and implementation of green field projects. As a technical leader I had the chance to directly impact the technical progress of the team and system being built.

SKILLS

Technologies:

- Large Language Models interaction and prompt engineering ChatGPT3.5/4.
- Python, SQL, C++, C, Javascript, Rust;
- GCP (AppEngine, StackDrive, CloudRun, Firebase, Cloud Storage, KMS, PubSub, Functions);
- AWS (EC2, ECS, S3, Lambda, cloudformation) and Docker;
- Docker, Ansible, Shell Scripting, git, GitLab, Jenkins, Make, and Linux Command line;
- Django, Flask, Pandas, Numpy, Pyramid, JSON, XML.

Related skills:

- Strong knowledge of data structures and algorithms;
- Focus on Backend with exposure to Front End;
- Experience with Imperative, Object Oriented and Functional Programming;
- Keeping the code as simple and clean as possible and as complex as necessary;
- Unit tests, integration tests and end-to-end tests, Tests!;
- ETL, data cleaning and analysis, and machine learning;
- Technical leadership, recruitment and mentoring;
- Troubleshooting, researching and designing appropriate solutions;
- Design and implementation of greenfield solutions and maintenance of legacy systems;

EXPERIENCE

Senior Software Engineer From November 2022 to March 2024

Cybsafe, London, United Kingdom. Cybersecurity compliance, training and human behavior improvement.

- Main technologies and Practices:
  - Python, Django, Github, Mysql, Sentry, Grafana;
  - AWS (Docker, Kubernetes, CloudWatch);
  - Monolith, TDD, regression, unit and integration tests;
- Maintenance of service, with troubleshooting and hotfixing of legacy code;
- Integration and regression testing to assure robustness;
- Brought clarity to, and fixed, legacy and neglected parts of the code-base, crucial to the business;
- Pioneered LLM based functionality. Proposed, designed and implemented new feature;

Senior Software Engineer and Team Lead From September 2018 to October 2022

GroupM Data and Technology, London, United Kingdom. Digital advertising agency. Third party integrations and budget optimisation.

- Main technologies and Practices:
  - Python, Flask, gitlab (CICD and version control);
  - GCP (AppEngine, StackDrive, CloudRun, Firebase, Cloud Storage, KMS, Functions);

  - Microservices, Rest APIs, Layered and Hexagonal Architecture, Postgres;
- Design architectures based Microservices architecture and Relational Databases;
- Best practices normalisation for microservices implementation and CICD;
- Robust integration with different products and third parties based on integration and end to end tests;
- Researched complex business logic for budget optimisation;
- Team lead, interacting with stakeholders, planning and ensuring delivery, and robustness;
- Hiring, training and mentoring of new team members;
- Successful led design and integration with Facebook Ads integration;
- Successful productionizing bespoke authorization service.

Software Engineer and Lead Developer From May 2015 to September 2018
Essentia Analytics, London, United Kingdom. Measuring skills for Portfolio Managers, and helping them fight behavioural biases and improve.

- Main technologies and Practices:
  - Python, JavaScript, PostgreSQL;
  - AWS (ECS, EC2, S3, Cloudformation, Lambda), Docker;
  - Bash scripting, Python and Ansible, GIT, Jenkins and Github;
  - Agile, pair programming, TDD, functional programming;
- Development and maintenance of Back End and Front End;
- CICD pipeline implementation and integration;
- Process automation using ansible and bash;
- Technical screening, training and mentoring of new team members;
- Leadership across multiple teams;
- Architecture and structure changes for new features and reduce technical debt;

Software Engineer From November 2013 to April 2015
Critical Manufacturing, Maia, Portugal. Maintenance and development of software for the full lifecycle of chip manufacturing. Gathering, storing and analyzing data for compliance and legal purposes.

- Main technologies and Practices:
  - C++, C, make, cmake, bash scripting, Perl;
  - Java, PL/SQL, C#, XML;
  - Legacy CVS, Agile with SCRUM;
- Full software life cycle from requirements gathering, implementation, testing, production deployment and maintenance;
- Created tests and its specification (unit, integration, system and E2E tests);
- Interpret client requests and implement new features in existing applications;
- Troubleshooting existing legacy application and define appropriate patches and solutions;

Researcher September 2010 to October 2013
Industrial Electronics Department, University of Minho, Portugal.

- Application of genetic algorithms, genetic programming, reinforcement learning, linear regression and Information Theory in the generation of adaptive legged locomotion;
- Implementation of solutions and tools to validate hypothesis using C++, Python and Matlab;
- Produced scientific papers (references below).

Researcher During 2008

Informatics Department, University of Minho, Portugal.

- Development of C and Java libraries for the Interval Tree Clocks, a system to track the causality on dynamic distributed systems;
- Implementation based on a scientific paper and Scala library;
- Requirements, design, implementation and testing of both libraries;

EDUCATION

Master on Informatics Engineering,

University of Minho, Braga, Portugal, October 2011

Focus: Intelligent Systems and Computer Graphics. Master's thesis about Machine Learning concepts applied to robotic legged locomotion, aiming to achieve adaptive locomotion.

Bachelor of Informatics Engineering,

University of Minho, Braga, Portugal, September 2009

Focus: Informatics Engineering disciplines. Algorithms and Complexity, Computer Graphics, Intelligent Systems and Computer Networks.

MORE

Languages

- Portuguese : native;
- English : fluent;

Most Relevant Publications

Pedro Silva, Vitor Matos, and Cristina P Santos. Visually guided gait modifications for stepping over an obstacle: a bio-inspired approach. *Biological cybernetics*, 108(1):103–119, 2014.

Pedro Silva, Cristina P Santos, Vítor Matos, and Lino Costa. Automatic generation of biped locomotion controllers using genetic programming. *Robotics and Autonomous Systems*, 62(10):1531–1548, 2014.

Pedro Silva, Cristina P Santos, and Daniel Polani. Optimization of stable quadruped locomotion using mutual information. In *11TH International Conference of Numerical Analysis and Applied Mathematics 2013: ICNAAM 2013*, volume 1558, pages 1021–1024. AIP Publishing, 2013.