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Pedro M. Silva

COVER

As a Software Engineer my values are the following. Technology should empower us to deliver value efficiently, not to sacrifice it for the sake of novelty. Tests are the only way of knowing software does what it is supposed to do, aside from running it in production; as such, they are part of the code. When designing a solution, experience has taught me that it should be as simple as possible and as complex as necessary.

During my career I've had the chance to play 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 green field projects. And as a technical leader I had the chance to directly impact the technical progress of the team and system being built. I am currently searching for new opportunities to expand the breath and depth of my knowledge and experience as a Software Engineer.

SKILLS

Technologies:

- 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 Unix Command line;
- JSON, XML, Flask, Pandas, Numpy, Pyramid.

Related skills:

- Strong knowledge of data structures and algorithms;
- Experience with Imperative, Object Oriented and Functional Programming;
- Focus on keeping the code and the whole system simple, clean and healthy;
- 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;
- **Capable and eager learner**.

EXPERIENCE

Senior Software Engineer and Team Lead From September 2018
GroupM Data and Technology, London, United Kingdom.

- Main technologies and Practices:
  - Python, Flask, JSON, gitlab (CICD and version control);
  - GCP (AppEngine, StackDrive, CloudRun, Firebase, Cloud Storage, KMS, Functions);
  - Microservices, Rest APIs, Layered and Hexagonal Architecture, Postgres;
- Design and implementation of REST APIs, and Relational Databases;
- Created toolbox and templates to normalise structure and best practices;
- Troubleshooting issues and implementing patches and solutions;
- Robust integration with different products and third parties;
- Robust testing and CI/CD, standardised micro services
- Researched complex business logic to extract data for optimisation problems;
- Promoted to Team Lead on a previous project;
  - Set high standards for code and tests for maintainability;
  - Gathering requirements, define road-map and priorities with Product;
  - Allocated and overviewed work from different team members, while making my own contributions;
  - Technical hiring and mentoring of new team members;

Software Engineer and Lead Developer From May 2015 to September 2018
Essentia Analytics, London, United Kingdom.

- Main technologies and Practices:
  - Python, JavaScript, CSS, PostgreSQL, JSON;
  - AWS (ECS, EC2, S3, Cloudformation, Lambda), Docker;
  - Bash scripting, Python and Ansible, GIT, Jenkins and Github;
  - Agile, pair programming, TDD, functional programming;
- Continuous development and integration of back and front ends;
- Maintenance of monolith application and its infrastructure;
- Created tools to automate processes;
- Clean code (and clean the code) mindset - technical debt and tests;
- From Junior to Lead Developer;
- Technical screening, training and mentoring of new team members;
- Prioritising maintenance and development tasks across teams;
- Architecture and structure changes for new features and reduce technical debt;
- Troubleshooting issues and implementing patches and solutions;

Software Engineer From November 2013 to April 2015
Critical Manufacturing, Maia, Portugal.

- 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 bellow).

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.

ADDITIONAL INFORMATION

Languages

- Portuguese : native;
- English : fluent;
- French : beginner;
- Spanish : beginner;

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.