ams.pedro@gmail.com; **(+447)482148522**

Pedro M. Silva

COVER

My main driving forces as a Software Engineer are: to develop solutions that fit the right technology to the right problem; the right methods to enable agile iteration; tests to guarantee the robustness of the system; and the right complexity level for the problem being solved. I believe these points to be specially relevant in a time where shiny new technologies are often used because of their hype rather than their true functionality - effectively fitting the solution to the technology rather than the other way around. Testing however, is just a necessity of any code base - it assures it validity and dictates how healthy it is, and arguably more important, it facilitates continuous improvement and evolution of a code base, by bringing to the surface any unexpected secondary effect of a change on the code base - allowing the team to improve without fear of breaking the system. As for unnecessary complexity, experience has taught me to keep it as simple as possible and as complex as necessary.

As a team member, and recently as team leader, I've come to believe that the most important values are respect and responsibility from each team member. The human factor is inevitable and should be accounted for through processes and checks, rather than repressed. Through this, I believe we can bring to the surface the best in each team member, making them bolder, more creative and more efficient. As for responsibility, I believe that engineers are usually hard on themselves when they fail already. They own their craft and feel responsible for it. Therefore, the role of the team should be to help them learn and move on, rather than blame and opress.

At the moment I am looking to expand my experience and knowledge on new code bases, face new challenges and come up with new solutions to different problems. And keep learning.

SKILLS

Computer Languages and Technologies:

- Python, SQL, Javascript, C++, C, Java, Node;
- AWS (EC2, ECS, S3, Lambda, cloudformation) and Docker;
- Ansible, Shell Scripting, Jenkins, Make and CMake and general usage of Unix command line;
- JSON, XML, Javascript, Pandas, Numpy, Pyramid, Flask;

Related skills:

- Strong knowledge of data structures and algorithms;
- Experience with Object Oriented and Functional Programming;
- Used to troubleshoot hard issues and design appropriate solutions;
- Concerned with keeping the code clean and healthy, as well as the system;
- Unit tests, integration tests and functional tests, Tests!;
- Exposure to data cleaning, ETL, data analysis and machine learning;
- Brainstorming about the needs of the system and possible solutions;
- Design of greenfield solutions and improvement/redesign of existing ones;
- Experience in process definition and automation;
- Experience in technical screening, recruiting, training and mentoring new members of the team;
- **Capable and eager learner**.

EXPERIENCE

Software Engineer From May 2015

Essentia Analytics, London, United Kingdom.

- Main technologies and Practices in this role:
  - Python, JavaScript, CSS, PostgreSQL, JSON;
  - AWS (ECS, EC2, S3, Cloudformation, Lambda), Docker;
  - Bash scripting, python and ansible as main automation tools;
  - Agile, pair programming, TDD, functional programming and GIT;
- Continuous development and integration of back end and front end applications;
- Maintenance and new feature development in a large system with several components;
- Support tasks for infrastructure maintenance;
- Defined and automated several processes to improve efficiency;
- Clean code (and clean the code) mindset to reduce technical debt;
- From Junior to Lead Developer, main responsibilities:
  - Technical screening and evaluating candidates for Dev team;
  - Training, monitoring and coaching Junior developers;
  - Orchestration of maintenance and development tasks between team members and teams closely with CTO, or by myself when necessary, according to priorities;
  - Discussion, planning and definition of changes on architecture and code base to accommodate new needs, and to deal with technical debt;

Software Engineer From November 2013 to April 2015

Critical Manufacturing, Maia, Portugal.

- Design applications from the requirements definition to the architecture;
- Implement defined solution aiming to achieve quality code and optimal performance;
- Design test specification, scenarios and platforms to ensure quality and robustness of final solutions (unit, integration, system and regression tests);
- Interpret and implement change requests in existing applications;
- Troubleshooting existing legacy application and define appropriate solutions;
- Maintenance of a diverse set of complex applications in the following technologies:
  - C++, C, make and cmake;
  - Java, bash scripting;
  - PL/SQL, C# and Perl;
- Responsible for the version control at different stages of development and validation of software solutions (CVS);
- Agile development - SCRUM;

Researcher September 2010 to October 2013

Industrial Electronics Department, University of Minho, Portugal.

- Application of machine learning techniques (e.g. Genetic Algorithms and Genetic Programming, reinforcement learning and linear regression) and Information Theory in the generation of adaptive legged locomotion;
- Creation and improvement of software controllers and tools to generate and analyse data 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;
- Interpreting a scientific paper describing the method;
- Defining requirements, structure and interface for the libraries;
- Testing, displaying and presenting the results.

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.