



Rui Marques

Physics Engineer

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About Me

Automated Driving LiDAR Developer and final year Engineering Physics master student. Looking for new challenges in IT in A Coruña.

Extreme focus, concentration, the ability to work out large quantities of information, coping with a close deadline are my best and most useful traits, acquired in a high competitive environment.

Experience

Present

ADAS Software Developer

CTAG (Automation Technologies)

Vigo, Spain

- Worked in the beginning in an internal project as a LiDAR pre-processing developer for a self driving car.
- Due to my good performance and quick learning, the company transferred me to a special task force that works directly to a client.
- Worked with 2 Agile Methodologies: SCRUM and Kanban.
- Developed software in a collaborative team environment.
- Picked up the entire code-base from a departing former employee and build up on that.
- Managed, proposed and reviewed System and Software Requirements.
- Developed and maintained software at the Client's request always with quality and before the requested deadlines.
- Kept an efficient communication with the Client.
- Performed weekly software verifications: sanity checks, runtime checks, code coverage tests, static tests (code linting against MISRA-C++) and reported them to the Client.
- **Used Tools:** C++, ADTF, Eclipse, Qt, Qt-creator, python, matplotlib, numpy, bash, Matlab, Redmine, git, Octave, MSVS, doxygen, cmake, CANalyzer, CANoe, Wireshark, Makefile, JIRA, Serena, DOORS, Google Docs, html, xml, \LaTeX
- **Attended Courses:** V Life Cycle, Management of Requirements, Automotive Spice, ISO26262, DOORS, SCRUM

Sep 2017

Commercial Sales Representative

M&S Servicios y Marketing

Oct 2017

A Coruña, Spain

Responsible to bring a constant flow of profitable new business in the energy sector by providing state of the art solutions to potential customers.

Aug 2012

Particle Physics Intern

LIP (Portuguese Particle Physics Laboratory)

Sep 2012

Lisbon, Portugal

Worked on cosmic ray data and computer simulations from the *Pierre Auger Observatory*, Advisor: Pedro Abreu (abreu@lip.pt)

Research

Feb 2017

MSc. Research Assistant

GRIT-CENTRA

Jan 2018

Lisbon, Portugal

Thesis: Massive Graviton Theories and vDVZ discontinuities

- Worked on an extension of Einstein's General Relativity in which the graviton has a non zero mass and worked out its possible implications to experimental results such as gravitational waves.
- **Tools:** Python, scikit-learn, \LaTeX , matplotlib, Mathematica, gnuplot

Education

Sep 2016

Erasmus exchange Theoretical Physics

ITF, Utrecht University

June 2017

Utrecht, Netherlands

Studied Quantum Information and Cosmology topics. Academic Referee: Enrico Pajer (e.pajer@uu.nl) | GPA: 8/10

Sep 2012

MSc in Engineering Physics 

Instituto Superior Tecnico 

Feb 2018

Lisbon, Portugal

High Energy Theoretical Physics specialization

Sep 2009

High School Natural Sciences

Escola Secundária D. Pedro V

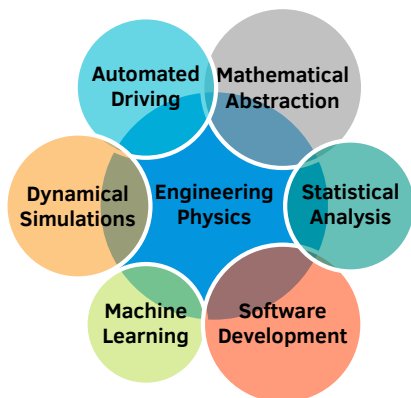
Feb 2012

Lisbon, Portugal

Physics and Math: 20/20, English 19/20 | 2012 top student

Skills

Overview



Programming

C • C++ • \LaTeX • python • Mathematica

Matlab • ADTF • CUDA • OpenMP

gnuplot • javascript

HTML5 • Java

Languages (A1 to C2)

English

Portuguese

Spanish

French • Polish

Scholarships & Certificates

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|----------|--|---|
| Oct 2017 | Neural Networks and Deep Learning by deeplearning.ai | Coursera |
| Oct 2017 | Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization by deeplearning.ai | Coursera |
| May 2012 | Nacional Finalist | Astronomy and Astrophysics Portuguese Olympiads |
| Jan 2012 | Advanced pre-college physics school | Quark! Project |
| May 2012 | Coimbra, Portugal | |

Programming Projects

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|----------|---|---|
| Oct 2017 | Space Out | Github.com/ruifm/space-out |
| Present | Pygame 1vs1 version of the classic arcade game 'Asteroids'. Intended for training of a reinforcement learning neural network to work as an AI opponent. | |
| Dec 2016 | Entanglement Entropy | Github.com/ruifm/ed-triangular |
| Jan 2017 | Mathematica notebook for the exact digitalization and Entanglement Entropy computation in a Triangular Spin lattice. | |
| May 2015 | Oort Cloud | Github.com/ruifm/oort |
| | A javascript version using the Phaser framework of the classic arcade game 'Asteroids', modified by giving it a little bit of a 'flappy bird' tone, i.e. a never ending game. Hosted here: xente.mundo-r.com/20624313W0001/index.html | |
| May 2014 | Antifitter | Github.com/ruifm/antifitter |
| | C++ program that yields fake experimental data to fit a certain function and plots it automatically. | |
| Dec 2013 | Gross-Pitaevskii Simulator | Github.com/ruifm/gross-pitaevskii |
| Jan 2014 | Color density plot simulation of the Gross-Pitaevskii equation applied to a Bose-Einstein Condensate using C++, OpenMP and CUDA. Result: youtu.be/V091IqIRV4c | |
| Dec 2012 | Coloumbian Simulator | Github.com/ruifm/charges |
| Jan 2013 | Coulomb force in charges simulator written in C with GTK+. | |
| Nov 2012 | Atkin's Sieve in C | Github.com/ruifm/atkin |
| | Atkin implementation for finding prime numbers in C with many features. | |

Projects and Affiliations

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|----------|--|---|
| Feb 2014 | Co-host and Organizer | Engineering Physics Days |
| | Lisbon, Portugal | |
| | A 3 day event with physics and engineering seminars from researchers and potential employers. I led a 7 people task force to put together this amazing event. | |
| Sep 2013 | Science entertainer | Festa do Avante |
| Sep 2014 | Amora, Lisbon, Portugal | |
| | Performed live physics experiments to the general public during the <i>Avante</i> Summer festival. | |
| 2012 | Board Member | NFIST member (IST physics club) |
| 2015 | Lisbon, Portugal | |
| | A dynamic and productive non-profitable organization with tremendous scientific outreach. It's main goal is to create public awareness to the beauty and omnipresence of physics in our daily lives. I've been and active science speaker in public schools, museums and other events. | |
| Sep 2012 | Staff member | CMS Week 2012 |
| | Lisbon, Portugal | |
| | I was invited by a LIP physicist (former advisor) to be a part of the organizing committee responsible for hosting the event. I had the opportunity to meet renowned physicists worldwide. | |