

# Vitor Pedro

Software Engineer

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## WORK EXPERIENCE

### **Software Engineer, Vision-Box** - *May/2017 - present* - Lisbon, Portugal

- Research and Development of computer vision and machine learning solutions for face and fingerprint recognition and analysis (C++, C#, Python);
- Integration of biometric recognition components;
- Development of a passenger recognition software for a new smart camera system that allows for simultaneous short range and long range facial detection, analysis and recognition.

### **Software Engineer, Perceive3D** - *Apr/2013 - Apr/2017* - Coimbra, Portugal

- Development of real time image processing software for medical devices (C++, Cuda, Git, Linux);
- Parallelisation of image enhancement algorithms using CUDA (for real time image processing);
- Development of a C++ API for camera calibration;
- Identification of technical solutions for new business requirements;
- Responsible for the implementation of SCRUM methodology in the company;
- Project planning and management (time estimation, definition of goals for each software release and assignment of tasks with the team);
- Software documentation (software requirements specification, architectural design and development plan) according to IEC 62304;
- Present the company's software development process to new team members.

**Research Fellow, Institute of Systems and Robotics (University of Coimbra) -**

*Sep/2012 - Apr/2013 - Coimbra, Portugal*

- Development of a visual recognition system for localization purposes by establishing correspondences between a query image and a database of geo-referenced images constituting a topological visual map (C, Matlab, Python).

**IT Trainee, Optimus Comunicações SA - Sep/2011 - Aug/2012 - Lisbon, Portugal**

- Software development (mainly web and mobile: HTML, CSS, Javascript, PHP, MySQL, jQuery Mobile);
- Definition of software requirements for web applications;
- Reporting (SAP Business Objects and Salesforce).

EDUCATION

**2011 Msc in Electrical and Computer Engineering, University of Coimbra**

- Graduated with 17 out of 20 values.
- Best 3% students of the course award for the years 2007, 2008, 2009 and 2010 (awards given by FCTUC - University of Coimbra).

TECHNICAL SKILLS

C, C++, C#, Python, OpenCV, Cuda, Computer Vision, Machine Learning, Image Processing, Agile methodologies, Web development.

## MOST RELEVANT PROJECTS

### **Facial Recognition Software, [Vision-Box](#) - 2017/2018**

- Development of a facial recognition software for a new smart camera system that allows for simultaneous short range and long range face detection, analysis and recognition. The main goal was to acquire and process images for face recognition from multiple cameras, in real time.

### **Real Time Image Enhancement Software, [Perceive3D](#) - 2016**

- Project with emphasis in C++ and Cuda development using several mathematical and computer vision Frameworks for the medical devices area. The main goal of the application was to acquire and process video from endoscopic devices in real time. The project involved designing and prototyping of several image enhancement algorithms and posterior implementation in C++. See more in <http://perceive3d.com/en/products>.

### **Stereo Imaging Processor, [Perceive3D](#) - 2015**

- Project with emphasis in C++ and Cuda development using several mathematical and computer vision Frameworks for the medical devices area. The main goal of the application was to acquire, calibrate and rectify stereo images captured by two generic USB cameras.

### **Linux Device Driver, [Perceive3D](#) - 2014**

- Project with emphasis in low level C development. The main goal of the project was to develop a device driver to perform HDMI video acquisition in the Jetson TK1 embedded platform through Camera Serial Interface (CSI).

### **Camera Calibration API, [Perceive3D](#) - 2014**

- Project with emphasis in C++ using several mathematical Frameworks. The main goal of the API was to provide a set of functionalities for calibrating cameras with radial distortion. It allowed to obtain the relation between the

camera's natural units (pixels) and the real-world units (millimeters, for instance). It also allowed the modelling of the image distortion.

### **Image Recognition for Localization Purposes, [ISR](#) - 2013**

- Research and Development project with emphasis in computer vision and image recognition systems. The main goal of the application was to build a visual recognition system for localization purposes by establishing correspondences between a query image and a database of geo-referenced images constituting a topological visual map. Publication on <https://ieeexplore.ieee.org/document/6225134/>.

### **Carsharing Web Mobile App, [Optimus](#) - 2012**

- Project with emphasis in mobile web development. The main goal of the application was to create a platform where users could share car journeys between different locations. The app matched the offers with the requests according to travel origin, destination, date, etc. It also offered an E-Mail and SMS notification system. An API was used for integration with the company login system. The design pattern used was MVC.