europass Curriculum vitae

PERSONAL INFORMATION

Aguiar Pedro

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Gender Male | Date of birth 10/05/1992 | Nationality(-ies) Mexican

JOB APPLIED FOR

Embedded developer

WORK EXPERIENCE

June 2015 – Present

Project engineer

Package Innovation and Design Center - ABRE
http://www.centroabre.com

Project management activities such as defining schedules (Gantt charts), delimiting projects by SMART (Specific, Measurable, Attainable, Relevant, Time-bound) goals/deliverables, making business proposals to clients, negotiating the details, following up the project progress, contacting consultants, managing budgets and reporting the results.

2014 – 2015

Intern

Package Innovation and Design Center - ABRE
http://www.centroabre.com

Writing of project results reports and other technical documentation. Some intervention in industry projects. Minor technological explorations/research, software development and configuration. Interaction with costumers (phone, email), writing of form, mandatory documents to support project management and making of presentations to sell our projects.

2014

External research assistant

UDEM Engineering department
http://udem.edu

Exploration to justify the acquisition of drones by the university. The project resulted in the university getting three drones, which unfortunately have not been applied due to a lack of resources designated to their exploitation. During the project I gathered an important background of common drone jargon, software, components, potential applications, etc. I have also manually flown a drone a couple of times (low resolution proof: https://youtu.be/M4OMHGeACiA), also having a couple of crashes of experience.

2014

Intern

Laboratoire de Conception et d'Intégration des Systèmes
Valence, France, http://lcis.grenoble-inp.fr

Work during a 4.5 months long stay at Valence that resulted in the development and implementation of a GPU-accelerated algorithm to solve the stereo vision matching problem (thought towards applying it on an autonomous vehicle system). Work on reading images from a couple of cameras using two different STM32 boards was also carried on: the MCU code was completely interrupt-driven. Programming languages used: C, C++, GLSL. The project involved: I2C, DCMI, DMA, SPI, OpenGL, debian, real-time linux scheduling policies.

2014 **Intern**

UDEM Autonomous supermileage vehicle
http://udem.edu

Drive-by-wire steering mechanism design; mechanical (gears, chains, shafts, etc) and electronic (microcontrollers, regulators, transceivers, etc) components selection and purchase; PIC microcontrollers and raspberry programming and integration into a CAN network; modeling and simulation of the vehicle and its environment to test computer vision algorithms. Programming languages used: C, C++, Java, matlab, simulink, lua. The project involved: UART, PWM, I2C, CAN, TCP/IP, SSH, debian.

2013 **Intern**

Fukushima Lab, Tokyo Institute of Technology
http://www.3mech.titech.ac.jp/ma_hirose/ma_hirose_e.html

Remote work (weekly Skype meetings) consisting in the design, development and implementation of distributed software for a simulated service robot. The project applied robotics middleware (specifically RT-Middleware and ROS, connected through web sockets) and simulators (specifically V-REP and Gazebo) to develop the software that would make a service robot react to visual commands (detected using OpenCV) to navigate through its environment. Programming languages used: C, C++, Java, lua (an advantage of using middleware is that you can easily break a task across different programs, even if they are written in different programming languages). The project involved computer vision and the robot direct/inverse kinematics.

2010 – 2014 **Scholarship service**

UDEM Academic vice-presidency
http://udem.edu

Proposal, design and implementation of solutions for different data handling problems: WLAN collaboration platform (HTML5, AJAX), strategic planning tracing platform (PHP, MySQL), interfaces between excel sheets and html forms (javascript), automatic generation of documents from a database (VBA), amongst other similar TI solutions.

2013 **Research assistant**

UDEM Engineering deparment
http://udem.edu

Work to support Dr. Santiago Cruz research on mechanical vibrations. Dr. Cruz developed a novel algorithm to approximate the solution of structure vibrations applying the Finite Element Method and the Laplace Transform. The intervention consisted in improving the modularity of the software to be able to implement unit testing and validate the algorithm on different problems. I also added the functionality to plot and simulate the results by drawing and animating the graphs and the vibrating structures. Programming language used: matlab.

2012 **Contestant**

The Freescale Cup Team

Small-scale line follower car design contest organized by Freescale Semiconductor and Continental Automotive. The project consisted in designing the electronic circuit to interface to the components and programming Freescale's MPC5604B board to read a linear camera and operate the servomotors. Programming languages used: C. The project involved: ADC, PWM, scheduler.

EDUCATION AND TRAINING

2010 – 2015 **Mechatronics Engineer** — Graduated *Cum Laude*

Universidad de Monterrey (UDEM)

2008 – 2010 **Informatics Technician**

CBTis 41

PERSONAL SKILLS

Mother tongue(s) Spanish

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user	C1 Proficient user
French	A1 Basic user	A1 Basic user			

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user
Common European Framework of Reference (CEF) level

Communication skills

- Interaction with clients: I have learnt correct ways of communicating with clients during my internship and work period at ABRE.

Job-related skills

- Programming: C, C++, javascript, PHP, ensamblador, shell, VBA, Java, ruby, lua, GAS. Learnt to code by participating at homebrew, open sources communities (started when I was 13 years old), but have formalized my knowledge with good software engineering practices by reading a couple books and articles on the topic.
- MCUs y PLCs: Microchip, STM32, Freescale, Festo.
- Robotics: RT-Middleware, ROS, v-rep, gazebo.
- Computer Vision: OpenCV, Computer Vision Toolbox.
- Numeric: MATLAB, GNU Octave, Scilab.
- CAD: ProEngineer/CREO, Autodesk Inventor, NX.
- Version control: git, svn.
- GPU: OpenGL.
- Systems administration: Linux (my main OS since 2006), networks, internet protocols, servers, information systems, cryptography, computer architectures. I read and learn about these technologies regularly. [c]make, gcc, g++, git, gim, javac, ssh, netcat, etc.

Computer skills

- Documents: LaTeX, GoogleDocs, Microsoft Office. I am an advanced user of GoogleDocs and Microsoft Office, to the point of applying Google Apps Script/Visual Basic for Applications for very specific needs.
- Multimedia: Gimp, Audacity, Blender (basic). I learnt to do some general purpose, common tasks and terms after constantly facing the need to do some basic photo/audio/video edition for school or personal projects.
- Web: HTML, CSS, Flash, SQL, WebGL, apache, AWS. I know how to setup and publish sites and have experience on running them on the Amazon EC2 service, I formalized most of my knowledge by taking a MOOC on Software as a Service.

Other skills

- Reading and application of dense, highly technical documentation.
- Time management skills: I have dealt with many activities and responsabilities since moving to Monterrey to study college (without my parents); forcing me to get better at managing time. These time management skills have helped me greatly in every aspect of my life.

ADDITIONAL INFORMATION

Academic awards

- Awarded by the Roberto Rocca Education Program from 2014 to 2015: The program is an initiative to provide scholarships to talented undergraduate and graduate students of engineering and the applied sciences in selected countries. Program homepage: http://www.robertorocca.org/en/.
- Graduated *Cum Laude* from the Engineering school.

Extracurricular activities

- Teaching experience: a year of volunteering as a professor at a local Polytechnic High School teaching Physics and Computer Aided Mechanical Design. Groups of an average of 40 students each.
- Secretary of the Society of Automotive Engineers student chapter: a year of organizing events (industrial visits, courses, etc) for the UDEM engineering students community.
- Church group: three years coordinating training and recreation activities for children with an average age of 10 years old.