Pol Marti Cañizares

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Technical skills

Programming languages

- Strong experience with **C**. Main programming language used in both, Mathematics and Telecommunications engineering, degrees.
- Strong experience with **Python**. Used in the game (called *Surgery3D*) development of my final degree thesis. Used in the computer graphics stippling method for semi-transparent rendering of my last submitted paper.
- Strong experience with **Open Shading Language (OSL)**. Used for shading in the computer graphics stippling method of my last submitted paper.
- Strong experience with **LaTeX**.
- Average experience with **OpenGL**. Used in personal projects.

Game engines

- Strong experience with **Blender Game Engine**. Used in *Surgery3D* development.
- Average experience with **Unity**. Used in personal projects.

Artistic

- Strong experience with **Blender**. Used for modelling, texturing and animating objects in *Surgery3D*. Also used for modelling and texturing in my last work experience in UCI.
- Strong experience with **Adobe Photoshop**. Used in personal artistic and photo treatment works. Used for web design projects. Used for texture creation in *Surgery3D*.

Mathematics

- Strong experience with **Matlab**. Used in both degrees. Used in my last submitted paper.
- Average experience with **R** and **Minitab**. Used in statistics subjects, such as *Simulation*, in Mathematics degree.

Education

- **Telecommunications Engineering** — **Barcelona, Spain**
  5 year degree - Bachelor's + Master's degree equivalency — *2007 – 2013*
  Universitat Politècnica de Catalunya (BarcelonaTech)
  Telecom BCN (ETSETB)
  - ◇ Honors in:
    COMPUTER ARCHITECTURE AND OPERATING SYSTEMS I
    ECONOMICS
    CIRCUIT THEORY
    FINAL THESIS
  - ◇ Awards:
    Recognition of outstanding academic achievement
- **Licenciature of Mathematics** — **Barcelona, Spain**
  5 year degree - Bachelor's + Master's degree equivalency — *2007 – 2013*
  Universitat Politècnica de Catalunya (BarcelonaTech)
  School of Mathematics and Statistics (FME)

◇ Honors in:

COMPUTER SCIENCE 2
SIMULATION

- **Interdisciplinary Engineering** **Barcelona, Spain**
  Special title for double degree program *2007 – 2013*
  Universitat Politècnica de Catalunya (BarcelonaTech)
  Interdisciplinary Higher Education Centre (CFIS)

Work experience

- **University of California, Irvine (UCI)** **Irvine, CAL, US**
  Signal and Image Processing Laboratory *Oct 2013 – Apr 2014*
  Research employee
  ◇ Advisor: Frithjof Kruggel, (949) 824-3729, fkruggel@uci.edu
  ◇ Tasks:
  – Researched in 3D visualization problems involving rendering semi-transparent features. Specifically focused on the representation of the brain white matter surface and the fiber bundles within.
  – Developed a 3D computer graphics method that reproduces *stippling* artistic technique for rendering semi-transparent surfaces.
  – Wrote a conference paper based on the method created.

- **Estudis Electro-Mecànics S.L. (E2M)** **Sabadell, Spain**
  Department of Electronics & Artificial Vision *Jul 2011 – Sep 2011*
  Summer intern
  ◇ Tasks:
  – Studied and applied *Modbus* protocol in order to update the user configuration system of the Quality Control Machines through touchscreens.
  – Tested new designed electronic circuits.
  – Supported different projects in the Artificial Vision department.

Publications

- **Revised**
  ◇ Pol Marti Cañizares and Daniela Tost Pardell. Design and implementation of a 3D serious game for cardiovascular surgery training. *UPCommons*, Jul. 2013. Identifier. – Final degree thesis
  Abstract: *The objective of this project is to develop a serious 3D game based in surgical training, specifically, the heart transplant. To achieve this objective, it has been designed an abstract model of the elements involved in the operation room: their appearance and the actions that they can do and receive. It has been also proposed a logic design of the game, an interaction and navigation model and it has been implemented a game prototype. The final result has been objectively assessed by the testing players, obtaining a really good review of the different sections of the project prototype. Finally, the project has demonstrated the possibility of implementing a 3D serious game focused on surgical training where the player could navigate in an operation room environment while performing a procedural heart transplant operation.*

- **In preparation**
  ◇ Pol Marti Cañizares and Frithjof Kruggel. Point Density and Surface Curvature for Semi-Transparency Rendering. Submitted to *EG VCBM*.

Languages

Mother tongue: Spanish, Catalan
Advanced: English