Pol Marti Cañizares

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Technical skills

Programming languages

- Strong experience with **C**, **C#**, **Python** and **LaTeX**.
- Average experience with **Open Shading Language (OSL)** and **HTML5 / CSS3**.

Game engines

- Strong experience with **Blender Game Engine** and **Unity**.

3D / 2D

- Strong experience with **Blender** and **Adobe Photoshop**.

Mathematics

- Strong experience with **Matlab**.
- Average experience with **R** and **Minitab**.

Education

- **Telecommunications Engineering**   **Barcelona, Spain**
  5 years degree   *2007 – 2013*
  Universitat Politècnica de Catalunya (BarcelonaTech)
  Telecom BCN (ETSETB)

  ◇ Awards:
    Recognition of outstanding academic achievement

- **Licentiate in Mathematics**   **Barcelona, Spain**
  5 years degree   *2007 – 2013*
  Universitat Politècnica de Catalunya (BarcelonaTech)
  School of Mathematics and Statistics (FME)

- **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.

Apps published

- **Sheep Escape Lite / Sheep Escape**

  ◇ *App* type: Game
  ◇ Genre: Arcade
  ◇ Developer: Pol Marti Cañizares
  ◇ Language: English
  ◇ Platform: Android
  ◇ Prices: Free / 0.89€
  ◇ Links: Sheep Escape Lite and Sheep Escape

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.

  Abstract: *Stippling is an artistic technique often used in medical illustrations to represent the shape of anatomical structures by point patterns of varying density. In this paper, we present a computer-based simulation of this technique to render 3D semi-transparent surfaces. We use surface curvature to steer the density of the point pattern, creating the illusion of a surface. Because this illusory effect is strong, the point density can be kept low, interfering little the rendering of objects underneath the surface. In this way, we obtain a semi-transparent effect that helps understanding the relationship between an outer surface and objects contained inside. We explore different parameters of the method and we show that our method is suitable for rendering biomedical scenes.*

Languages

Mother tongue: Spanish, Catalan
Advanced: English