Víctor Arellano Vicente

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Profile: Computer scientist passionate about computer graphics, GPU / OpenGL, video game development. Loves to design personal open-sourced software projects in his free time and self-learn new technologies.

Education and Training

❖ **Bachelor's Degree in Computer Engineering –** Universidad de Zaragoza (Spain) 2011-2016

- Grade: **7,63/10** (80th percentile)
- Bachelor Project: «Kubex, developement of a voxel-based 3D graphics engine».

  Grade: **10/10 (with honors). Best grade of the promotion.**

  Awards:
  - **Universidad de Zaragoza**: Best Bachelor Projects in CS'17. **Winner**
  - **Tecnara Awards:** most innovative final degree project. **Finalist**

  Official Website: http://webdiis.unizar.es/~varella/kubex/

Work experience

❖ **Researcher at Graphics and Imaging Lab, University of Zaragoza** Sept 2016 – Oct 2017

Work fields: *Computer Graphics*, *Rendering*, *Transient imaging*, *Non-Line of Sight Imaging*, *3D Printing*, GPU, *Neural Networks*

Main tasks:

- GPU-Based algorithm for Transient and NLOS imaging [1,2].
- Bidirectional rendering with support for polarization [3].
- GPU-Based transient raytracing engine
- Optimization techniques for appearance modeling in 3D printing (collaboration with IST Austria).
- An energy-aware real-time rendering method (collaboration with Zhejiang University).
- Two publications in Q1 journals and one poster on SIGGRAPH
- Web design in HTML5/CSS of the Lab's website.

Funding:

- **REVEAL**: Scene Recovery using and extended Plenoptic Function.
  Defense Advanced Research Projects Agency (DARPA). PI (in Spain): Diego Gutierrez.

❖ **Toyota Prius ad – Unit9** Jan 2016

Main tasks: design and implementation over an Arduino system of a fast and robust wireless communication protocol, fail-proof and real-time, installed over a biometric measurement system.

General optimizations and UI interface programming, troubleshooting on-demand

Publications

- **2017: Fast Back-Projection for Non-Line of Sight Reconstruction** *Optics Express*
  V. Arellano, D. Gutierrez, A. Jarabo
- **2017: Fast Back-Projection for Non-Line of Sight Reconstruction** *SIGGRAPH, Posters*
  V. Arellano, D. Gutierrez, A. Jarabo
- **2017: Bidirectional Rendering of Vector Light Transport** *Computer Graphics Forum*
  A. Jarabo, V. Arellano

Personal Projects

- **Kubex, developement of a voxel-based 3D graphics engine** http://webdiis.unizar.es/~varella/kubex/

  Voxel-based graphics engine implemented from scratch using Java and OpenGL, with photo-realistic sky and water, cascaded shadow mapping, infinite procedural worlds, dynamic lighting…

- **Tuenti Photo Saver**

  Chrome extension used to download all user photos of a popular Spanish social media (Tuenti). Scored #1 in popularity for two months straight in one of the most famous internet forums of Spain.

- **JavaHDR:** Only java lib in the world capable of reading/storing HDR images. Open sourced.
- **Servcraft:** Utility to turn local-hosted servers into online ones by using a hosting-on-demand, FTP approach

See detailed info and more projects in my personal website: http://webdiis.unizar.es/~varella/

Technical skills

Computer Science

- Programming languages:

  Java (expert), C, C++, GLSL, Assambler, Bash, Batch, Matlab, SQL, AS3.

- Advanced knowledge on Computer Graphics and OpenGL 4.5

  Efficient GPU programming
  Advanced 3D rendering techniques
  Raytracing
  Shader developement with the latest versions of GLSL
  Experience with modern capabilities of OpenGL still not widely used on the market

- Experience designing secure, scalable and durable medium to large software projects
- Web

  Web Services: SOAP, REST, WebSockets
  HTML5, CSS, PHP, Javascript (JQuery, NodeJS…)
  Developement of Chrome browser extensions

- Design and administration of relational databases

Other data: Driving license B