### Nicolas Mellado, Ph.D.

http://www0.cs.ucl.ac.uk/staff/n.mellado/

# **Work Experience**

2012/10       Postdoctoral fellow         -       University College London, Smart Geometry Group (http://geometry.cs.ucl.ac.uk/)         Current       Main research topics: <ul> <li>Rigid Registration of point-clouds</li> <li>Best Paper Award, Symposium on Geometry Processing (SGP) 2014</li> <li>Multiscale feature extraction on point-clouds</li> <li>I paper accepted at Pacific Graphics (PG) 2014</li> <li>Generation of construction sequences in Architectural Geometry</li> <li>I paper accepted at Advances in Architectural Geometry (AAG) 2014</li> <li>3D scene abstraction for scene understanding</li> <li>In progress.</li> </ul> <li>Salary: £33,353 (before taxes, including London allowance)</li> <li>2012/10</li> <li>Research Engineer</li> <li>Collaboration between Inria Bordeaux (team manao) and Archeovision, France.</li> <li>2013/10</li> <li>Transfer of methods developed at Inria, through conception and development of an open-source library Patate (patate.gforge.inria.fr): C++ header only, gcc/nvcc compatible.</li> <li>Diffusion: Siggraph 2014 Talk, RT Curvature Shader in Modo801 (goo.gl/92/Qm0i)</li> <li>Full-time supervision of a Master student on the project "Adaptive multi-scale analysis for point-based surface editing".</li> <li>Development of automatic geometry processing (e.g. cleaning) and online visualization (WebCL) for 3D models uploaded on the Archeogrid database (http://accheogrid.in2p3.fr/). Study and deployment of metadatas for Cultural Heritage databases (OAI-PMH, RDFa).</li> <li>Other responsibilities:         <ul> <li>Involved in the recruitment of engineers at Archeovision (job description, interviews).</li> <li>Development and deployment of the Manao Inria team website.</li> </ul> </li>				
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### <u>Skills</u>

Computer Graphics	<b>Geometry Processing:</b> Surface Reconstruction (MLS), Multiscale Geometry Analysis, Shape matching and Point-Cloud Processing.				
	Data Analysis: Scale-Space Analysis, Dynamic Programming				
Programming	<b>Computer Graphics:</b> OpenGL/GLSL and CUDA 5.x				
	Data Analysis: Matlab				
	<b>Object Oriented:</b> C++, Arduino, Java				
	GUI: Qt, GLUT				
	Scripting: Python, Bash				
	Web: HTML, PHP, CSS, MySQL, JavaScript , WebGL				
System	Linux (advanced)	Windows (intermediate)	Mac OS X (intermediate)		
Tools and Environment	Emacs, Visual Studio, QtCreator Makefile, CMake, Qmake SVN, Git, Mercurial Video editing and 3D modeling solutions: Modo, Blender, Maya, 3DsMax (basics)				
Hardware	Polhemus Liberty (libUSB) Microsoft Kinect 1 (libfreenect Microsoft Kinect 2 (libfreenect Other HID devices (libUSB)	·			

## **Education**

2009-2012	<b>Ph.D. in Computer Science</b> University of Bordeaux, France.
[M12]	Ph.D. Thesis: "Analysis of 3D objects at multiple scales: application to shape matching" <u>Committee</u> : P. Alliez, N. Mitra, A. Sharf, C. Schlick , P. Reuter, P. Guitton
2007-2009	<b>Master's Degree in Computer Science, with honours</b> University of Bordeaux, France.
	Master Thesis: "Semi-automatic reassembly of cultural heritage artefacts"
2006-2007	<b>Licence's Degree in Computer Systems and Software, with honours</b> Multimedia specialization, <i>Institute of Technology Bordeaux</i> 1, <i>France</i> .

# **Publications**

#### International peer-reviewed journals

[MDM14] N. Mellado, D. Aiger, N. Mitra. Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing. To appear in Computer Graphics Forum, Proceedings of Symposium on Geometry Processing, 2014. Best Paper Award

 [NGM14] G. Nader, G. Guennebaud, <u>N. Mellado</u>.
 Adaptive multi-scale analysis for point-based surface editing. To appear in Computer Graphics Forum, Proceedings of Pacific Graphics, 2014.

 [RRL\*14] B. Ridel, P. Reuter, J. Laviole, <u>N. Mellado</u>, X. Granier, N. Couture.
 **The Revealing Flashlight: Interactive spatial augmented reality for detail exploration of** cultural heritage artifacts. ACM Journal on Computing and Cultural Heritage, Special Issue on "Interacting with the past", 2014.  [MGB\*12] N. Mellado, G. Guennebaud, P. Barla, P. Reuter, C. Schlick.
 Growing Least Squares for the Analysis of Manifolds in Scale-Space. Computer Graphics Forum, Volume 31, Number 5, Proceedings of Symposium on Geometry Processing, 2012.

#### International conferences with peer-reviewing process

- [MCS\*14] <u>N. Mellado</u>, P. Song, X. Yan, C. Fu, N. Mitra. **Computational Design and Construction of Notch-free Reciprocal Frame Structures**. *To appear, proceedings of Advances in Architectural Geometry*, 2014.
- [MBG\*13] N. Mellado, P. Barla, G. Guennebaud, P. Reuter, G. Duquesne. Screen-Space Curvature for Production-Quality Rendering and Compositing. ACM Siggraph 2013 Talks, 2013.
- [MRS10] <u>N. Mellado</u>, P. Reuter, C. Schlick.
   Semi-automatic geometry-driven reassembly of fractured archeological objects. Proceedings of VAST 2010: The 11th International Symposium on Virtual Reality, Archaeology and Cultural Heritage, 2010.

#### **Other communications**

- [RMH12] P. Reuter, <u>N. Mellado</u>, I. Hairy. **Exhibition of fabricated copies of the Colossal statues that** were surrounding the Alexandria Pharos (Virtually reassembled). *National Maritime Museum*, Paris 2012.
- [M11]N. Mellado. Semi-Automatic Reassembly for Cultural Heritage Course,<br/>Lecture cycle European methodological studies for archaeologists (European Grant project),<br/>Masaryk University, Czech Republic, October 2011.
- [RMG\*11] P. Reuter, N. Mellado, X. Granier, I. Hairy, R. Vergnieux, N. Couture. Semi-automatic 3D Acquisition and Reassembly of Cultural Heritage: The SeARCH Project. ERCIM News 86, July 2011

#### Reviews

- Conference (Eurographics): Pacific Graphics (PG), 2014.
- Journal (Elsevier): Computer-Aided Design (CAD), Pattern Recognition (PR), 2014,
- Journal (IEEE): Computer Graphics and Application (CGA), 2014.
- Conference (IEEE) Scientific Visualization (SciVis), 2013.
- ACM Journal on Computing and Cultural Heritage (JOCCH), 2013.

### <u>Talks</u>

#### **International conferences**

- SGP2014: Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing. Best Paper Award
- Siggraph2013: Screen-Space Curvature for Production-Quality Rendering and Compositing
- SGP2013: Growing Least Squares for the Continuous Analysis of Manifolds in Scale-Space
- Vast2010: Semi-automatic geometry-driven reassembly of fractured archeological objects

#### Other

- PhD defense (October 2012)
- 4-hours course on "Semi-Automatic Reassembly for Cultural Heritage Course, *Lecture cycle European methodological studies for archaeologists (European Grant project)*, Masaryk University, Czech Republic (October 2011).

# **Teaching**

### 2013 - 2014 Geometry Processing Tutorials and labs: 20h, master students, UCL, United Kingdom. 2012 - 2013 2D and 3D Rendering Tutorials: 14h, last-year engineering-school students, *Enseirb*, *France*. C/C++ Tutorials and lectures: 12h, last-year engineering school students, *Enseirb*, *France*. 2011 - 2012 2D and 3D Rendering Tutorials: 14h, last-year engineering school students, *Enseirb*, *France*. Tutorials: 18h, Computer&Graphics Master students, Bordeaux University, France. C/C++ Tutorials and lectures: 12h, last-year engineering school students, *Enseirb*, *France*. **Development project supervising (4 students)** 20h, last-year engineering school students, Enseirb, France. 2010 - 2011 2D and 3D Rendering Lectures: 16h, last-year engineering school students, *Enseirb*, *France*. Tutorials: 16h, last-year engineering school students, Enseirb, France. **Development project supervising (4 students)** 15h, last-year engineering school students, Enseirb, France.

# **Supervising**

#### 2012 – 2013 Full-time supervision of a Master student (research)

<u>Research project</u>: Multi-scale adaptive and interactive editing of point-sets (Georges Nader) *Inria Bordeaux Sud-Ouest, Bordeaux University.* 

**Part-time supervision of a Master student (development)** Implementation of the method *ray-traced curvature* in Modo (Bastien Perpère) [MBG\*13]

<u>Supervisors</u>: Pascal Barla (Inria), Gael Guennebaud (Inria), Gregory Duquesne (Luxology).