Nicolas Mellado, Ph.D.

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

The Chronos Building, Flat 40
23 mile End Road
E1 4TN, London
nmellado0@gmail.com

Work Experience

2013/10 – Current	**Postdoctoral fellow**
	 University College London, Smart Geometry Group (http://geometry.cs.ucl.ac.uk/)
	
	 Main research topics:
	 • Rigid Registration of point-clouds
	       Best Paper Award, Symposium on Geometry Processing (SGP) 2014
	 • Multiscale feature extraction on point-clouds
	       1 paper accepted at Pacific Graphics (PG) 2014
	 • Generation of construction sequences in Architectural Geometry
	       1 paper accepted at Advances in Architectural Geometry (AAG) 2014
	 • 3D scene abstraction for scene understanding
	       In progress.
	
	 Salary: £33,353 (before taxes, including London allowance)

2012/10 – 2013/10	**Research Engineer** *Collaboration between Inria Bordeaux (team manao) and Archeovision, France.* **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. **Diffusion**: Siggraph 2014 Talk, RT Curvature Shader in Modo801 (goo.gl/9ZQm0j) **Full-time supervision** of a Master student on the project "*Adaptive multi-scale analysis for point-based surface editing*". **Development** of automatic geometry processing (e.g. cleaning) and online visualization (WebGL) for 3D models uploaded on the Archeogrid database (http://archeogrid.in2p3.fr/). Study and deployment of metadatas for Cultural Heritage databases (OAI-PMH, RDFa). **Other responsibilities:** • Involved in the recruitment of engineers at Archeovision (job description, interviews). • Development and deployment of the Manao Inria team website. **Salary:** 32 856€ (before taxes)
2009/10 - 2012/10	**Teaching Assistant and Lecturer** *Bordeaux University, France.* Courses Topics: Computer Graphics, C/C++.
April 2010 December 2010	**3D Adviser** *Pôle Régional des Études Supérieures of Bordeaux, France.* Identification of technologies and monitoring of the solutions proposed by a provider (Vectuel) for the modelling of a digital model of the campus of Bordeaux.
February 2009 June 2009	**Software Development Internship** *Archeovision, France.* Automatic generation of realistic seamless wall textures.
February 2009 June 2009	**Software Development Internship** *Archeovision, France.* Optimization of stereoscopic rendering in 3DSMax Development of procedural geometric primitives for ancient doors and arches in 3DsMax.

Skills

Computer Graphics	**Geometry Processing:** Surface Reconstruction (MLS), Multiscale Geometry Analysis, Shape matching and Point-Cloud Processing.
	Data Analysis: Scale-Space Analysis, Dynamic Programming
Programming	**Computer Graphics:** OpenGL/GLSL and CUDA 5.x
	Data Analysis: Matlab
	Object Oriented: 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 (libfreenect2 - in progress) Other HID devices (libUSB)

Education

2009-2012	**Ph.D. in Computer Science** *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	**Master's Degree in Computer Science, with honours** *University of Bordeaux, France.*
	Master Thesis: "Semi-automatic reassembly of cultural heritage artefacts"
2006-2007	**Licence's Degree in Computer Systems and Software, with honours** Multimedia specialization, *Institute of Technology Bordeaux 1, France.*

Publications

International peer-reviewed journals

[MDM14]   <u>N. Mellado</u>, 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] N. Mellado, 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] N. Mellado, P. Reuter, C. Schlick.
Semi-automatic geometry-driven reassembly of fractured archeological objects. P*roceedings of VAST 2010: The 11th International Symposium on Virtual Reality, Archaeology and Cultural Heritage*, 2010.

Other communications

[RMH12] P. Reuter, N. Mellado, 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**,
Lecture cycle European methodological studies for archaeologists (European Grant project), 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.

Talks

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)** Research project: 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] Supervisors: Pascal Barla (Inria), Gael Guennebaud (Inria), Gregory Duquesne (Luxology).