

Education

2009/10	Ph.D. in Computer Science
–	University of Bordeaux, France.
2012/09	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.
	<u>Qualification</u> : N° 13227235300 Date : 12/02/2013 (validity: 31/12/2017)

2007	Master’s Degree in Computer Science, with honors
–	University of Bordeaux, France.
2009	Master Thesis: “Semi-automatic reassembly of cultural heritage artefacts”

2006	Licence’s Degree in Computer Systems and Software, with honours
–	Multimedia specialization, Institute of Technology Bordeaux 1, France.
2007	

Work Experience

Since 2016-10	Full-time researcher CNRS - University Paul Sabatier, IRIT, team VORTEX, Toulouse. <u>Main research topics</u> : <ul style="list-style-type: none">• 3D Shape analysis• Point-clouds registration• Geometry Processing
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2014/11	Research associate
–	University Paul Sabatier, IRIT, team VORTEX, Toulouse, France – ANR project MapStyle.
2016-07	<u>Main research topic</u> : <ul style="list-style-type: none">• Abstraction and interpolation of rendering styles for map stylization

2014/09	Research associate
–	University College London, Smart Geometry Group (geometry.cs.ucl.ac.uk/)
2013/10	<u>Main research topics</u> : <ul style="list-style-type: none">• Rigid Registration of point-clouds• Multiscale feature extraction on point-clouds• 3D scene abstraction for scene understanding

2012/10	Post-doctoral fellow
–	Collaboration between Inria Bordeaux (team manao) and Archeovision , France.
2013/10	<u>Transfer</u> 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. <u>Diffusion</u> : Siggraph 2014 Talk, RT Curvature Shader in Modo 801 (goo.gl/9ZQm0j) <u>Development</u> of automatic geometry processing (e.g. cleaning) and online visualization (WebGL) for 3D models uploaded on the Archeogrid database (archeogrid.in2p3.fr/). Study and deployment of metadata for Cultural Heritage databases (OAI-PMH, RDFa). <u>Other responsibilities</u> : <ul style="list-style-type: none">• Adviser for the recruitment of engineers at Archeovision (job description, interviews).• Development and deployment of the manao website (manao.inria.fr).

2009/10	Teaching Assistant and Lecturer
–	Bordeaux University, France.
2012/10	

2010/04	3D Adviser
–	Pôle Régional des Études Supérieures of Bordeaux, France.
2010/12	Advising and monitoring of a provider's solution (Vectuel) for the digital modeling of the campus of Bordeaux.

2009/02	Software Development Internship
–	Archeovision, France.
2009/06	Automatic generation of realistic seamless wall textures.
2008/02	Software Development Internship
–	Archeovision, France.
2008/06	Optimization of stereoscopic rendering and development of procedural geometric primitives in 3DsMax.

Publications

International peer-reviewed journals (Statistics reported from <http://www.scimagojr.com>)

[MVH*17]	N. Mellado, D. Vanderhaeghe, C. Hoarau, S. Christophe, M. Bredif, L. Barthe Constrained Palette-Space Exploration <i>ACM Transaction on Graphics (TOG – h-index: 127)</i> , 2017
[MDC15]	N. Mellado, M. Dellepiane, R. Scopigno Relative scale estimation and 3D registration of multi-modal geometry using Growing Least Squares <i>Transactions on Visualization and Computer Graphics (TVCG – h-index: 86)</i> , 2015 Selected to be presented at the Eurographics Symposium on Geometry (SGP) 2016
[SMVP15-2]	T. Subileau, N. Mellado, D. Vanderhaeghe, M. Paulin RayPortals: A Light Transport Editing Framework <i>The Visual Computer (h-index: 45)</i> , 2015 (extended version of [SMVP15])
[MMBM15]	A. Monszpart, N. Mellado, G. J. Brostow, N. J. Mitra RAPTER: Rebuilding Man-made Scenes with Regular Arrangements of Planes <i>ACM Transaction on Graphics (TOG – h-index: 127)</i> , 2015
[MDM14]	N. Mellado, D. Aiger, N. Mitra. Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing <i>Computer Graphics Forum (CGF – h-index: 73)</i> , <i>Proc. of Symposium on Geometry Processing</i> , 2014. Best Paper Award
[NGM14]	G. Nader, G. Guennebaud, N. Mellado. Adaptive multi-scale analysis for point-based surface editing <i>Computer Graphics Forum (CGF – h-index: 73)</i> , <i>Proc. of Pacific Graphics</i> , 2014.
[RRL*14]	B. Ridel, P. Reuter, J. Laviolle, N. Mellado, X. Granier, N. Couture. The Revealing Flashlight: Interactive spatial augmented reality for detail exploration of cultural heritage artifacts <i>ACM Journal on Computing and Cultural Heritage (JOCCH – h-index: 10)</i> , 2014. Notable article, 19th Annual Best Computing, Computing Reviews, ACM-Thinkloud (link)
[MGB*12]	N. Mellado, G. Guennebaud, P. Barla, P. Reuter, C. Schlick. Growing Least Squares for the Analysis of Manifolds in Scale-Space. <i>Computer Graphics Forum (CGF – h-index: 73)</i> , <i>Proc. of Symposium on Geometry Processing</i> , 2012.

International conferences with peer-reviewing process

[SDT*16]	S. Christophe; B. Dumenieu; J. Turbet; C. Hoarau; N. Mellado; J. Ory; H. Loi; A. Masse; B. Arbelot; R. Vergne; M. Brédif; T. Hurtut; J. Thollot; D. Vanderhaeghe Map Style Formalization: Rendering Techniques Extension for Cartography <i>Non-Photorealistic Animation and Rendering (NPAR, production paper)</i> (2016).
[SMVP15]	T. Subileau, N. Mellado, D. Vanderhaeghe, M. Paulin Light Transport Editing with Ray Portals <i>Computer Graphics International (CGI)</i> 2015.
[HMM14]	M. Hueting, A. Monszpart, N. Mellado MCGRAPH: Multi-Criterion Representation for Scene Understanding <i>Siggraph Asia 2014 Workshop on Indoor Scene Understanding: Where Graphics meets Vision.</i>
[MCS*14]	N. Mellado, P. Song, X. Yan, C. Fu, N. Mitra. Computational Design and Construction of Notch-free Reciprocal Frame Structures <i>Proc. of Advances in Architectural Geometry</i> , 2014.
[MBG*13]	N. Mellado, P. Barla, G. Guennebaud, P. Reuter, G. Duquesne. Screen-Space Curvature for Production-Quality Rendering and Compositing <i>ACM Siggraph 2013 Talks</i> , 2013.
[MRS10]	N. Mellado, P. Reuter, C. Schlick. Semi-automatic geometry-driven reassembly of fractured archeological objects <i>Proc. of the 11th International Symposium on Virtual Reality, Archaeology and Cultural Heritage (VAST)</i> , 2010.

International communications with peer-reviewing process (posters)

[MMP17] Céline Michaud; Nicolas Mellado; Mathias Paulin
Mesh Simplification With Curvature Error Metric
Eurographics Poster (2017).

Other communications (exhibitions, thesis, software)

[MMR15] A. Monszpart, N. Mellado (11%), **RAPter Library** (<https://github.com/amonszpart/globOpt/>)

[MSPCS14] N. Mellado, **Super4PCS Library** (github.com/nmellado/Super4PCS)

[MCGB13] N. Mellado, G. Ciaudo, G. Guennebaud, P. Barla. **Patate Library** (patate.gforge.inria.fr)

[RMH12] P. Reuter, N. Mellado, I. Hairy.
Exhibition of fabricated copies of the Colossal statues of the Alexandria Pharos (Virtually reassembled)
National Maritime Museum, Paris 2012.

[M12] N. Mellado.
Ph.D. Thesis: **Analysis of 3D objects at multiple scales: application to shape matching**

[RMG*11] P. Reuter, N. Mellado, X. Granier, I. Hairy, R. Vergnien, N. Couture.
Semi-automatic 3D Acquisition and Reassembly of Cultural Heritage: The SeARCH Project.
ERCIM News 86, July 2011.

[M09] N. Mellado.
Master Thesis: **"Semi-automatic reassembly of cultural heritage artefacts"**

Industrial Transfers&Collaborations

2016 **State-of-the-Art: Acquired 3D data analysis and processing**
Ordered by: Airbus ID-Lab (Toulouse).

Ray Portals [SMVP15-*]: implementation in the open-source rendering software Cycle (Blender Foundation).
Transfer supported by Toulouse Tech Transfer (TTT).

Personal contribution: co-supervision of the engineer in charge of the development (technical and implementation aspects), with T. Subileau (IRIT), D. Vanderhaeghe (IRIT) and M. Paulin (IRIT).

2014 **RayTraced Curvature** [MBG*13]: implementation in the professional modeling software Modo 801 (The Foundry).
Personal contribution: development of the technique core components in the open-source library Patate; co-supervision of the master student in charge of the development, with G. Guennebaud (Inria), P. Barla (Inria) and Gregory Duquesne (The Foundry)

Talks

International conferences (see Section 2 for more details about related publications)

2016 **SGP**: Relative scale estimation and 3D registration of multi-modal geometry using Growing Least Squares, **TVCG Invited paper**

2014 **PG**: Adaptive multi-scale analysis for point-based surface editing
SGP: Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing, **Best Paper Award**
AAG: Computational Design and Construction of Notch-free Reciprocal Frame Structures

2013 **Siggraph talk**: Screen-Space Curvature for Production-Quality Rendering and Compositing
SGP: Growing Least Squares for the Continuous Analysis of Manifolds in Scale-Space

2010 **VAST**: Semi-automatic geometry-driven reassembly of fractured archeological objects

Invited talks

2017 **Dagstuhl seminar 17221**: Multi-scale differential analysis of point-clouds
Airbus IDLab: Acquired 3D data analysis and processing

2015 **Journées de Géométrie Algorithmique (JGA)**: Fast Global Pointcloud Registration ([link](#))
Journées de l'Association d'Informatique Graphique (AFIG): RAPTER: Rebuilding Man-made Scenes with Regular Arrangements of Planes
Visiting Inria Sophia Antipolis (Team TITANE): Analysis of Point Clouds at Multiple Scales

2013 **Visiting Smart Geometry Processing Group, UCL**: Growing Least Squares for Surface Analysis and Editing

2011

N. Mellado.

Semi-Automatic Reassembly for Cultural Heritage Course (4 hours)

Lecture cycle *European methodological studies for archaeologists (European Grant project)*, Masaryk University, Czech Republic, October 2011.

Responsibilities

Committees

2016

Program Committee RRPR2016 (<http://wrrpr2016.sciencesconf.org/page/committee>).
Best paper committee j•FIG 2016 (<http://liris.cnrs.fr/~egfr/best-paper.html#comite>)

2015

Best paper committee AFIG/EGFR 2015 (<http://liris.cnrs.fr/~egfr/best-paper.html#comite>)

Reviews

2017

Conference: International conference on Computer Animation and Social Agents (CASA), International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics), Computer Graphics International (CGI).
Journals: Computers & Graphics (CAG), The Visual Computer (TVCI), Springer Multimedia Systems (MMSJ).

2016

Conference: Eurographics, Workshop on Reproducible Research in Pattern Recognition (RRPR).
Journals: Transactions on Visualization and Computer Graphics (TVCG), Computer Vision and Image Understanding (CVIU), Elsevier Pattern Recognition, Elsevier Pattern Recognition Letters (PatRec), Numerical Algorithms, IEEE Transactions on Image Processing (TIP), The Visual Computer (TVCI), Computer Aided Design (CAD).

2015

Conference: Pacific Graphics (PG).
Journals: Transaction on Graphics (TOG), Numerical Algorithms, Computer-Aided Design (CAD), Computer Graphics Forum (CGF), Journal of Morphology (Jmor), Revue d'Informatique Graphique (ReFIG)-Best Paper AFIG 2015.

2014

Conference: Pacific Graphics (PG).
Journals: Computer-Aided Design (CAD), Pattern Recognition (PR), Computer Graphics and Application (CGA)

2013

Conference: Scientific Visualization (SciVis).
Journal: Journal on Computing and Cultural Heritage (JOCCH).

Skills

Computer Graphics

Geometry Processing: Surface Reconstruction (MLS), Multiscale Geometry Analysis, Differential Geometry, Shape matching, Point-Cloud Processing.
Data Analysis: Scale-Space Analysis, Dynamic Programming

Programming ([github account](#))

Main language: C++ (template-based meta-programming)
Other languages/API: OpenGL/GLSL, CUDA, Qt, Java
Data Analysis: Matlab, Python (numpy, scipy)
Web: HTML, PHP, CSS, MySQL, JavaScript, WebGL

Tools and Environment

Developer environments: emacs, Visual Studio, QtCreator, ...
Compilation tools: Make, Qmake, Cmake, CTest
Collaboration tools: SVN, Git, Mercurial
Illustration tool chain: Blender (Cycle), Python (matplotlib, pylab, graph-tool), Inkscape

Hardware

HID devices (libUSB): Polhemus Liberty, Microsoft Kinect
Arduino, Raspberry Pi

Languages

French: Native language
English: Working knowledges

Supervising

2016 - 2017

PhD Students

- **Anahid Ghazanfarpour**: Mesh Simplification
Co-supervisor: Jean-Pierre Jessel
- **Céline Michaud**: Mesh Simplification
Co-supervisor: Mathias Paulin

Master Students

- **Thibault Lejembre**: Point-Cloud Analysis
 - **Xavier Chalut**: Mesh Simplification
Co-supervisor: Jean-Pierre Jessel
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2015 - 2016	PhD Students <ul style="list-style-type: none"> Anahid Ghazanfarpour: Mesh Simplification <u>Co-supervisor</u>: Jean-Pierre Jessel Céline Michaud: Mesh Simplification <u>Co-supervisor</u>: Mathias Paulin
2014 - 2015	PhD Student <ul style="list-style-type: none"> Thomas Subileau (Part-time supervision): Light Transport Editing with Ray Portals <u>Co-supervisors</u>: Mathias Paulin, David Vanderhaeghe.
2012 - 2013	Master Students <ul style="list-style-type: none"> Georges Nader: Adaptive multi-scale analysis for point-based surface editing [NGM14]. Bastien Perpère: Implementation of the method <i>ray-traced curvature</i> in Modo <u>Co-supervisors</u>: Pascal Barla (Inria), Gael Guennebaud (Inria), Gregory Duquesne (Luxology).

Teaching

2016 - 2017	Programming project (supervision) 6h, Master 2, <i>Université Paul Sabatier Toulouse, France.</i>
2015 - 2016	Physically-based rendering <u>Lectures</u> : 8h, last-year engineering-school, <i>Upssitech, France.</i> <u>Tutorials</u> : 12h, last-year engineering-school, <i>Upssitech, France.</i> Computer Tools for Multimedia Applications <u>Tutorials</u> : 12h, Master 1, <i>Université Paul Sabatier Toulouse, France.</i>
2014 - 2015	3D rendering <u>Tutorials</u> : 20h, Licence 2, <i>Université Paul Sabatier Toulouse, France.</i> Programming project (supervision) 2x3h, Licence 3, <i>Université Paul Sabatier Toulouse, France.</i>
2013 - 2014	Geometry Processing <u>Tutorials and labs</u> : 20h, Master 1, <i>UCL, United Kingdom.</i>
2012 - 2013	2D and 3D rendering <u>Tutorials and labs</u> : 14h, last-year engineering-school, <i>Enseirb, France.</i> C/C++ <u>Tutorials and lectures</u> : 12h, last-year engineering-school, <i>Enseirb, France.</i>
2011 - 2012	2D and 3D rendering <u>Tutorials</u> : 14h, last-year engineering-school, <i>Enseirb, France.</i> <u>Tutorials</u> : 18h, Master 2 (Computer&Graphics), <i>Bordeaux University, France.</i> C/C++ <u>Tutorials and lectures</u> : 12h30, last-year engineering-school, <i>Enseirb, France.</i> Programming project (supervision) 20h, last-year engineering-school, <i>Enseirb, France.</i>
2010 - 2011	2D and 3D rendering <u>Lectures</u> : 16h, last-year engineering-school, <i>Enseirb, France.</i> <u>Tutorials</u> : 16h, last-year engineering-school, <i>Enseirb, France.</i>