

Education

Ph.D. in Computer Science

University of Bordeaux, France.

2009/10 Ph.D. Thesis: “Analysis of 3D objects at multiple scales: application to shape matching”
– Committee: P. Alliez, N. Mitra, A. Sharf, C. Schlick, P. Reuter, P. Guitton.

2012/09

Qualification:

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”

Work Experience

Researcher

CNRS, IRIT, Université de Toulouse, INPT, UPS, UT1C, UT2J, France.

2016-10

to *STORM* research team.

now

Main research topics:

- 3D Shape analysis
- Point-clouds registration
- Geometry Processing

Research associate

2014/11 University Paul Sabatier, IRIT, team VORTEX, Toulouse, France – ANR project MapStyle.

– Main research topic:

2016-07

- Abstraction and interpolation of rendering styles for map stylization
- Structural Color Processing

Research associate

2014/09 University College London, Smart Geometry Group (geometry.cs.ucl.ac.uk/)

– Main research topics:

2013/10

- Rigid Registration of point-clouds
- Multiscale feature extraction on point-clouds
- 3D scene abstraction for scene understanding

Post-doctoral fellow

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.

2012/10

Diffusion: Siggraph 2014 Talk, RT Curvature Shader in Modo 801 (goo.gl/9ZQm0j)

– Development of automatic geometry processing (e.g. cleaning) and online visualization

2013/10

(WebGL) for 3D models uploaded on the Archeogrid database (archeogrid.in2p3.fr).
Study and deployment of metadata for Cultural Heritage databases (OAI-PMH, RDFa).

Other responsibilities:

- 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.

Publications

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

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- [TAM*19] Juliàn Tachella, Yoann Altmann, Nicolas Mellado, Aongus McCarthy, Rachael Tobin, Gerald S. Buller, Jean-Yves Tournet, Stephen McLaughlin
Real-Time 3D Reconstruction of Complex Scenes Using Single-Photon lidar: When Image Processing Meets Computer Graphics
Conditionally accepted at Nature Communications (h-index: 248).
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- [CLM*19] Sara Casti, Marco Livesu, Nicolas Mellado, Nadine Abu Rumman, Riccardo Scateni, Loic Barthe, Enrico Puppo
Skeleton Based Cage Generation Guided by Harmonic Fields
Elsevier Computer & Graphics (h-index: 58), 81:140-151
-
- [RAC*18] V. Roussellet, N. Abu Rumman, F. Canezin, N. Mellado, L. Kavan, L. Barthe
Dynamic implicit muscles for character skinning
Elsevier Computers & Graphics (h-index: 58), 2018
-
- [SZM*18] J. Shao, W. Zhang, N. Mellado, P. Grussenmeyer, R. Li, Y. Chen, P. Wan, X. Zhang, S. Cai
Automated Markerless Registration of Point Clouds from TLS and Structured Light Scanner for Heritage Documentation
Elsevier Journal of Cultural Heritage (h-index: 48), 2018
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- [MVH*17] N. Mellado, D. Vanderhaeghe, C. Hoarau, S. Christophe, M. Bredif, L. Barthe
Constrained Palette-Space Exploration
ACM Transaction on Graphics (TOG – h-index: 127), 2017
-
- [MDC15] N. Mellado, M. Dellepiane, R. Scopigno
Relative scale estimation and 3D registration of multi-modal geometry using Growing Least Squares
Transactions on Visualization and Computer Graphics (TVCG – h-index: 86), 2015
Selected to be presented at the Eurographics Symposium on Geometry (SGP) 2016
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- [SMVP15-2] T. Subileau, N. Mellado, D. Vanderhaeghe, M. Paulin
RayPortals: A Light Transport Editing Framework
The Visual Computer (h-index: 45), 2015 (extended version of [SMVP15])
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- [MMBM15] A. Monszpart, N. Mellado, G. J. Brostow, N. J. Mitra
RAPTER: Rebuilding Man-made Scenes with Regular Arrangements of Planes
ACM Transaction on Graphics (TOG – h-index: 127), 2015
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- [MDM14] N. Mellado, D. Aiger, N. Mitra.
Super 4PCS: Fast Global Pointcloud Registration via Smart Indexing
Computer Graphics Forum (CGF – h-index: 73), Proc. of Symposium on Geometry Processing, 2014.
Best Paper Award
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- [NGM14] G. Nader, G. Guennebaud, N. Mellado.
Adaptive multi-scale analysis for point-based surface editing
Computer Graphics Forum (CGF – h-index: 73), Proc. of Pacific Graphics, 2014.
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- [RRL*14] B. Ridet, P. Reuter, J. Laviolle, N. Mellado, 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 (JOCCH – h-index: 10), 2014.
Notable article, 19th Annual Best Computing, Computing Reviews, ACM-Thinkloud ([link](#))
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- [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 (CGF – h-index: 73), Proc. of Symposium on Geometry Processing, 2012.
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International conferences with peer-reviewing process

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- [MAM*19] E. Moscoso Thompson, G. Arvanitis, K. Moustakas, N. Hoang-Xuan, E.R. Nguyen, M. Tran, T. Lejemble, L. Barthe, N.Mellado, C. Romanengo, S. Biasotti, B. Falcidieno.
SHREC'19 track: Feature Curve Extraction on Triangle Meshes
Eurographics Workshop on 3D Object Retrieval (2019).
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- [BMB*18] S. Biasotti 1, E. Moscoso Thompson, L. Barthe, S. Berretti, A. Giachetti, T. Lejemble, N. Mellado, K. Moustakas, I. Manolas, D. Dimou, C. Tortorici, S. Velasco-Forero, N. Werghi, M. Polig, G. Sorrentino, S. Hermon.
SHREC'18 track: Recognition of geometric patterns over 3D models
Eurographics Workshop on 3D Object Retrieval (2018).
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- [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
Non-Photorealistic Animation and Rendering (NPAR, production paper) (2016).
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- [SMVP15] T. Subileau, N. Mellado, D. Vanderhaeghe, M. Paulin
Light Transport Editing with Ray Portals
Computer Graphics International (CGI) 2015.
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- [HMM14] M. Hueting, A. Monszpart, N. Mellado
MCGRAPH: Multi-Criterion Representation for Scene Understanding
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Siggraph Asia 2014 Workshop on Indoor Scene Understanding: Where Graphics meets Vision.

- [MCS*14] [N. Mellado](#), P. Song, X. Yan, C. Fu, N. Mitra.
Computational Design and Construction of Notch-free Reciprocal Frame Structures
Proc. 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
Proc. of the 11th International Symposium on Virtual Reality, Archaeology and Cultural Heritage (VAST), 2010.
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International communications with peer-reviewing process (posters)

- [LMBM19] T. Lejembre, C. Mura, L. Barthe, [N. Mellado](#)
Multi-Scale Point Cloud Analysis
Eurographics Poster (2019).
- [MMP17] C. Michaud, [N. Mellado](#), M. Paulin
Mesh Simplification With Curvature Error Metric
Eurographics Poster (2017).
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Other communications (exhibitions, thesis, software)

- [MOGR18] [N. Mellado](#), **OpenGR** (github.com/STORM-IRIT/OpenGR)
- [RMC*18] V. Rousselet, [N. Mellado](#), F. Canezin, D. Vanderhaeghe, **Radium Engine** (github.com/STORM-IRIT/Radium-Engine)
- [MMR15] A. Monzpart, [N. Mellado](#) (11%), **RAPter Library** (github.com/amonzpart/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. Vergnieux, 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”**
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Projects

Funded Projects

- Leader** *Analysis and Structuring of images color point-clouds geometry* – LabEx CIMI (2017)
- Leading Member** [McGRad](#) : Monte-Carlo Global Radiative Forcings Computation – ANR-18-CE46-0012 (2018-2022)
Projet FEDER/Région Occitanie Readynov: *SI3DCO : Simplification d'objets 3D sous contraintes* (2018-2020)
Projet pré-maturation Région Safir 6889 *Palex: Exploration contrainte de palettes de couleurs* (2018)
Étude des aspects perceptuels pour l'exploration contrainte de palettes de couleurs – [Bourses mobilité GdR IG-RV](#) (2017)
- Member** [MapStyle](#) : Stylized rendering in cartography – ANR-12-CORD-0025 (2014-2016)
[SmartGeometry](#) – ERC CORDIS 335373
[SeARCH](#) : Semi-Automatic 3D Acquisition and Reassembly of Cultural Heritage – ANR-09-CORD-0019 (2009-2012)
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Collaborations and Transfer with Industrial Partners, Open-Source projects

Make OpenGR be able to work directly with CGAL point clouds
Google Summer of Code 2019 (Organization: CGAL project) – [project description](#)
[Personal contribution](#): co-supervision of Necip Fazil Yildiran, in collaboration with Simon Giraudot (Geometry Factory)

2019

PalEx: Constrained Palette-Space Exploration
Maturation program co-founded by Region Occitanie and Toulouse Tech Transfer
[Personal contribution](#): co-supervision of the engineer Clément Rodrigues Viguier (Mésos-Star) in charge of the development with D. Vanderhaeghe (IRIT).

2017	3DSi : vos objets 3D industriels prêts pour le web mobile Transfer supported by Toulouse Tech Transfer (TTT) – program description (fr) <u>Personal contribution</u> : co-supervision of the engineer in charge of the development (technical and implementation aspects), with L. Barthe (IRIT), D. Vanderhaeghe (IRIT) and M. Paulin (IRIT).
	State-of-the-Art: Acquired 3D data analysis and processing Ordered by: Airbus ID-Lab (Toulouse).
2016	Ray Portals [SMVP15-*] : implementation in the open-source rendering software Cycle (Blender Foundation). Transfer supported by Toulouse Tech Transfer (TTT) – program description (fr) <u>Personal contribution</u> : 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). <u>Personal contribution</u> : 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)

Responsibilities

Committees

On-going	Eurographics French Chapter Committee member (http://liris.cnrs.fr/~egfr/ca-members.html) Board of reviewer WSCG 2019 International Program Committee member Shape Modeling international 2019 (SMI'19) Best paper committee j•FIG 2019 (http://liris.cnrs.fr/~egfr/best-paper.html#comite)
2018	Eurographics French Chapter Committee member (http://liris.cnrs.fr/~egfr/ca-members.html) Program Committee member RRPR2018 (https://rrpr2018.sciencesconf.org/resource/page/id/1). Program Committee member CASA 2018 (http://casa2018.ios.ac.cn/committee/) Best paper committee j•FIG 2018 (http://liris.cnrs.fr/~egfr/best-paper.html#comite)
2017	Best paper committee j•FIG 2017 (http://liris.cnrs.fr/~egfr/best-paper.html#comite)
2016	Program Committee member 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

2019	<u>Conferences</u> : ACM Siggraph Asia, Shape Modeling international (SMI), Eurographics Symposium on Solid and Physical Modeling (SPM), International Conferences in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) <u>Journals</u> : Wiley Computer Graphics Forum (CGF), Computers & Graphics (CAG), Computer Graphics International (CGI), Graphical Models (GMod), Journal on Computing and Cultural Heritage (JOCCH), Springer Autonomous Robot (AURO), MDPI Geosciences, MDPI Sensors
2018	<u>Conferences</u> : ACM Siggraph, International conference on Computer Animation and Social Agents (CASA), <u>Journals</u> : Transactions on Visualization and Computer Graphics (TVCG), Computers & Graphics (CAG), Journal on Computing and Cultural Heritage (JOCCH), Graphical Models (GMod)
2017	<u>Conferences</u> : Eurographics, International conference on Computer Animation and Social Agents (CASA), International Conference on Computer-Aided Design and Computer Graphics (CAD/Graphics), Computer Graphics International (CGI). <u>Journals</u> : Graphical Models (GMod), Computers & Graphics (CAG), The Visual Computer (TVCJ), Springer Multimedia Systems (MMSJ).
2016	<u>Conferences</u> : Eurographics, Workshop on Reproducible Research in Pattern Recognition (RRPR). <u>Journals</u> : 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 (TVCJ), Computer Aided Design (CAD).
2015	<u>Conference</u> : Pacific Graphics (PG). <u>Journals</u> : 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	<u>Conference</u> : Pacific Graphics (PG). <u>Journals</u> : Computer-Aided Design (CAD), Pattern Recognition (PR), Computer Graphics and Application (CGA)
2013	<u>Conference</u> : Scientific Visualization (SciVis). <u>Journal</u> : Journal on Computing and Cultural Heritage (JOCCH).

Supervising

2018	PhD Students
–	• Anahid Ghazanfarpour : Mesh Simplification
2019	• Thibault Lejemble : Shape analysis

- Co-supervisor: Loic Barthe
- **Jie Shao**: Point-cloud registration and processing
- Co-supervisor: Wuming Zhang (Beijing Normal University)

Research Engineers

- Clément Rodrigues-Viguié (Méso-Star): Maturation Program PalEx
- Co-supervisor: David Vanderhaeghe
- Chems-Eddine Himeur: Simplification d'objects3D sous contraintes (Readynov Si3DCO)
- Co-supervisor: Mathias Paulin

Master Students

- Filippo Andrea Fanni: Structural Color Processing
- Co-supervisor: David Vanderhaeghe
- Chems-Eddine Himeur: 3D Point-cloud Structuring by Learning (summer 2019)

PhD Students

- **Anahid Ghazanfarpour**: Mesh Simplification
- Co-supervisor: Jean-Pierre Jessel
- **Thibault Lejemble**: Shape analysis
- Co-supervisor: Loic Barthe
- **Jie Shao**: Point-cloud registration and processing
- Co-supervisor: Wuming Zhang (Beijing Normal University)

2017

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2018

Master Students

- Baptiste Delos: Structural Color Processing
- Co-supervisor: David Vanderhaeghe
- Paul Bernardi: Structural Color Processing
- Co-supervisor: David Vanderhaeghe

Undergrad Students

- Sandra Alfaro Romero: Refactoring of the OpenGR Library

PhD Students

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

2016

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2017

Master Students

- **Thibault Lejemble**: Point-Cloud Analysis
- **Xavier Chalut**: Mesh Simplification
- Co-supervisor: Jean-Pierre Jessel

PhD Students

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

2015

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2016

PhD Student

- Thomas Subileau (Part-time supervision): Light Transport Editing with Ray Portals
- Co-supervisors: Mathias Paulin, David Vanderhaeghe.

2014

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2015

Master Students

- **Georges Nader**: Adaptive multi-scale analysis for point-based surface editing [NGM14].
- **Bastien Perpère**: Implementation of the method *ray-traced curvature* in Modo
- Co-supervisors: Pascal Barla (Inria), Gael Guennebaud (Inria), Gregory Duquesne (Luxology).

2012

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2013

Talks

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

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| 2017 | Siggraph : Constrained Palette-Space Exploration |
| 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

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| 2017 | Dagstuhl seminar 17221 : Multi-scale differential analysis of point-clouds |
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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.

Teaching

2016 **Programming project (supervision)**
– 6h, Master 2, *Université Paul Sabatier Toulouse, France.*

2017

2015 **Physically-based rendering**
Lectures: 8h, last-year engineering-school, *Upssitech, France.*
– Tutorials: 12h, last-year engineering-school, *Upssitech, France.*

2016 **Computer Tools for Multimedia Applications**
Tutorials: 12h, Master 1, *Université Paul Sabatier Toulouse, France.*

2014 **3D rendering**
Tutorials: 20h, Licence 2, *Université Paul Sabatier Toulouse, France.*

– **2015** **Programming project (supervision)**
2x3h, Licence 3, *Université Paul Sabatier Toulouse, France.*

2013 **Geometry Processing**
– Tutorials and labs: 20h, Master 1, *UCL, United Kingdom.*

2014

2012 **2D and 3D rendering**
Tutorials and labs: 14h, last-year engineering-school, *Enseirb, France.*

– **2013** **C/C++**
Tutorials and lectures: 12h, last-year engineering-school, *Enseirb, France.*

2011 **2D and 3D rendering**
Tutorials: 14h, last-year engineering-school, *Enseirb, France.*
Tutorials: 18h, Master 2 (Computer&Graphics), *Bordeaux University, France.*

– **2012** **C/C++**
Tutorials and lectures: 12h30, last-year engineering-school, *Enseirb, France.*
Programming project (supervision)
20h, last-year engineering-school, *Enseirb, France.*

2010 **2D and 3D rendering**
– Lectures: 16h, last-year engineering-school, *Enseirb, France.*

2011 Tutorials: 16h, last-year engineering-school, *Enseirb, France.*
