

Marco Attene, Curriculum Vitae

1) Contact

National Research Council (CNR)
Institute of Applied Mathematics and Information Technologies (IMATI), Dept. of Genova (GE)
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2) Current positions

- Since May 2004: Full-time researcher at IMATI – GE (CNR) and member of the Shape Modelling Group (SMG). Tenureship started on February 16, 2009.
- Since January 2011: Affiliated researcher for the Istituto Nazionale di Alta Matematica "Francesco Severi".

3) Previous positions

- Sept 2004 – Oct 2004: **Invited Researcher** at INRIA, Sophia-Antipolis (France).
- Aug 2002 – Apr 2004: **Research assistant** at IMATI-GE, CNR.
- Apr 2002 – July 2002: **Researcher** at IMA, CNR (Institute for Applied Mathematics, former name of IMATI-GE).
- Sept 1999 – Mar 2002: **Research assistant** at IMA, CNR.
- Dec 2000 – Mar 2001: **Research Stage (invited)** at the Department of Computer Science, University of Otago (New Zealand).
- Jan 1999 – Aug 1999: **Software consultant** at IMA, CNR.

4) Academic Education

- May 21, 2004 – **Doctorate degree (PhD equivalent) in Electronics and Computer Engineering** awarded by the University of Genoa (I). Thesis on “Surface Remeshing and Applications” (Supervisors: Dr. Bianca Falcidieno and Dr. Michela Spagnuolo). PhD training program at IMATI-GE / CNR in the period 2001 - 2003 on themes related to computational geometry and 3D shape modelling. High-quality certification of the training program awarded by AIM@SHAPE’s Educational Committee.
- July 22, 1998 - **Computer Science Laurea Degree (MSc equivalent)** awarded by the University of Genoa (I). Thesis on “Modelling Virtual Environments to Control Underwater Vehicles” (Supervisor: Prof. Enrico Puppo).

5) Specializations and Qualifications

- June 20, 2009 – **Research Management Diploma** awarded by the National Research Council. Six full-day course coordinated by CNR’s Technology transfer officer Manuela Arata (<http://www.comeva.cnr.it/>).
- Nov 2013 – **Full Professor Qualification** in the area of “Computer Systems” (Sistemi per l’Elaborazione dell’Informazione) released by the Italian Ministry for Education and Research.

6) Research interests

Computer graphics and geometric modelling. Mathematical and computational tools for digital representation of geometric objects.

7) Summary of the main activities and achievements

Since 1999 Marco Attene has been investigating new directions, paradigms and algorithms for 3D geometric modelling, processing and analysis. Marco has been the principal investigator at CNR for regional, national and international projects. He is evaluator for the Italian Ministry of Education and Research, and has been the promoter of key collaborations and joint research programs between IMATI and universities in Europe, USA, Asia and New Zealand. Marco manages seven sourceforge software projects involving experts from the University of Genova and from IMATI. He published high-impact articles (> 1200 citations) on the most prestigious journals in the area (ACM TOG, TVCG, CGF, ...). He gave tutorials, plenary lectures and seminars at national and international schools, and presented his work at all the major computer graphics events including, among the others, ACM Siggraph and Eurographics. Marco contributed to the organization of several international conferences as program committee member, program chair, and organizing committee member. He is an associate editor of international journals in the area, and is the main editor of NoSMoG, the Newsletter of the Shape Modeling Group at IMATI-CNR.

8) Leadership in scientific activities

- Jun 2013 – Jan 2014: International Consultancy Research Project on “Study, design and development of a software library for mesh repairing applications”. Financed by Software Architects Inc, Bellevue, WA (USA). Role: Principal investigator. Budget: €19500.
- Jul 2013 – Jan 2014: Consultancy Research Project on “Geometric software to process three-dimensional maps for boat hulls”. Financed by G.M.G. (General Montaggi Genovesi S.r.l.), Genova. Role: Principal investigator. Budget: €21000.
- Oct 2012 – Oct 2014: Regional project on “Advanced Visualization Techniques for 3D data and images in biomedical contexts”. Financed by the programme PO CRO ESF European Social Fund Liguria Region 2007-2013. Role: Principal Investigator. Budget: €52000.
- Oct 2011 – Oct 2013: National PRIN project N. 2009B3SAFK_002 on “Study and development of innovative models and methods based on computational geometry and topology techniques to support the representation, the computation and the analysis of phase diagrams”. Co-financed by the Italian Ministry for Education, University and Research (MIUR). Role: Principal investigator. Budget: €38046.
- Nov 2009 – Oct 2010: Consultancy Research Project on “Computational Geometry and Shape Analysis tools to support the computation of ternary and quaternary phase diagrams”. Financed by Dip.te.ris./Univ. of Genova on PRIN 2007 Funds. Role: Principal investigator. Budget: €16666.

9) Participation in International Research Projects

- International Research Contract on “High quality digital terrain modelling”. IMATI-GE / CNR (Italy) – Monolith co. Ltd. (Japan). Duration: 1998-2002. Role: Design and development of the project’s graphical framework.

- EU Project Telematics F0069: "THETIS: A data management and data visualization system for supporting coastal zone management for the Mediterranean sea". Duration: 1998-2001. Role: co-investigator (3D surface reconstruction, surface remeshing and topological analysis).
- Bi-lateral Research agreement IMATI-GE / CNR (Italy) - University of Otago (NZ) on "Shape-based Meshing Techniques". Duration: 2000-2003. Role: promoter and collaborator in the conception of the project; co-investigator (computation of geodesics on 3D surfaces and parametric surface polygonization).
- EC IST-2000-25289: "ARION: An Advanced Lightweight Architecture for Accessing Scientific Collections". Duration: 2001-2003. Role: co-investigator (differential geometry and parametric surface polygonization).
- EC IST-2000-29640: "INVISIP: Information Visualization for Site Planning". Duration: 2001-2003. Role: co-investigator (geodesic-based surface remeshing).
- Bi-lateral Research agreement IMATI-GE / CNR (Italy) – GVU/Gatech (USA) on "Surface Analysis". Duration: 2002-2005. Role: collaborator in the conception of the project; co-investigator (remeshing-based 3D compression, shape feature recovery).
- EU FP6 IST NoE 506766 "AIM@SHAPE: Advanced and Innovative Models And Tools for the development of Semantic-based systems for Handling, Acquiring, and Processing knowledge Embedded in multidimensional digital objects". Duration: 2004-2007. Role: collaborator in the conception of the project; co-investigator (shape analysis, segmentation, semantics of digital shapes).
- EU FP7 CA ICT-2007.4.2 "Focus K3D: FOster the Comprehension and USe of Knowledge intensive 3D media". Duration: 2008-2009. Role: collaborator in the conception of the project; co-investigator (shape analysis, segmentation, semantics of digital shapes).
- EU FP7 IP ICT-2007-1-216461 "Chronious: An Open, Ubiquitous and Adaptive Chronic Disease Management Platform for COPD and Renal Insufficiency". Duration: 2008-2012. Role: co-investigator (semantics-based knowledge modelling and retrieval).
- EU FP7 Research Infrastructure "VISIONAIR: Vision Advanced Infrastructure for Research". Duration: 2011-2015. Role: collaborator in the conception of the project; co-investigator (adaptation of the Digital Shape Workbench).
- EU FP7-ICT-2011-318787 "IQmulus: A high-volume fusion and analysis platform for Geospatial Point clouds, Coverages, and Volumetric Data Sets". Duration: 2012-2016. Role: co-investigator (Service Development).

10) Participation in National Research Projects

- Consultancy Research Contract MULTITRUST "Multibiometria per applicazioni di Sicurezza". IMATI-GE / CNR – Elsag-Datamat Spa. Duration: 2007-2008. Role: collaborator in the conception of the project; co-investigator (3D-based face recognition).
- MACRO-GEO: Progetto di Ricerca FIRB "MACROGeo: Metodi Algoritmici e Computazionali per la Rappresentazione di Oggetti Geometrici". Duration: 2003-2005. Role: co-investigator (3D surface remeshing).
- Research Contract SIIT – "Salute": "Sistemi Intelligenti per la Gestione del Paziente nel Ciclo Diagnostico e Terapeutico". Duration: 2009-2010. Role: collaborator in the conception of the project; co-investigator (isosurface extraction from 3D images).

11) International Collaborations

- **Prof. Geoff Wyvill**, University of Otago (NZ). During his visit at Prof. Wyvill's lab (Dec 2000 - Mar 2001), Marco worked on polygonization of parametric surfaces. Output: 3 refereed papers, 1 technical report, and 2 conference talks (including a SIGGRAPH talk).
- **Prof. Jarek Rossignac**, Georgia Institute of Technology (GA, USA). Prof. Rossignac has been visiting IMATI for three consecutive summers (2001-2003); during this period Marco worked with him on remeshing-based compression of 3D shapes, morphological analysis and feature reconstruction. Output: 3 refereed papers, 5 technical reports, and 4 conference talks.
- **Dr. Pierre Alliez**, INRIA (F). During his visit at INRIA (Sep-Oct 2004), Marco worked with Dr. Alliez on 3D surface remeshing. Output: 1 survey (refereed book chapter) and 1 project report.
- **Prof. Joaquim A. Jorge, Manuel J. Fonseca and Alfredo Ferreira**, INESC-ID (Portugal). 2008 - Joint research on thesaurus-based shape retrieval. Output: 1 journal paper.
- **Prof. Craig Gotsman**, Technion (Israel). 2005 - Surface Remeshing. Output: 1 survey article (refereed book chapter) and 1 project report.
- **Prof. Ayellet Tal and Sagi Katz**, Technion (Israel). 2006 - Mesh segmentation. Output: 1 survey paper.
- **Prof. Leif Kobbelt and Marcel Campen**, RWTH (Germany). 2010 – 2013. Mesh repairing. Output: 1 survey paper, 2 tutorials, 1 website (<http://www.meshrepair.org>).
- **Xuan Sun, Bisheng Yang, Qingquan Li and Shaobo Jiang**, Wuhan University (China). 2011. Joint research on 3D map models for mobile devices. Output: 1 refereed conference paper.

12) Boards and committees

- May 2010 - Dec 2013: Member of the editorial board of the International Journal of "Computer Games Technology" (ISSN: 16877047).
- Apr 2011 – ongoing: Member of the editorial board of the Intl. Journal on "Advances in Computer Science and Engineering" (ISSN: 0973-6999).
- Jan 2013 – ongoing: Project evaluator for the Italian Ministry for Education and Research (MIUR).
- 6 times member of the evaluation committee for the selection of personnel and collaborators. Role: president (3), regular member (3).
- Program Committee Membership (International Conferences and Schools): Geometric Modeling and Processing 2014, Symposium on Geometry Processing (SGP) 2013-2014; Eurographics (EG) 2012-2013 (short papers); Computer Graphics Theory and Applications (GRAPP) 2006-2012; Computer Graphics, Visualization, Computer Vision and Image Processing (CGV) 2007-2012; 3D Data Processing, Visualization and Transmission (3DPVT) 2008; Summer School on Open Software for Algebraic and Geometric Computation 2006; Intl. Workshop on Semantic Virtual Environments (SVE) 2005.
- 2009-2012 - Editor of "NoSMoG", the six-monthly Newsletter of the Shape Modeling Group.
- Reviewer for all the major journals and conferences on computer graphics, including: ACM SIGGRAPH, Eurographics, ACM Transactions on Graphics, IEEE Trans. on Visualiz. and

Comp. Graphics, Journal of Graphical Models, Intl. Journal of Shape Modeling, Computer Graphics Forum, Computer-Aided Design.

13) Organization of Scientific Events

- July 2013 – Program chair of the “Labs and Projects Presentations” track at the 11th Eurographics Symposium on Geometry Processing, Genova, Italy.
- Co-organizer of the exhibition on “Laser – light beyond the horizon”, realized as part of the annual Italian Science Festival, Oct. 29 – Nov. 7, 2010, Genova (Italy). General audience dissemination event.
- Co-organizer of the workshop “We will meet you in the virtual reality”, Sept. 24th 2010, Genova (Italy). General audience dissemination event.
- Organizer (with Silvia Biasotti) of the “stability on watertight models” track of the SHape REtrieval Context 2008 (SHREC 2008).
- Member of the Organizing Committee of the Intl. Conf. on Semantic and Digital Media Technologies (SAMT), 5-7 Dec 2007, Genova (Italy).
- Co-organizer of the Intl. Summer School on Open Software for Algebraic and Geometric Computation, 5-9 Sept 2005, Sophia-Antipolis (France).
- Co-organizer of the Intl. Convention on Shapes and Solids (SMI&SM), 7-11 Jun 2004, Genova (Italy).
- Member of the Organizing Committee of the Intl. Conf. on Shape Modelling and Applications (SMI), 7-11 May 2001, Genova (Italy).

14) Invited key lectures, courses, tutorials and seminars

- July 2000 – Reconstruction of geometric shapes from clouds of points - Scuola per le Applicazioni della Matematica nell’Industria - Corso di Modellazione Geometrica, Milan (Italy). Invited Seminar.
- June 2004 - Remeshing Applications - Intl. Summer School on Computational Methods for Shape Modelling and Analysis, Genoa (Italy), Invited Tutorial.
- Sept 2004 - Remeshing based compression and feature recovery - INRIA – Sophia-Antipolis (France). Invited Seminar.
- Sept 2005 – ReMESH: An interactive and user-friendly environment for remeshing surface triangulations - Intl. Summer School on Open Software for Algebraic and Geometric Computation, INRIA – Sophia-Antipolis (France). Invited Plenary lecture.
- March 2006 - ReMESH, On-line tutorial of the FP6 NoE AIM@SHAPE, available at <http://www.aimatshape.net/resources/v-lectures/>.
- May 2007 - The Role of Semantics in Shape Modeling and Reasoning (with B. Falcidieno and M. Mortara). *Israel-Italy bi-national Conference on Shape Modeling and Reasoning for Industrial and Biomedical Applications*. Haifa, Israel. Invited paper presentation.
- Jun 2009 - Shape data modelling and analysis as a support in the diagnosis of vascular diseases (with M. Mortara and G. Patanè). *Workshop on Anatomical Models*, Sophia-Antipolis, France. Invited talk.

- Feb 2010 – Project Management per l'innovazione in azienda. Course organized at CNR-IMATI-Ge by CISITA (Comitato Industriale per lo Sviluppo dell'Istruzione Tecnologica-Aziendale). Invited Lecture.
- Jun 2010 – “Computational Geometry - Models and tools to support the computation and visualization of phase diagrams”. Workshop on "Physical Melts reactivity and phase topology", 16 June 2010, Dip.te.ris, University of Genova. Invited Seminar.
- 2011-2012 – Master Course on “Computer graphics for Engineering, Games and Simulation”. With B. Falcidieno, C.E. Catalano, M. Mortara, F. Robbiano and D. Giorgi. Dept. Of Engineering, University of Genova, Italy. Regular lectures.
- May 2012 – “Meshes”. Seminar within the course on "Biomedical devices and images", Master in Bioengineering, DIST, University of Genova. Invited Seminar.
- May 2012 – “A Practical Guide to Polygon Mesh Repairing”, in collaboration with Marcel Campen and Leif Kobbelt. Eurographics 2012 Tutorial, Cagliari, Italy.
- 2012-2013 – Master Course on “Computer graphics for Engineering, Games and Simulation”. With B. Falcidieno, C.E. Catalano, M. Mortara and F. Robbiano. Dept. Of Engineering, University of Genova, Italy. Regular lectures.
- Feb 2013 – “Models and Tools for liquidus hypersurfaces in high dimensions”. Colloquium on the build-up of petrological phase diagrams. St. Margherita Ligure. Invited Talk.
- Apr 2013 – “Simplicial Meshes: Finite representations for 3D shapes”, Master in Bioengineering, DIST, University of Genova. Invited Seminar.
- July 2013 – “Fixing Defects in Polygon Meshes - Algorithms and Techniques”. International Graduate School of the Eurographics Symposium on Geometry Processing. Tutorial. Genova, Italy.

15) Supervision of students and young researchers

- Laurea thesis (BS) defended in 2005 by Daniele Ravizza at University of Genova – Italy (Dept. of Computer Engineering) on “Isotropic surface remeshing: an approach based on local parameterizations”.
- Research collaboration at IMATI-CNR on “Development of hole-filling techniques to support the composition of triangulated surfaces” (2005). Collaborator: Daniele Ravizza.
- Research collaboration at IMATI-CNR on “Study and development of a software to compute and visualize liquidus surfaces and descent lines of crystallizing melts” (2010). Collaborator: Mattia Natali.
- Six-weeks summer internship at the Blaise Pascal University (France) on “topological correction of volumes” (2010). Student: Quentin Fortier (ENS de Lyon). Co-supervised with Jean-Marie Favreau (Blaise Pascal University).
- Research collaboration at IMATI-CNR on “Algorithms and data structures to model, analyze and visualize simplicial complexes in arbitrary dimensions” (2012-2013). Collaborator: Luca Chiarabini.
- Research collaboration at IMATI-CNR on “Sharing and Processing 3D biomedical data for use within advanced visualization facilities” (2013-2014). Collaborator: Daniela Cabiddu (PhD student).

16) Published Software and Patents

- Dec 2004 - **ReMESH** – An interactive editor to edit and repair triangle meshes. Deposited by the Italian Registry of Computer Programs (SIAE) with number 3260 on Dec 12th 2004. Reviewed by the *sourceforge.net* committee and published online (<http://remesh.sourceforge.net>).
- Sept 2006 – **JMeshLib** – C++ API for the treatment of manifold triangle meshes. Reviewed by the *sourceforge.net* committee and published online (<http://jmeshlib.sourceforge.net>).
- Oct 2006 - **EfPiSoft** – Hierarchical segmentation of 3D surface meshes based on fitting primitives. Reviewed by the *sourceforge.net* committee and published online (<http://efpisoft.sourceforge.net>).
- Oct 2006 – **TriMesh2MT** – Command-line tool to convert polygonal meshes to multi-triangulations. Reviewed by the *sourceforge.net* committee and published online (<http://trimesh2mt.sourceforge.net>).
- Sept 2007 - **ShapeAnnotator** – Multi-segmentation and semantic annotation of 3D surface meshes. Reviewed by the *sourceforge.net* committee and published online (<http://shapeannotator.sourceforge.net>).
- Feb 2010 – **MeshFix** – Automatic repairing of digitized polygon meshes. Published online (<http://meshfix.sourceforge.net>).
- Oct 2013 – **Simplicial** – A C++ framework for simplicial meshes of arbitrary dimension. Published online (<http://simplicial.sourceforge.net>).

17) Scientific publications

International ISI Journals

1. Marco Attene and Michela Spagnuolo. "**Automatic surface reconstruction from point sets in space**". Computer Graphics Forum, 19(3): pp.457-465, 2000.
2. Marco Attene, Silvia Biasotti and Michela Spagnuolo. "**Shape understanding by contour-driven retiling**". The Visual Computer, 19(2-3): pp. 127-138, 2003.
3. Marco Attene, Bianca Falcidieno, Michela Spagnuolo and Geoff Wyvill. "**A mapping independent primitive for the triangulation of parametric surfaces**". Graphical Models, 65(5): pp. 260-273, 2003.
4. Marco Attene, Bianca Falcidieno, Michela Spagnuolo and Jarek Rossignac. "**SwingWrapper: Re-tiling Triangle Meshes for Better EdgeBreaker Compression**". ACM Transactions on Graphics, 22(4): pp. 982-996, 2003.
5. Marco Attene, Bianca Falcidieno, Jarek Rossignac and Michela Spagnuolo. "**Sharpen&Bend: Recovering Curved Sharp Edges in Triangle Meshes Produced by Feature-Insensitive Sampling**". IEEE Transactions on Visualization and Computer Graphics, 11(2): pp. 181-192, 2005.
6. Marco Attene, Silvia Biasotti, Michela Mortara, Giuseppe Patané, Michela Spagnuolo and Bianca Falcidieno. "**Computational Methods for Understanding 3D Shapes**". Computers and Graphics, 30(3): pp. 323-333, 2006.
7. Marco Attene, Michela Spagnuolo and Bianca Falcidieno. "**Hierarchical Mesh Segmentation based on Fitting Primitives**". The Visual Computer, 22(3): 181-193, 2006.

8. *Marco Attene, Michela Mortara, Michela Spagnuolo and Bianca Falcidieno*. "**Hierarchical Convex Approximation of 3D Shapes for Fast Region Selection**". *Computer Graphics Forum*, 27(5): pp. 1323-1333, 2008.
9. *Marco Attene, Francesco Robbiano, Michela Spagnuolo and Bianca Falcidieno*. "**Characterization of 3D shape parts for semantic annotation**". *Computer-Aided Design*, Vol. 41, No. 10, pp. 756-763, 2009.
10. *Marco Attene, Daniela Giorgi, Massimo Ferri and Bianca Falcidieno*. "**On converting sets of tetrahedra to combinatorial and PL manifolds**". *Computer-Aided Geometric Design*, Vol. 26, No. 8, pp. 850-864, 2009.
11. *Alfredo Ferreira, Simone Marini, Marco Attene, Manuel J. Fonseca, Michela Spagnuolo, Joaquim A. Jorge and Bianca Falcidieno*. "**Thesaurus-based 3D Object Retrieval with Part-in-Whole Matching**". *International Journal of Computer Vision*, Volume 89, Numbers 2-3, pp 327-347, 2010.
12. *Marco Attene*. "**A lightweight approach to repairing digitized polygon meshes**". *The Visual Computer*, Volume 26, Number 11, pp. 1393-1406, 2010.
13. *Marco Attene and Giuseppe Patané*. "**Hierarchical Structure Recovery of Point-Sampled Surfaces**". *Computer Graphics Forum*, Vol. 19, No. 6, pp. 1905-1920, 2010.
14. *Marco Attene and Silvia Biasotti*. "**Geometric Models with Weighted Topology**". *Computers and Graphics*, Volume 35, Number 3, pp. 542-548, 2011.
15. *Marco Attene, Simone Marini, Michela Spagnuolo and Bianca Falcidieno*. "**Part-in-whole 3D shape matching and docking**". *The Visual Computer*, Volume 27, Issue 11, pp. 991-1004, 2011.
16. *G. Ottonello, M. Attene, D. Ameglio, D. Belmonte, M. Vetuschi Zuccolini, M. Natali*. "**Thermodynamic investigation of the CaO–Al₂O₃–SiO₂ system at high P and T through polymer chemistry and convex-hull techniques**". *Chemical Geology*, Vol. 346, No. 27, pp. 81-92, 2013.
17. *Marco Attene, Marcel Campen and Leif Kobbelt*. "**Polygon mesh repairing: an application perspective**". *ACM Computing Surveys*, Vol. 45, No. 2, Art. 15 (33 pages), Feb 2013.
18. *Mattia Natali, Marco Attene and Giulio Ottonello*. "**Steepest descent paths on simplicial meshes of arbitrary dimensions**". *Computers&Graphics*, Vol. 37, No. 6, pp. 687-696, 2013.

Other International Journals, Magazines and Book Chapters

19. *Marco Attene, Francesco Robbiano, Michela Spagnuolo and Bianca Falcidieno*. "**Semantic Annotation of 3D Surface Meshes based on Feature Characterization**". *Lecture Notes in Computer Science*, Vol. 4816 (Semantic Multimedia), pp. 126-139, 2007. Springer.
20. *Pierre Alliez, Giuliana Ucelli, Craig Gotsman and Marco Attene*. "**Recent Advances in Remeshing of Surfaces**". Chapter in the book "Shape Analysis and Structuring", L. De Floriani and M. Spagnuolo eds., Springer-Verlag, pp. 53-82, 2008.
21. *Marco Attene and Giulio Ottonello*. "**Computational Geometry Meets Material Science**". *ERCIM News*, Vol. 84, pp. 43-44, 2011.
22. *S. Kiefer, J. Rauch, R. Albertoni, M. Attene, F. Giannini, S. Marini, L. Schneider, C. Mesquita, X. Xing* "**An ontology-driven search module for accessing chronic pathology literature**". *Lecture Notes in Computer Science*, Vol. 7046 (OTM 2011 Workshops), pp. 382-391, 2011. Springer

23. *Kopecki, U. Woessner, D. Mavrikios, L. Rentzos, C. Weidig, L. Roucoules, O.-D. Ntofon, G. Dumont, D. Bundgens, A. Milecki, P. Baranyi, M. Attene, F. Giannini, M. Spagnuolo.* **"VISIONAIR: VISION Advanced Infrastructure for Research"**. SBC Journal on 3D Interactive Systems, Vol. 2, No. 2, pp. 40-43, 2011.
24. *M. Attene, F. Giannini, M. Pitikakis and M. Spagnuolo.* **"The VISIONAIR Infrastructure capabilities to support research"**. Computer-Aided Design and Applications (scheduled to appear), Vol. 10, No. 5, 2013.

Refereed Conference Proceedings

25. *Marco Attene, Silvia Biasotti and Michela Spagnuolo.* **"Re-Meshing Techniques for topological analysis"**. In proceedings of Shape Modeling International (SMI'01), IEEE Computer Society Press, pp.142-151, 2001.
26. *Marco Attene and Geoff Wyvill.* **"Mapping independent triangulation of parametric surfaces"**. Technical Sketch in SIGGRAPH 2001 Conference Abstracts and Applications, pp. 224, 2001.
27. *Marco Attene, Bianca Falcidieno, Michela Spagnuolo and Geoff Wyvill.* **"Mapping independent triangulation of parametric surfaces"**. In proceedings of Shape Modeling International (SMI'02), IEEE Computer Society Press, pp. 67-74, 2002.
28. *Marco Attene, Silvia Biasotti, Bianca Falcidieno and Michela Spagnuolo.* **"Computational Methods for Simplification and Generalization of Digital Terrain Modeling"**. Extended abstract in ECO-GEOWATER Virtual Conference Proceedings, 2002.
29. *Marco Attene, Bianca Falcidieno, Jarek Rossignac and Michela Spagnuolo.* **"Edge-Sharpener: Recovering sharp features in triangulations of non-adaptively re-meshed surfaces"**. In proceedings of the Eurographics Symposium on Geometry Processing, pp. 62-71, Aachen, Germany, 23-25 June 2003.
30. *Marco Attene.* **"Surface Remeshing and Applications"**. In proceedings of the Second Annual Conference of Eurographics Italian Chapter, Sept. 25-26, 2003, Milan, Italy.
31. *Marco Attene and Bianca Falcidieno.* **"ReMESH: An Interactive Environment To Edit And Repair Triangle Meshes"**. In Proceedings of Shape Modelling International (SMI'06), IEEE Computer Society Press, pp. 271-276. 2006.
32. *Marco Attene, Sagi Katz, Michela Mortara, Giuseppe Patanè, Michela Spagnuolo and Ayellet Tal.* **"Mesh Segmentation: A Comparative Study"**. In Proceedings of Shape Modelling International (SMI'06), IEEE Computer Society Press, pp. 14-25, 2006.
33. *Marco Attene, Silvia Biasotti, Bianca Falcidieno, Michela Mortara, Giuseppe Patanè and Michela Spagnuolo.* **"Topological, Geometric and Structural Approaches to Enhance Shape Information"**. In Proceedings of Eurographics Italian Chapter, Catania (I), 22-24 Feb 2006, pp. 7-13.
34. *E. Danovaro, L. Papaleo, D. Sobrero, M. Attene, W. Saleem.* **"Advanced Remote Inspection and Download of 3D Shapes"**. In Proceedings of Web3D'07, 15-18 April 2007, Perugia, Italy, ACM Press, pp. 57-60, 2007.
35. *Bianca Falcidieno, Marco Attene and Michela Mortara.* **"The Role of Semantics in Shape Modelling and Reasoning"**. In Procs. of the Israel-Italy bi-national conf. on Shape Modeling and Reasoning for Industrial and Biomedical Applications, May 7-9 2007, Haifa, Israel (invited paper).

36. *Marco Attene, Francesco Robbiano, Michela Spagnuolo and Bianca Falcidieno.* "**Part-based Annotation of Virtual 3D Shapes**". In Proceedings of Cyberworlds '07, spec. sess. on NASAGEM workshop, IEEE Computer Society Press, pp. 427-436, 2007.
37. *Marco Attene, Massimo Ferri and Daniela Giorgi.* "**Combinatorial 3-manifolds from sets of tetrahedra**". In Proceedings of Cyberworlds '07, spec. sess. on NASAGEM workshop, IEEE Computer Society Press, pp. 367-375, 2007.
38. *Chiara Eva Catalano, Bianca Falcidieno, Marco Attene, Francesco Robbiano and Michela Spagnuolo.* "**Shape Knowledge Annotation for Virtual Product Sharing and Reuse**". In Proceedings of the ASME Conference on Engineering Systems Design and Analysis, ESDA08, July 7-9, 2008, Haifa, Israel.
39. *Silvia Biasotti and Marco Attene.* "**SHREC08 Entry: Report of the Stability Track on Watertight Models**". In Proceedings of the Int. Conference on Shape Modeling and Applications, IEEE Computer Society, New-York, June 4-6, 2008.
40. *Giorgi D, Attene M., Patane G, Marini S, Pizzi C, Biasotti S, Spagnuolo M, Falcidieno B, Corvi M, Usai L, Roncarolo L, Garibotto G.* "**A critical assessment of 2D and 3D face recognition algorithms**". In Proceedings of the 6th IEEE International Conference on Advanced Video and Signal Based Surveillance. Genova, Italy, September 2-4, 2009. IEEE Computer Society Press.
41. *Giorgi D, Attene M., Patane G, Marini S, Pizzi C, Biasotti S, Spagnuolo M, Falcidieno B, Usai L.* "**Riconoscimento di volti con tecniche 3D per controlli di sicurezza**". In Proceedings of "Scienza e Tecnica Rendono Sicuro il Lavoro", Bragatto & Monti Eds. ISBN 978-88-904413-1. Genova, Italy, October 29-30, 2009.
42. *Roberto Rosso, Marco Attene and Franca Giannini.* "**CHRONIOUS: An Open, Ubiquitous and Adaptive Chronic Disease Management Platform for COPD and Renal Insufficiency**". In Proceedings of the FOCUS K3D Conference on Semantic 3D Media and Content, February 11-12, 2010, INRIA Sophia Antipolis - Méditerranée, France.
43. *Marco Attene, Simone Marini, Michela Spagnuolo and Bianca Falcidieno.* "**The Fast Reject Schema for Part-in-Whole 3D Shape Matching**". In Proceedings of the Eurographics Workshop on 3D object retrieval (3DOR), May 2, 2010, Norrköping, Sweden, pp. 23-30, 2010.
44. *Mattia Natali, Marco Attene and Giulio Ottonello.* "**Modeling liquidus hypersurfaces through simplicial complexes**". In Proceedings of the Eurographics Italian Chapter Conference (EG-IT), November 18-19, 2010, Genova, Italy.
45. *Xuan Sun, Bisheng Yang, Marco Attene, Qingquan Li, Shaobo Jiang.* "**Automated Abstraction of Building Models for 3D Navigation on Mobile Devices**". In IEEE GRSS Procs. of the 19th International Conference on Geoinformatics, Shanghai (China), 24-26 June, 2011.
46. *G. Ottonello, M. Attene, D. Ameglio, D. Belmonte, M. Vetuschi Zuccolini and M. Natali.* "**Thermodynamic investigation of the CaO-Al₂O₃-SiO₂ system at high P and T through polymer chemistry and convex-hull techniques**". Procs. of 9th Silicate Melt Workshop, La Petite Pierre (France), 4-8 October 2011 (extended abstract).
47. *S. Kiefer, J. Rauch, R. Albertoni, M. Attene, F. Giannini, S. Marini, L. Schneider, C. Mesquita, X. Xing, M. Lawo.* "**The CHRONIOUS Ontology-Driven Search Tool: enabling access to focused and up-to-date healthcare literature**". In Procs. of eChallenges e-2011, 26-28 October, 2011, Florence, Italy.

48. *Marcel Campen, Marco Attene, and Leif Kobbelt*. **A Practical Guide to Polygon Mesh Repairing**. In Eurographics 2012 Tutorials, pp. t4- . May 2012, Cagliari, Italy. DOI: 10.2312/conf/EG2012/tutorials/t4
49. *Marco Attene*. **Surface Mesh Qualities**. In Procs. of GRAPP 2013 - International Conference on Computer Graphics Theory and Applications, 21-24 Feb 2013, Barcelona (Spain), pp. 79-85, 2013.

Technical Reports

50. *Marco Attene and Corrado Pizzi*. "Ambienti grafici avanzati di supporto alla modellazione e alla semplificazione di superfici". IMA Technical Report 3/99.
51. *Marco Attene*. "Surface reconstruction from clouds of points ". IMA Technical Report 17/99.
52. *Marco Attene*. "Normal Umbrella: A new primitive for triangulating parametric surfaces". IMA Technical Report 13/2001.
53. *Marco Attene*. "A new method for simplification and compression of 3D meshes". IMA Technical Report 14/2001.
54. *Marco Attene*. "EdgeSharpener: A geometric Filter for recovering sharp features in uniform triangulations". IMATI-GE/CNR Technical Report 6/2002.
55. *Marco Attene, Bianca Falcidieno, Michela Spagnuolo and Jarek Rossignac*. "SwingWrapper: Retiling Triangle Meshes for Better Compression". GVU-GATECH Technical Report 04/2002.
56. *Marco Attene, Bianca Falcidieno, Jarek Rossignac and Michela Spagnuolo*. "Edge-Sharpener: Recovering Sharp Features in Triangulations of Non-adaptively Re-meshed Surfaces". GVU-GATECH Technical Report 19/2003.
57. *Marco Attene, Bianca Falcidieno, Jarek Rossignac and Michela Spagnuolo*. "Sharpen & Bend: Recovering Curved Edges in Triangle Meshes Produced by Feature-Insensitive Sampling". GVU-GATECH Technical Report 34/2003.
58. *Marco Attene*. "ReMESH: An Interactive and User-friendly Environment for Remeshing Surface Triangulations". IMATI-GE/CNR Technical Report 06/2004.
59. *Marco Attene*. "Hierarchical Mesh Segmentation based on Fitting Primitives". IMATI-GE/CNR Technical Report 05/2005.
60. *M. Attene, S. Biasotti, M. Mortara, G. Patane, F. Robbiano, R. Albertoni, C. E. Catalano, S. Marini, M. Spagnuolo and B. Falcidieno*. "Multi-Segmentation and Annotation of 3D Surface Meshes". IMATI-GE/CNR Technical Report 06/2006.
61. *Marco Attene, Francesco Robbiano, Michela Spagnuolo and Bianca Falcidieno*. "Part-based Annotation of 3D Surface Meshes". IMATI-GE/CNR Technical Report 01/2007.
62. *Marco Attene, Massimo Ferri and Daniela Giorgi*. "Combinatorial 3-manifolds from sets of tetrahedra". IMATI-GE/CNR Technical Report 11/2007.
63. *Silvia Biasotti and Marco Attene*. "SHREC 2008 - Stability on Watertight Models Track". IMATI-GE/CNR Technical Report 01/2008.
64. *Marco Attene, Michela Mortara, Michela Spagnuolo and Bianca Falcidieno*. "Hierarchical Convex Approximation of 3D Shapes for Fast Region Selection". IMATI-GE/CNR Technical Report 04/2008.

65. *Marco Attene*. “A lightweight approach to repairing digitized polygon meshes”. IMATI-GE/CNR Technical Report 06/2009.
66. *M. Attene and G. Patane*. “Multi-Resolution Structure Recovery of Point-Sampled Surfaces. CNR-IMATI”. IMATI-GE/CNR Technical Report N. 07/2010.
67. NATALI, M., ATTENE, M., OTTONELLO, G. 2010. Computational geometry tools to model and analyze the crystallization of molten substances. IMATI-GE / CNR Technical Report N. 08/2010.
68. NATALI, M., ATTENE, M., OTTONELLO, G. 2010. Steepest Descent Methods for Multivariate Piecewise Linear Functions. IMATI-GE / CNR Technical Report N. 09/2010.
69. Luca Chiarabini, Marco Attene and Giulio Ottonello. Modeling liquidus hypersurfaces through simplicial complexes in arbitrary dimensions. IMATI-GE / CNR Technical Report N. 01/2012.
70. Marco Attene. Quality-based characterization of surface meshes. IMATI-GE / CNR Technical Report N. 04/2012.
71. D. Cabiddu, M. Attene. Geometry Processing for Biomedical Imaging: 3D model representations and multi-modality. IMATI-GE / CNR Technical Report N. 09/2013.

Theses

72. *Marco Attene*. “Surface Remeshing and Applications”. Ph.D Thesis, University of Genoa, 2004.
73. *Marco Attene*. “Modellazione di Ambienti Virtuali per il Controllo di Veicoli Sottomarini”. M.Sc. Thesis, University of Genoa, 1998.

Project Reports

74. *M. Attene, M. Spagnuolo, A. Belayev, S. Hammann, P. Alliez and P. Cignoni*. **Metadata for Digital Shape Models – 1st version**. AIM@SHAPE Deliverable D1.5, Feb 14th, 2005.
75. *Adamson, M. Alexa, O. Andersen, M. Attene, G. Barequet, R. Basri, A. Belyaev, F. Cazals, J. Giesen, J. Haber, F. Isgro, I. Ivriissimtzis, F. Odone, L. Papaleo, G. Ucelli, R. Veltkamp, A. Verri, M. Yvinec, R. Zayer*. **Survey on Acquisition and Reconstruction**. AIM@SHAPE Deliverable D5.1. Feb 14th, 2005.
76. *M. Alexa, P. Alliez, D. Attali, M. Attene, E. Bart, A. Belyaev, S. Biasotti, J.-D. Boissonat, G.-P. Bonneau, L. Busé, M.-P. Cani, C. Catalano, P. Cignoni, L. Comic, E. Danovaro, L. De Floriani, T. Di Giacomo, H. Edelsbrunner, G. Elber, B. Falcidieno, C. Gotsman, S. Hahmann, I. Ivriissimtzis, H. Kim, N. Magnenat-Thalmann, P. Min, L. Moccozet, M. Mortara, B. Mourrain, L. Papaleo, E. Puppo, E. Quak, C. Rössl, M. Spagnuolo, M. Tanase, H. Theisel and G. Ucelli*. **Survey on Shape Analysis and Structuring**. AIM@SHAPE Deliverable D6.1, Feb 2nd, 2005.
77. *M. Attene, S. Biasotti, L. De Floriani, B. Falcidieno, A. Hui, H. Kim, P. Magillo, L. Moccozet, M. Mortara, L. Papaleo, E. Puppo, D. Sobrero, M. Spagnuolo*. **Joint Research on Multi-scale Models**. AIM@SHAPE Deliverable D6.10, Feb. 28th, 2005.
78. *M. Attene, L. Moccozet, T. Hassner, J-C. Leon, R. Sayegh, A. Tal, L. Papaleo, F. Robbiano, M. Gutierrez, O. Andersen, S. Marini, S. Biasotti, C. Catalano, V. Cheutet, R. Albertoni, A. Belayev, S. Hammann, P. Alliez, P. Cignoni and M. Pitikakis*. **Metadata for Digital Shape Models – 2nd version**. AIM@SHAPE Deliverable D1.3.1. July, 8th 2005.