



## Summary

I am researcher at CNR-IMATI Genova since July 2020. I received my PhD in Computer Science in 2016, and I was awarded post-doctoral research fellowships at CNR-IMATI from 2016 to 2020. Since 2013, my research activities focus on Computer Graphics and Geometry Modeling for digital fabrication and geoscience. I am also interested in parallel/distributed computing infrastructures and graphical interfaces. I have been involved in several national and EU founded research projects. I authored several peer-reviewed scientific papers published on international journals and conference proceedings.

## Current Position

since 2020 **Researcher**,  
*Institute for Applied Mathematics and Information Technologies (IMATI),*  
National Research Council of Italy (CNR).

## Previous Positions

- 2018-2020 **Post-Doc Researcher Fellow**, with *Dr. Giuseppe Patanè*,  
Institute for Applied Mathematics and Information Technologies (IMATI),  
National Research Council of Italy (CNR).  
Topic: New Challenges for (adaptive) PDE solvers: the interplay of analysis and geometry.
- 2016-2018 **Post-Doc Researcher Fellow**, with *Dr. Marco Attene*,  
Institute for Applied Mathematics and Information Technologies (IMATI),  
National Research Council of Italy (CNR).  
Topic: Distributed processing of large 3D polygonal meshes coming from different application fields (biomedicine, geoscience, digital fabrication).
- 2015-2016 **Researcher Fellow**, with *Dr. Marco Attene*,  
Institute for Applied Mathematics and Information Technologies (IMATI),  
National Research Council of Italy (CNR).  
Topic: *Study, design and implementation of a software library for mesh repairing applications.*
- 2013-2014 **Researcher Fellow**, with *Dr. Marco Attene*,  
Institute for Applied Mathematics and Information Technologies (IMATI),  
National Research Council of Italy (CNR).  
Topic: Sharing and Processing 3D biomedical data for use within advanced visualization facilities.

## Visiting

- Feb 2018 **Short Term Mobility**, with *Prof. Alla Sheffer*,  
University of British Columbia ,  
Vancouver, Canada.  
Topic: 3D modeling for 3D printing - Surface segmentation conforming assemblable volumetric partition.

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## Education

- 2013–2016 **PhD, Computer Science**, *University of Cagliari*, Italy.  
Thesis Title: Distributed processing of large triangle meshes
- 2010–2013 **Master Degree, Computer Science**, *University of Cagliari*, Italy, Grade: 105/110.
- 2007–2010 **Bachelor Degree, Computer Science**, *University of Cagliari*, Italy, Grade: 110/110.

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## Fellowships & Awards

- 2017 **Winner of CNR Short Term Mobility**  
spent visiting Prof. Alla Sheffer at UBC, Vancouver, Canada from Jan 28, 2018 to Feb 18, 2018

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## Academic Activities

### Committees

- since 2016 **Smart Tools and Apps in Computer Graphic (STAG)**,  
*International Conference*,  
Member of the Program Committee.
- since 2019 **Smart Tools and Apps in Computer Graphic (STAG)**,  
*International Conference*,  
Member of the Best Thesis Award Jury.
- since 2019 **Shape Modeling and International (SMI) Fabrication and Sculpting Event (FASE)**,  
*International Conference*,  
Member of the Program Committee.
- 2019 **Eurographics**,  
*International Conference*,  
Co-chair of the “Project and Lab” track.

### Reviewer

- since 2016 **Smart Tools and Apps in Computer Graphic (STAG) Conference**.
- since 2019 **Shape Modeling and International (SMI) Fabrication and Sculpting Event (FASE)**.
- 2021 **WSCG International Conference**.
- 2019 **Annual International CAD Conference**.
- 2019, 2021 **Computers & Graphics, Elsevier Journal**.
- 2018 **The Visual Computer, Springer Journal**.

### Evaluator for Competitive Funding

- 2021 **Selection Procedure for a Research Fellowship**,  
*Institute for Applied Mathematics and Information Technologies (CNR-IMATI)*.  
Notice of selection No. IMATI-004-2021-GE
- 2021 **Selection Procedure for a Post-Doc Fellowship**,  
*Institute for Applied Mathematics and Information Technologies (CNR-IMATI)*.  
Notice of selection No. IMATI-002-2021-GE
- 2021 **Public Tender for Laser Scanner Acquisition of the harbour of La Spezia**,  
*START 4.0 - Competence Center*.  
Notice “ATTO DEL PRESIDENTE” No. 12\_2021

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## International Founded Projects

- since 2021 **I-CHANGE**, <https://cordis.europa.eu/project/id/101037193>,  
*Individual Change of HABits Needed for Green European transition*,  
H2020-LC-GD-2020 / H2020-LC-GD-2020-3 - Grant agreement ID: 101037193,  
Co-investigator.

- since 2021 **ProMed DigitBrain**, <https://digitbrain.eu/2nd-wave-of-digitbrain-experiments/>,  
*Production optimization for additive manufacturing of medical devices*,  
DIGITbrain - Wave 2 experiments,  
Co-investigator.
- since 2021 **CTEMT Casa delle Tecnologie Emergenti di Matera**,  
*founded by Ministry of Economic Development FSC 2014-2020 - CUP I14E20000020001*,  
Co-investigator.
- since 2021 **UIP - URBAN INTELLIGENCE OVER PORTS**,  
*Subproject of CNR project "Industrial Transition and Resilience of Post-Covid19 Societies"*, CUP:  
B55F20002150001,  
Co-investigator.
- since 2018 **CHANGE**, <https://cordis.europa.eu/project/id/865680/it>,  
*New CHallenges for PDE solvers: the interplay of ANalysis and GEometry*,  
ERC Advanced Grant,  
Co-investigator.
- 2015-2018 **CAXMan**, <https://www.caxman.eu/>,  
*Computer Aided Technologies for Additive Manufacturing*,  
Horizon 2020 - Research and Innovation action - Grant Agreement N. 680448,  
Co-investigator.
- 2014-2016 **IQmulus**, <https://cordis.europa.eu/project/id/318787/it>,  
*A High-volume Fusion and Analysis Platform for Geospatial Point Clouds, Coverages and Volumetric Data Sets*,  
FP7 ICT, 2012-2016 - Grant Agreement N. 318787,  
Co-investigator.

## Position of Responsibility

- since 2020 **Graphics Replicability Stamp Initiative (GRSI)**, *Technical Manager*.

## Teaching / Supervision

- 2019-2021 **Supervision of Dr. Marianna Miola**, *Research Fellowship at IMATI-CNR Genova, Italy*.  
Research activities in the context of GEO3D project ("Metodi e modelli 3D volumetrici per la rappresentazione, analisi e visualizzazione di dati eterogenei risultanti da campagne geognostiche atte alla caratterizzazione litostratigrafica di siti di interesse, con applicazioni alla progettazione di opere civili ed impianti energetici"), POR FSE Liguria 2014-2020 - Asse 3 "Istruzione e Formazione" Programma Operativo Regione Liguria Fondo Sociale Europeo 2014-2020, Obiettivo Specifico 10.5 "Innalzamento dei livelli di competenze".

## Computer skills

Programming Languages	C, C++, Java
Web Technologies	HTML 5, PHP, JSP, Javascript
Database	SQL, MySQL

## Publications

**Google Scholar:** <https://scholar.google.com/citations?user=Fjpx1tQAAAAJ&hl=it>.  
**Scopus:** <https://www.scopus.com/authid/detail.uri?authorId=56712002600>.  
**ORCID:** <https://orcid.org/0000-0001-5797-4189>.

## Journal Articles

- 2021 K. Lupinetti, **D. Cabiddu**, F. Giannini, and M. Monti. A web-based solution supporting cad assembly models exploration and analysis. *SN Computer Science*, 2021. To be published.
- 2021 M. Attene, S. Biasotti, S. Bertoluzza, **D. Cabiddu**, M. Livesu, G. Patanè, M. Pennacchio, D. Prada, and M. Spagnuolo. Benchmarking the geometrical robustness of a virtual element poisson solver. *Mathematics and Computers in Simulation*, volume 190, pages 1392–1414, 2021.
- 2019 M. Livesu, **D. Cabiddu**, and M. Attene. slice2mesh: A meshing tool for the simulation of additive manufacturing processes. *Computers & Graphics*, volume 80, pages 73–84, 2019.
- 2019 C. Araújo, **D. Cabiddu**, M. Attene, M. Livesu, N. Vining, and A. Sheffer. Surface2volume: Surface segmentation conforming assemblable volumetric partition. *ACM Trans. Graph.*, volume 38, pages 80:1–80:16. ACM, July 2019.
- 2017 **D. Cabiddu** and M. Attene. Processing large geometric datasets in distributed environments. *Transactions on Computational Science XXIX. Lecture Notes in Computer Science*, volume 10220, 2017.
- 2017 **D. Cabiddu** and M. Attene.  $\epsilon$ -maps: Characterizing, detecting and thickening thin features in geometric models. *Computers and Graphics*, volume 66, pages 143–153, 2017. International Conference: Shape Modeling International 2017.
- 2016 M. Attene, **D. Cabiddu**, S. Gagliardo, F. Giannini, and M. Monti. A web repository to describe and execute shape oriented workflows. *Computer-Aided Design and Applications*, volume 13, pages 637–646, 2016.
- 2015 **D. Cabiddu** and M. Attene. Large mesh simplification for distributed environments. *Computers & Graphics*, volume 51, pages 81 – 89, 2015. International Conference: Shape Modeling International 2015.

## In Conference Proceedings

- 2021 M. Miola, **D. Cabiddu**, S. Pittaluga, M. Mortara, M. Vetuschi Zuccolini, and G. Imitazione. 3d modeling and integration of heterogeneous geo-data. *Proceedings of Smart Tools and Apps in Computer Graphics (STAG) 2021, Roma, Italia*, 2021.
- 2021 S. Berretta, **D. Cabiddu**, S. Pittaluga, M. Mortara, M. Spagnuolo, and M. Vetuschi Zuccolini. Real-time sampling of environmental variables in free-form harbour water body with change-of-support evaluation. 2021. Proceedings of 13th international conference on geostatistics for environmental application (GEOENV 2021).
- 2019 K. Lupinetti, **D. Cabiddu**, F. Giannini, and M. CAD3A: a web-based application to visualize and semantically enhance cad assembly models. *Proceedings of 15th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS) 2019*, 2019.
- 2019 M. Caccia, R. Ferretti, A. Odetti, G. Bruzzone, M. Spagnuolo, M. Mortara, S. Berretta, **D. Cabiddu**, S. Pittaluga, M. V. Zuccolini, and L. Brignone. Robotics and adaptive sampling techniques for harbor waters monitoring: the MATRAC-ACP project. In *OCEANS 2019 - Marseille*, pages 1–8, June 2019.
- 2018 M. Livesu, **D. Cabiddu**, and M. Attene. slice2mesh: a direct mesher of sliced data for the simulation of am processes. *Proceedings of Smart Tools and Apps in Computer Graphics (STAG) 2018, Brescia, Italia*, 2018.
- 2018 S. Berretta, **D. Cabiddu**, S. Pittaluga, M. Mortara, M. Spagnuolo, and M. Vetuschi Zuccolini. Adaptive environmental sampling: The interplay between geostatistics and geometry. *Proceedings of Smart Tools and Apps in Computer Graphics (STAG) 2018, Brescia, Italia*, 2018.
- 2015 **D. Cabiddu** and M. Attene. A web-based system to describe and execute shape processing workflows. *Proceedings of Computer Aided Design and Applications (CAD) 2015, Londra, UK*, 2015.

- 2015 **D. Cabiddu** and M. Attene. Distributed processing of large polygon meshes. *Proceedings of Smart Tools and Apps in Computer Graphics (STAG) 2015, Verona, Italia*, 2015.
- 2014 **D. Cabiddu** and M. Attene. Distributed triangle mesh processing. *Proceedings of International Conference in Central Europe on Computer Graphics (WSCG) 2014, Plzen, Repubblica Ceca*, 2014.

**D. Cabiddu** and M. Attene. A web-based distributed system to process large geometric models. *Proceedings of 1st IQmulus Workshop on Processing Large Geospatial Data 2014, Cardiff, Galles*.

#### Book Chapters

- 2021 T. Sorgente, D. Prada, **D. Cabiddu**, S. Biasotti, G. Patane, M. Pennacchio, S. Bertoluzza, G. Manzini, and M. Spagnuolo. Vem and the mesh. 2021. To be published.

#### Absracts/Posters

- 2021 S. Pittaluga M. Mortara M. Spagnuolo S. Berretta, **D. Cabiddu** and M. Vetuschi Zuccolini. Smart and efficient marine water monitoring. *Abstract presented at MARINE 2021 - The 9th Conference on Computational Methods in Marine Engineering*, 2021.
- 2021 S. Pittaluga M. Mortara M. Spagnuolo S. Berretta, **D. Cabiddu** and M. Vetuschi Zuccolini. An innovative sampling strategy for the monitoring of pollutants in harbours. *Abstract presented at Minisymposium "Characterization of reactive transport processes under uncertainty", which will be part of the SIAM conference on Mathematical and Computational Issues in Geosciences (GS21)*, 2021.
- 2018 S. Berretta, **D. Cabiddu**, S. Pittaluga, M. Mortara, M. Spagnuolo, and M. Vetuschi Zuccolini. Real-time volumetric modelling based on adaptive sampling of environmental scalar fields derived by uncertainty maps. *Poster at Shape Modeling International (SMI) 2018, Lisbona, Portogallo*, 2018.
- D. Cabiddu**, G. Marcias, A. Soro, and R. Scateni. Multi-touch and tangible interface: Two different interaction modes in the same system. *Adjunct Proceedings, (poster session) presented at the 9th ACM SIGCHI Italian Chapter International Conference on Computer-Human Interaction: Facing Complexity (CHITALY) 2011, Alghero, Italia*.

#### PhD Thesis

- 2016 **D. Cabiddu**. Distributed processing of large triangle meshes, 2016. Università degli Studi di Cagliari, Italia.

#### Technical Reports

- 2021 **D. Cabiddu**, G. Patanè, and M. Spagnuolo. PEMesh: a graphical framework for the analysis of the interplay between geometry and PEM solvers, 2021.
- 2019 M. Attene, S. Biasotti, S. Bertoluzza, **D. Cabiddu**, M. Livesu, G. Patanè, M. Pennacchio, D. Prada, and M. Spagnuolo. Benchmark of polygon quality metrics for polytopal element methods, 2019. <https://arxiv.org/abs/1906.01627>.
- 2018 M. Chiumenti, J. C. Morel, M. Attene, **D. Cabiddu**, M. Livesu, F. Giannini, and A. Clematis. Final implementation of process planning workflow, 2018. *CAXMan Deliverable 3.5, Agosto 2018*.
- 2018 S. Berretta, **D. Cabiddu**, S. Pittaluga, M. Mortara, M. Spagnuolo, and M. Vetuschi Zuccolini. Adaptive sampling of environmental variables (ASEV), 2018. *Report Tecnico n. 06/2018, CNR-IMATI Genova, Italia*.
- 2016 V. Gezer, H. H. Holm, C. Altenhofen, M. Livesu, **D. Cabiddu**, M. Martinelli, E. Neiva, J. Cauchois, M. North, and R. Gil. Cloud infrastructure version 2, 2016. *CAXMan Deliverable 1.3, Luglio 2016*.
- 2016 M. Attene, O. Barrowclough, **D. Cabiddu**, J. Cauchois, S. Ellero, J. Haenisch, M. Livesu, J. C. Morel, T. Ventura, and M. Chiumenti. AM process planning workflows, 2016. *CAXMan Deliverable 3.2, Maggio 2016*.

- 2015 **D. Cabiddu** and M. Attene. Large mesh simplification for distributed environments, 2015. *Report Tecnico n. 05/2015, CNR-IMATI Genova, Italia.*
- 2014 **D. Cabiddu** and M. Attene. Distributed triangle mesh processing, 2014. Report Tecnico n. 01/2014, CNR-IMATI Genova, Italia.
- 2013 **D. Cabiddu** and M. Attene. Geometry processing for biomedical imaging: 3d model representation and multi-modality, 2013. *Report Tecnico n. 09/2013, CNR-IMATI Genova, Italia.*
- [Software](#)
- 2019 F. Giannini K. Lupinetti, **D. Cabiddu** and M. Monti. CAD3A – CAD Assembly Analysis Application. <http://cad3a.ge.imati.cnr.it/webapp/>, 2019.
- 2018 S. Pittaluga and **D. Cabiddu**. SmartTomo <http://www.vs30.it/it/software/smarttomo>, 2018.
- 2018 M. Livesu, **D. Cabiddu**, and M. Attene. Slice2Mesh - a direct mesher of sliced data for the simulation of am processes <https://github.com/mlivesu/slice2mesh>, 2018.
- 2017 M. Attene, M. Livesu, and **D. Cabiddu**. CAxLib on CAxMan Innovation Shop. [https://caxman.boc-group.eu/innovation-shop/-/asset\\_publisher/r01N05QaXH8j/content/4-5-caxlib-volume-meshing](https://caxman.boc-group.eu/innovation-shop/-/asset_publisher/r01N05QaXH8j/content/4-5-caxlib-volume-meshing), 2017.
- 2017 M. Attene, M. Livesu, and **D. Cabiddu**. CAxLib - A process planning framework for additive manufacturing applications. <https://github.com/CAxMan/CAxLib/blob/master/README.md>, 2017.
- 2015 **D. Cabiddu**, S. Gagliardo, and M. Pitikakis. Digital Shape Workbench – Workflow Repository. <http://visionair.ge.imati.cnr.it/workflows/>, 2015.

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