

CV Silvia Maria Biasotti

IMATI Research Director

Silvia Biasotti is Research Director at IMATI-CNR, where since 1998 she is a member of the Shape Modeling Group.

In September 1998, she received a Laurea in Applied Mathematics from the University of Genova, Italy. She got the Doctorate Degree (Ph.D. equivalent) in Mathematics and Applications in May 2004 and the Doctor of Philosophy in Information and Communication Technologies in April 2008, both from the University of Genova (Italy).

Her research interests are related to shape modelling and computational topology, in particular, she's working on the definition of new tools for the analysis and synthesis of multidimensional data.

Since 1998, she has been addressing the study of 3D digital shapes by analysing the geometric-topological properties of real functions defined on the shape. She extended the definition of the Reeb graph to 2D and 3D discrete models, developed software prototypes for shape characterization and extended the Reeb graph extraction from orientable surfaces and volumes.

For years, special emphasis has been devoted to the comparison of Reeb graphs with other shape descriptors and, in cooperation with the Vision Mathematics group of the University of Bologna, she extended the computation of size functions to 3D shapes and multivariate functions. Currently, her research interests span geometric modelling, shape analysis and interpretation, computational topology, 3D object retrieval and surface pattern recognition. She is also deeply involved in the creation of benchmarks for the evaluation of algorithms for 3D object retrieval, recognition and geospatial data analysis. Application fields of these shape descriptors are DTM simplification and generalization, shape analysis, matching and classification of 3D datasets and structural analysis of molecular dynamics.

In 2023 she serves as Conference co-Chair for the Eurographics Symposium on Geometry Processing, Genova, Italy, 1-5 July 2023 and the Eurographics Workshop "3D Object Retrieval (3DOR)", Lille, France, 31 August-1 September 2023. She is a Communication co-Chair of Shape Modelling International 2023.

She's an associate editor of Computer and Graphics Forum (2022-2024), Computers & Graphics (from 2022), Graphics Models (from 2022) and Graphics and Visual Computing (from 2022) and has served on the programme committee of several international conferences.

She's involved in many scientific projects: among the others, she is responsible for IMATI of the unity in the Spoke 8 "In silico medicine & Omics data" of the PNRR National Centre for HPC, Big Data and Quantum Computing.

She's teaching the master course in Applied Mathematics: "Metodi di analisi di superfici discrete e loro applicazioni" at the University of Genova for the years 2005-2009, 2011/2012, 2013/2014, 2015-2016 and 2018/2019.

Research Activity:

Benchmarking, Computational Topology, Computer Graphics, Geographical Information Systems, Geometry Processing, Information Retrieval, Multidimensional Media, Multimedia and 3D Infrastructure, Multivariate Data Analysis, Pattern Recognition, Shape Analysis, Shape Description, Shape Modelling, 3D Shape Recognition and Classification, 3D Shape Similarity

Relevant last Publications

[SHREC 2025: Partial retrieval benchmark](#)

BI van Blokland, I Aguirre, I Sipiran, B Bustos, S Biasotti, G Palmieri 2025
Computers & Graphics, 104397

[SHREC 2025: Protein surface shape retrieval including electrostatic potential](#)

T Yacoub, C Depenveiller, A Tatsuma, T Barisin, E Rusakov, U Göbel, ... 2025
Computers & Graphics, 104394

[Space Feature Curves Recognition and Approximation for Artifacts](#)

C Romanengo, B Falcidieno, S Biasotti 2025
Mathematical Modeling in Cultural Heritage: MACH 2023 65, 51

[Foreword to the special section on 3D object retrieval 2024 symposium \(3DOR2024\)](#)

B Bustos, S Biasotti, RC Veltkamp, T Schreck, I Sipiran 2025
Computers and Graphics 129, 104235

[Discretisation of the Hough parameter space for fitting and recognising geometric primitives in 3D point clouds](#)

C Romanengo, B Falcidieno, S Biasotti 2025
Mathematics and Computers in Simulation 228, 73-86

[Mesh optimization for the virtual element method: How small can an agglomerated mesh become?](#)

T Sorgente, F Vicini, S Berrone, S Biasotti, G Manzini, M Spagnuolo 2025
Journal of Computational Physics 521, 113552

[pyCAST, a Python package for the detection of cavities on surface proteins](#)

G Luciano, U Fugacci, S Biasotti 2025
Computational and Structural Biotechnology Journal 27, 3589-3597

[Mesh Quality Meets The Virtual Element Method](#)

T Sorgente, F Vicini, D Cabiddu, S Biasotti, M Spagnuolo, G Manzini, ... 2024
SIGGRAPH Asia 2024 Courses, 1-93

[CurveML: a benchmark for evaluating and training learning-based methods of classification, recognition, and fitting of plane curves](#)

A Raffo, A Ranieri, C Romanengo, B Falcidieno, S Biasotti 2024
The Visual Computer 40 (12), 9017-9037

<u>From aerial LiDAR point clouds to multiscale urban representation levels by a parametric resampling</u>	2024
C Romanengo, B Falcidieno, S Biasotti Computers & Graphics 123, 104022	
<u>Extending the Hough transform to recognize and approximate space curves in 3D models</u>	2024
C Romanengo, B Falcidieno, S Biasotti Computer Aided Geometric Design 113, 102377	
<u>Foreword to the special section on 3D object retrieval 2023 symposium (3DOR2023)</u>	2024
S Biasotti, M Daoudi, U Fugacci, G Lavoué, RC Veltkamp	
<u>Celebrating Excellence: Eurographics Honors Three Distinguished Associate Editors</u>	2024
S Biasotti, J Dorsey, Santos, Beatriz sousa COMPUTERS & GRAPHICS-UK 119	
<u>Reconstruction and preservation of feature curves in 3D point cloud processing</u>	2024
U Fugacci, C Romanengo, B Falcidieno, S Biasotti Computer-Aided Design 167, 103649	
<u>Piecewise polynomial approximation of spatial curvilinear profiles using the Hough transform</u>	2023
C Romanengo, U Fugacci, B Falcidieno, S Biasotti Applied Mathematics and Computation 457, 128213	