Laura Girometti

Curriculum Vitae

Piazza di Porta San Donato,5
Bologna, 40126
laura.girometti2@unibo.it
Nationality: Italian

Education

Nov 2022 to Mar 2026 **PhD in Mathematics**, *University of Bologna.*
Supervisor: Prof. Serena Morigi, Co-supervisor: Prof. Alessandro Lanza
Thesis title: Variational Methods for Data Decomposition
Date of PhD Defense: March 18th 2026
Final Mark: Excellent cum Laude

2019–2021 **Master's Degree in Mathematics** | **LM-40**, *University of Bologna.*
Thesis in Numerical Analysis, Supervisor: Prof. Serena Morigi, Co-supervisor: Prof. Alessandro Lanza
Title: Automatic texture-cartoon image decomposition
Final Mark: 110/110 with honours

2016–2019 **Bachelor's Degree in Mathematics** | **L-35**, *University of Bologna.*
Thesis in Numerical Analysis, Supervisor: Prof. Valeria Simoncini
Title: Numerical Methods for PageRank
Final Mark: 110/110 with honours

2011–2016 **Scientific High School Diploma**, *Liceo Scientifico G. Marconi*, Pesaro.
Final Mark: 100/100 with honours

Visiting periods

Feb 2024 to May 2024 **Visiting PhD student**, Institut de Mathématiques de Bordeaux, Bordeaux, France.
Supervisor: Prof. Jean-Francois Aujol
Research: A data-driven approach to structure-texture image decomposition problem

Nov 2021 to Feb 2022 **Visiting student**, *New York University*, New York, US.
Supervisor: Prof. Ivan Selesnick
Research: Sparse signal representation using probabilistic parameterized models and new variational models for filtering and signal separation.

Conferences

1-5 Sept 2025 **SIMAI 2025**: Trieste, Italy
Invited Talk: *An Unrolling-based Approach for Structure-Texture Image Decomposition*

18-22 May 2025 **Scale Space and Variational Methods in Computer Vision**: 10th International Conference, Totnes, UK.

Oral presentation: *Fractional Derivative Variational Model for Additive Signal Decomposition*

Poster presentation: *Parameter-Free Structure-Texture Image Decomposition by Unrolling*

16-20 Sept 2024 **4th Youth Applied Mathematicians Conference**, Rome, Italy. Oral presentation: *A non-convex optimization strategy applied to signal decomposition*.

04-06 Sept 2024 **Workshop "Optimization Techniques for Inverse Problems"**, Modena, Italy.

04-08 Sept 2023 **Applied Inverse Problems**: 11th International Conference, Göttingen, Germany. Contributed talk: *Quaternary image decomposition with cross-correlation-based multi-parameter selection.*

21-25 May 2023 **Scale Space and Variational Methods in Computer Vision**: 9th International Conference, Santa Margherita di Pula, Italy.

Poster presentation: *Quaternary image decomposition with cross-correlation-based multi-parameter selection.*

Publications

May 2025 **Grometti, L., Lanza, A., Morigi, S.**, *Fractional Derivative Variational Model for Additive Signal Decomposition*, SSVM 2025, vol. 15668, Lecture Notes in Computer Science, pp. 136-149, 2025.

May 2025 **Grometti, L., Aujol, J.-F., Guennec, A., Traonmilin, Y.**, *Parameter-Free Structure-Texture Image Decomposition by Unrolling*, SSVM 2025, vol. 15668, Lecture Notes in Computer Science, pp. 387-399, 2025.

July 2024 **Grometti, L., Huska, M., Lanza, A., Morigi, S.**, *Convex Predictor–Nonconvex Corrector Optimization Strategy with Application to Signal Decomposition*, J Optim Theory Appl, vol. 202, pp. 1286–1325, 2024.

May 2023 **Grometti, L., Huska, M., Lanza, A., Morigi, S.**, *Quaternary Image Decomposition with Cross-Correlation-Based Multi-parameter Selection*, SSVM 2023, vol. 14009, Lecture Notes in Computer Science, pp. 120-133, 2023.

Jan 2023 **Grometti, L., Lanza, A., Morigi, S.**, *Ternary image decomposition with automatic parameter selection via auto- and cross-correlation*, Advances in Computational Mathematics, 49 (1), 2023.

Funding

Feb 2025-Feb 2026 Member of GNCS project "Problems of image processing described by models with uncertainty" coordinated by Researcher Monica Pragliola and funded by INDAM

Feb 2024-Feb 2025 Member of GNCS project "MOdels and Numerical MEthods for Image Processing (MOMENTI)" coordinated by Professor Silvia Tozza and funded by INDAM

Feb 2023-Feb 2024 Member of GNCS project "Models and advanced methods in Computer Vision" coordinated by Serena Crisci and funded by INDAM

Teaching Activity

Sept 2025 - Dec 2025 **Teaching assistant** for the course Numerical Analysis, Aerospace and Mechanical Engineering, University of Bologna for a total of 30h.

Sept 2025 - Dec 2025 **Teaching assistant** for the course Numerical Methods, Civil Engineering, University of Bologna for a total of 20h.

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Languages

Italian Native speaker

English C1 level