Giovanni Luca Marchetti

Postdoctoral Researcher in Theoretical Machine Learning | glma@kth.se | people.kth.se/~glma/
Department of Mathematics, Royal Institute of Technology (KTH), Stockholm, Sweden.

EDUCATION

- Ph.D. Computer Science — 05/2020–04/2024
  Royal Institute of Technology (KTH), Stockholm, Sweden
  - *Thesis title*: On Symmetries and Metrics in Geometric Inference.
  - *Topics*: Machine Learning, Computational Geometry, Robotics.
  - *Supervisor*: Prof. Danica Kragic.
- Ph.D. (uncompleted) Abstract Mathematics — 10/2017–12/2019
  University of Sheffield, United Kingdom
  - *Topics*: Algebraic Geometry, Category Theory.
  - *Supervisor*: Prof. Tom Bridgeland.
- M.Sc. Abstract Mathematics — 10/2015–07/2017
  University of Rome La Sapienza, Italy
  - *Thesis title*: Functorial Flavors of Bridgeland Slicings.
  - *Topics*: Algebraic Geometry, Category Theory.
  - *Grade*: 110/110 with honors. Received an Excellence Award.
- B.Sc. Abstract Mathematics — 10/2012–07/2015
  University of Rome La Sapienza, Italy
  - *Thesis title*: Chow Theory.
  - *Topics*: Algebraic Geometry, Algebraic Topology.
  - *Grade*: 110/110 with honors. Received an Excellence Award.

WORK EXPERIENCE

- Postdoctoral Researcher — 05/2024–Now
  Royal Institute of Technology (KTH), Stockholm, Sweden
  - *Topics*: Machine Learning, Algebraic Geometry.
  - *Supervisor*: Prof. Kathlén Kohn.
- Research Intern — 06/2023–10/2023
  Qualcomm AI Research, Amsterdam, The Netherlands
  - *Topics*: Geometric Deep Learning, Combinatorial Optimization.

TEACHING EXPERIENCE

- Teaching Assistant — 05/2024–Now
  Royal Institute of Technology (KTH), Stockholm, Sweden
  - *Lectured courses*: Computer Vision, Artificial Intelligence, Relational Databases.
  - *Supervision:* Supervised two M.Sc. students and one Ph.D. student (ongoing).
- Teaching Assistant — 10/2017–12/2019
  University of Sheffield, United Kingdom
  - *Lectured courses*: Linear Algebra, Abstract Algebra, Fluid Dynamics.

SELECTED PUBLICATIONS

- Giovanni Luca Marchetti, Christopher J Hillar, Danica Kragic, and Sophia Sanborn. *Harmonics of Learning: Universal Fourier Features Emerge in Invariant Networks*. In: Conference on Learning Theory (COLT). 2024.
- Giovanni Luca Marchetti, Vladislav Polianskii, Anastasiia Varava, Florian T Pokorny, and Danica Kragic. *An Efficient and Continuous Voronoi Density Estimator*. In: International Conference on Artificial Intelligence and Statistics (AISTATS). 2023. **Notable Paper award**.
- Giovanni Luca Marchetti[†], Gustaf Tegnér[†], Anastasiia Varava, and Danica Kragic. *Equivariant Representation Learning via Class-Pose Decomposition*. In: International Conference on Artificial Intelligence and Statistics (AISTATS). 2023.
- Giovanni Luca Marchetti, Gabriele Cesa, Kumar Pratik, and Arash Behboodi. *Neural Lattice Reduction: A Self-Supervised Geometric Deep Learning Approach*. In: NeurIPS Workshop on Symmetry and Geometry in Neural Representations (NeurReps), 2023.
- Alfredo Reichlin[†], Giovanni Luca Marchetti[†], Hang Yin, Anastasiia Varava, and Danica Kragic. *Learning Geometric Representations of Objects via Interaction*. In: European Conference on Machine Learning (ECML-PKDD). 2023.
- Luis Perez Rey[†], Giovanni Luca Marchetti[†], Danica Kragic, Dimitri Jarnikov, and Mike Holenderski. *Equivariant Representation Learning in the Presence of Stabilizers*. In: European Conference on Machine Learning (ECML-PKDD). 2023.
- Alexander Kravberg[†], Giovanni Luca Marchetti[†], Vladislav Polianskii[†], Anastasiia Varava, Florian T Pokorny, and Danica Kragic. *Active Nearest Neighbor Regression Through Delaunay Refinement*. In: International Conference on Machine Learning (ICML). 2022.
- Vladislav Polianskii[†], Giovanni Luca Marchetti[†], Alexander Kravberg, Anastasiia Varava, Florian T Pokorny, and Danica Kragic. *Voronoi Density Estimator for High-Dimensional Data: Computation, Compactification and Convergence*. In: Uncertainty in Artificial Intelligence (UAI). 2022.
- Alfredo Reichlin, Giovanni Luca Marchetti, Hang Yin, Ali Ghadirzadeh, and Danica Kragic. *Back to the Manifold: Recovering from Out-of-Distribution States*. In: International Conference on Intelligent Robots and Systems (IROS). 2022.
- Domenico Fiorenza[†], Fosco Loregian[†], and Giovanni Luca Marchetti[†]. *Hearts and Towers in Stable Infinity-Categories*. In: Journal of Homotopy and Related Structures. 2019.

Note: The symbol [†] denotes shared first-authorship.

SKILLS

- *Languages*: Italian (native), Russian (native), English (professional), Swedish (basic), French (basic).
- *Programming*: `Python` (NumPy, PyTorch, JAX), `C`, `C++`, LaTeX, `Bash`, SQL.