Riccardo Marin, Ph.D.

Contact:

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- Germany

Personal details:

Place of birth: *Verona, Italy*Date of birth: 24 September 1991

Citizenship: *Italian*Native Language: *Italian*

• Spoken Languages: English (fluent), German (basic)

Curriculum Vitae - updated: June 7, 2023

Research Interests

• Geometry Processing, Geometric Deep Learning, Spectral shape Analysis, Shape Matching, Virtual Humans, AI, Computer Graphics and Computer Vision.

Research Profile

I am a Post Doctoral researcher, awarded with a Humboldt Post-Doctoral Fellowship and a Marie Skłodowska-Curie Post-Doctoral Fellowship, at the University of Tübingen in the Real-Virtual Humans group led by Gerard Pons-Moll. Previously, I was a post-doc at Sapienza University of Rome in the GLADIA group led by Emanuele Rodolà, leading a work package of SPECGEO ERC project. I followed the University of Verona's Ph.D program in Computer Science, under the supervision of Umberto Castellani, collecting a Best PhD Thesis award by EG-Italy. I graduated in Computer Science and Engineering at University of Verona (2017). I work on Spectral Shape Analysis, Shape Matching Geometric Deep Learning, and Virtual Humans. My work appears in top level conferences and journals (NeurIPS, IJCV, CVPR, CGF), obtaining also a Best Student Paper Award (3DV 2020). I served as conference organizer (RCD Committee at SIGGRAPH, Volunteer Chair at 3DV 2018 and STAG 2021), as reviewer for several journals and conferences (PAMI, TCVG, CVPR, NeurIPS, ICLR, ICML, CVPR), obtaining five Outstanding Reviewer Awards. I am involved in many fruitful collaborations (École polytechnique (LIX), Max-Planck Institute (MPI), INRIA Strasbourg, Sapienza University of Rome, University College London (UCL), University of Milan, University of Verona), and in projects financed by Google and ERC.

Academic Appointments

• University of Tübingen, Germany - Computer Science department
Post Doctoral researcher with Humboldt Foundation Fellowship (12 months);
Advisor: Prof. Gerard Pons-Moll

• Sapienza University of Rome, Italy - Computer Science department 01/12/2020 – 30/06/2022 Post Doctoral researcher;

Advisor: Prof. Emanuele Rodolà

• Sapienza University of Rome, Italy - Computer Science department
Contract/Adjunct Professor
Algorithm Design Course (Exerciser and member of the Exam Committee)

• École polytechnique (FRA), France - Computer Science department

09/2019 – 03/2020

Visiting Student;

Advisor: Prof. Maks Ovsjanikov

Fellowships

ELLIS - European Lab for Learning and Intelligent Systems
 Member
 Marie Skłodowska-Curie Action HORIZON 2021-2027
 Postdoctoral Research Fellow

• Alexander von Humboldt Foundation 2022 – 2023 Postdoctoral Research Fellow

Tuebingen, June 7, 2023, Rikarly Muin

Education

• University of Verona, Italy – Computer Science department 1/10/2017 - 10/06/2021 Ph.D in Computer Science with the additional label of Doctor Europeaus. (with MIUR scolarship; concluded without extention requests) Thesis: Merging, extending and learning representations for 3D shape matching. Advisor: Umberto Castellani Examiners: Alex Bronstein (Technion), Tobias Schreck (Graz University), Stefanie Wuhrer (INRIA Grenoble) Reviewers: Alex Bronstein (Technion), Stefanie Wuhrer (INRIA Grenoble) Awarded Best PhD Thesis in Computer Graphics by Italian Chapter of Eurographics (EG-Italy) • Polytechnic University of Milan, Italy – Computer Science department 07/2020 Attendence at Graduate School on Machine Learning for Non-Matrix Data • University of Milan, Italy – Computer Science department 05/2019 Attendence at Graduate School at Symposium on Geometry Processing 2019 (SGP). • University of Brescia, Italy – Computer Science department 10/2018 Attendence at International School on Graphics and Geometry Processing for Digital Manufacturing (EGIT) at Italian Chapter of Eurographics (STAG). · Standford University, coursera.org 08/2017 - 07/2018Deep Learning Specialization; held by Prof. Andrew Ng Certificate • Alberta University, coursera.org 01/2021 - 04/2021Reinforcement Learning Specialization; held by Prof. Marta White and Prof. Adam White Certificate • University of Verona, Italy 2013 - 2017Laurea Specialistica Degree (2 years degree, M.S. equivalent) in Computer Science and Engineering. Thesis: Augmented Reality for training of pretend play in children with Autism Spectrum Disorder. Grade: 103/110 • University of Verona, Italy 2010 - 2013Laurea Degree (3 years degree, B.S. equivalent) in Computer Science. Grade: 101/110 **Professional Activities / Academic Service** • Member of Program Commitee 2023 ICLR Tiny Papers Track (DEI), Kigali, Rwanda. • Session Chair 19/01/2023 IMPRS-IS Interview Symposium at Max Planck Intelligent-Systems, Tübingen (Germany). • Member of Program Commitee 2022 Symposium on 3D Object Retrieval, *Florence* (*Italy*). • Volunteers Chair 12/2021 STAG 2021, Smart Tools and Applications in Graphics, Roma, Italy. • Committee Member 08/2021 SIGGRAPH Research Career Development Committee, Tokyo, Japan (remotely). Invited Mentor 05/2021 International Conference on Learning Representations (ICLR) 2021, Virtual. • Member of Program Commitee 2021 Workshop on 3D Object Retrieval 2021, Virtual.

• SHREC19 Challenge Track Organizer

Web site

Eurographics 2019 Workshop on 3D Object Retrieval, Genova, Italy. Track: Correspondence in Humans with Different Connectivity.

Tuebingen, June 7, 2023, Throng Myin

02/2019

• Volunteers Chair 09/2018

3DV 2018, International Conference on 3D Vision, Verona, Italy.

· Volunteer Student

ICCV 2017, Venice, Italy.

Eurographics 2019, Venice, Italy.

• High School advanced-class in Computer Skills Teacher

11/2012 - 05/2013

ITCS Aldo Pasoli, Via Girolamo dalla Corte, 15 - 37131 Verona, Italy.

• Computer literacy course Teacher

11/2012 - 05/2013

ITCS Aldo Pasoli, Via Girolamo dalla Corte, 15 - 37131 Verona, Italy.

• Area Chair, Meta-Reviewer

- TinyPapers (ICLR Track); 2023

Reviewer (Conferences)

- BMVC; 2018
- 3DV; 2019 2022
- GMDL; 2019
- NeurIPS; 2020 2023
- ICLR; 2021 2023
- AAAI; 2021
- CVPR; 2021 2023
- ICML; 2021 2023
- 3DOR; 2021, 2022
- MVA; 2021
- ICCV; 2021, 2023
- Siggraph ASIA; 2021, 2023
- EuroGraphics; 2022
- WACV; 2022
- ECCV; 2022
- ICIAP; 2023
- TinyPapers (ICLR Track); 2023

Reviewer (Journals)

- IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI); 2022, 2023
- IEEE Transactions on Computer Visualization and Computer Graphics (TVCG), 2019 2023
- International Journal of Industrial Ergonomics
- Computer and Graphics Journal (C&G)
- International Journal of Computer Vision (IJCV)
- IEEE/CAA Journal of Automatica Sinica
- Journal of Imaging
- IEEE Transactions on Image Processing

Teaching

Functional Correspondence from Discrete Geometry to Learning

01/07/2023

Lecturer and organizer; at the Graduate School of the Symposium on Geometry Processing 2023. Length: 1 hour, Genoa, Italy.

• Tutorial on Inverse Computational Spectral Geometry

23/05/2022

Lecturer and organizer; at ICIAP 2021.

Length: 4 hours, Attendance: ~30, Lecce, Italy.

Tutorial on Inverse Computational Spectral Geometry

25/04/2022

Lecturer and organizer; at EuroGraphics 2022.

Length: 4 hours, Attendance: ~180, Reims, France.

• Numerical methods for Computer Science

02/2022 - 04/2023

Assistant Professor; Lecturer and Exerciser, M.Sc. in Computer Science, Sapienza University of Rome. Teaching responsibility: 20 hours, Enrollment: ~10 students, Roma, Italy.

Algorithm Design

02/2022 - 04/2023

Adjunct Professor; Exerciser and member of the Exam Committee, M.Sc. in Computer Science, Sapienza University of Rome. Teaching responsibility: 24 hours, Enrollment: ~100 students, Roma, Italy.

Tuebingen, June 7, 2023, Ricolb Myin

• Course on Data Science for High-School

01/02/2021 - 07/02/2021

Teacher and organizer; School-work learning programme with CD: 50/50 association at the High School Morgagni.

Teaching responsibility: 40 hours, Attendance: 26, Rome, Italy.

• Tutorial on Spectral Geometry in Practice

30/11/2021

Lecturer and organizer; at the International Conference on 3D Vision 2021. Length: 4 hours, Attendance: ~250, *London, United Kingdom*.

• Algorithm Design

04/2021 - 04/2022

Adjunct Professor; Exerciser and member of the Exam Committee, M.Sc. in Computer Science, Sapienza University of Rome. Teaching responsibility: 24 hours, Enrollment: ~100 students, *Roma, Italy*.

• Spectral Shape Analysis for 3D matching

06/2020

Lecturer and Organizer, Ph.D. School in Computer Science, University of Verona, Algorithm Design. Teaching responsibility: 6 hours, Enrollment: ~20 students, *Verona*, *Italy*.

Pattern Recognition

03/2019 - 06/2019

Tutor student, Master degree in Computer Science and Computer Engineering, University of Verona. *Verona, Italy*.

• Image Processing II

11/2018 - 02/2019

Tutor student, Master degree in Computer Science and Computer Engineering, University of Verona. *Verona, Italy*.

• Introduction to Programming

03/2018 - 06/2018

Tutor student, Bachelor degree in Bioinformatics, University of Verona. Verona, Italy.

Honors and Awards

• ELLIS Membership 2023

Member of the European Lab for Learning and Intelligent Systems.

18/11/2022

• Matteo Dellepiane Award for Best PhD Thesis in Computer Graphics at the Italian Chapter of EuroGraphics (EG-Italy)

2022

• Outstanding Reviewer Award at The Conference on Neural Information Processing Systems (NeurIPS 2022)

2022

• Outstanding Reviewer Award at The IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2022)

• Top Cited Article 2020-2021 Award

2022

Computer Graphics Forum Journal

Paper title: FARM: Functional Automatic Registration Method for 3D Human Bodies

• Outstanding Reviewer Award

2021

at the International Conference on 3D Vision (3DV 2021)

Outstanding Reviewer Award

2021

at the International Conference on Learning Representations (ICLR 2021)

• Best Student Paper Award

2020

at the International Conference on 3D Vision (3DV 2020). Paper title: *Instant recovery of shape from spectrum via latent space connections*

 Outstanding Reviewer Award at the International Conference on 3D Vision (3DV 2020)

2020

• Best Poster in Computer Science

07/05/2018

at the University of Verona's PhD Day Event

Poster title: FARM: Functional Automatic Registration Method for 3D Human Bodies

Funding and Grants

Marie Skłodowska-Curie Post-Doctoral Fellowship (MSCA-2022-PF-EF)
 01/07/2023 - 01/07/2024
 Project: CoMBo - Correspondence through Millions Bodies: a large-scale, functional, and implicit data-driven method for 3D Humans matching

Funding: European Commission HORIZON 2021-2027. (~87K€)

Role: Principal Investigator

Host: Prof. G. Pons-Moll; 12 months

Tuebingen, June 7, 2023, Akarlo Myin

• Alexander von Humboldt Postdoctoral Fellowship Project: Functional shape matching for implicit representations Funding: Alexander von Humboldt Foundation (~36K€) Role: Principal Investigator Host: Prof. G. Pons-Moll; 12 months	01/07/2022 - 30/06/2023
• Sapienza Research Starting Grant 2022 - Type 2 Project: "Functional shape matching for implicit representations" Funding: Sapienza University of Rome (~2.3K€) Role: Principal Investigator; 12 months	24/10/2022
• Imminent Research Grant Project: "Incremental Parallel Inference for Machine Translation" Funding: Translated s.r.l. (20K€) Role: Co-PI; 12 months	05/04/2022
• Funds for international mobility - long periods Funding: University of Verona (3.5K€); 6 months	09/2019 - 03/2020
 MIUR Scholarship for pursuing a PhD in Computer Science at University of Funding: ~45k €, 3 years 	Verona. 2017
International Research Visits	
• University of Tübingen (DE) Research visit (~3 days); collaborator <i>Prof. Gerard Pons-Moll.</i>	02-04/05/2022
• École polytechnique (FRA) Research visit (~6 months); collaborator <i>Prof. Maks Ovsjanikov</i> .	05/09/2019 - 13/03/2020
 University College London (UK) Research visit (~1 week); collaborator Prof. Niloy Mitra. 	23-28/06/2018
Invited Talks and Seminars	
 The researcher's job Istituto di Istruzione Superiore Evangelista Torricelli, Milano 	24/03/2023
• Merging, extending and learning representations for 3D shape matching Smart Tools and Applications in Graphics (STAG), Cagliari	18/11/2022
• Data-driven spectral analysis for practical geometry processing Pi School of AI, Rome	05/05/2022
• Data-driven spectral analysis for practical geometry processing Tubingen University; hosted by Prof. G. Pons-Moll.	03/05/2022
• Data-driven spectral analysis for practical geometry processing Universitat Pompeu Fabra (UPF); hosted by Prof. C. Ballester.	31/03/2022
• <i>Digital Humans: minds and bodies</i> The Sapienza School for Advanced Studies; hosted by <i>Prof. E. Rodolà</i> .	11/02/2022
• When the sun goes down: a story on telling stories DiDo Workshop, Sapienza University of Rome	12/11/2021
• Functional Matching DiDo Workshop, Sapienza University of Rome	11/11/2021
• <i>Digital Humans</i> OpenDI, Sapienza University of Rome	19/04/2021
• Functional Maps and Non-Rigid Registration: A crash course Inria Strasbourg; hosted by Prof. S. Cotin.	29/03/2021

Tuebingen, June 7, 2023, The Thurin

 Digital Humans: minds and bodies The Sapienza School for Advanced Studies; hosted by Prof. E. Rodolà. 	02/03/2021
• Correspondence Learning via Linearly-invariant Embedding Sapienza University of Rome; hosted by Prof. E. Rodolà.	20/11/2020
• Functional template based matching for human bodies. École polytechnique; hosted by Prof. P. Memari.	04/03/2020
• Introduction to Spectral Graph Theory: from Fourier to 3D models. University of Verona; hosted by Prof. G. Menegaz.	18,19,20/12/2018
• <i>Instant recovery of shape from spectrum via latent space connections</i> International Conference on 3D Vision (3DV), 2020	25/11/2020
• FARM: Functional Automatic Registration Method for 3D Human Bodies. Eurographics (EG), 2020	29/05/2019
 POP: full Parametric modelling estimation for Occluded People. The 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 2019 	05/05/2019

Participation in Research projects

• Fair Geometry: Toward Algorithmic Debiasing in Geometric Deep Learning.

2021 - present

Role: Researcher.

Funding: Google Research

Coordinator: Prof. E. Rodolà ("La Sapienza" University of Rome).

• SPECGEO - Spectral geometric methods in practice.

2020 - present

Role: Researcher (leading the work package WP4 - Deep learning applications);

Funding: ERC Starting Grant (Horizon2020).

Coordinator: Prof. E. Rodolà ("La Sapienza" University of Rome).

• Nuovi approcci di geometric deep learning ed applicazioni cross-dominio.

New geometric deep learning approaches and cross-domain applications.

01/12/2021 - 30/06/2022

Role: PostDoc Researcher.

Funding: ERC Starting Grant SPECGEO (41K)

Coordinator: Prof. E. Rodolà ("La Sapienza" University of Rome).

• Metodi di predizione strutturata tramite geometric deep learning e nuove rappresentazioni spettrali.

New methods and spectral representations for structured prediction via geometric deep learning.

01/12/2020 - 01/12/2021

Role: PostDoc Researcher.

Funding: ERC Starting Grant SPECGEO (25K)

Coordinator: Prof. E. Rodolà ("La Sapienza" University of Rome).

• EXPROTEA - Exploring Relations in Structured Data with Functional Maps. 2019 - 2022

Role: Researcher (External Collaborator);

Funding: ERC Starting Grant (Horizon2020).

Coordinator: Prof. M. Ovsjanikov (École Polytechnique).

Supervising and mentoring activities

- Graduate Students (official co-advisor)
 - Nikita Larichev, 2022, (Siegen, Thesis)
 - Luis Mautone, 2022, (Rome, Thesis)
 - Valentino Maiorca, 2021 (Rome, Thesis)
 - Silvio Severino, 2021 (Rome, Thesis)
 - Marco Pegoraro, 2021 (Verona, Thesis) Awarded Best Thesis at the Italian Chapter of Eurographics

- Filippo Bardon, 2019 (Verona, Thesis)

Tuebingen, June 7, 2023, Akarlo Muin

Participation in industrial innovation

- Automatic extraction of anthropometric measurements from digital 3D scan of human bodies, (phase 1). Role: Researcher. Supported by: *Igoodi S.r.l.* 27/11/2018 15/02/2019
- Automatic extraction of anthropometric measurements from digital 3D scan of human bodies, (phase 2). Role: Researcher. Supported by: Igoodi S.r.l. 01/08/2019 31/01/2020

Other

• CD: 50/50, No-profit association for promoting gender equality and diversity in STEM Role: Co-founder and lecturer.

Website 09/2021 - present

Media Coverage

• Italian ministry of digital innovation lists CD:50/50 among associations addressing the digital divide in the Italian population

Website 2021

• The magazine of University of Verona reports Marco Pegoraro's Best Italian Master Thesis in Computer Graphics Award for our work on inverse spectral geometry

Website 2021

List of Publications

- Andrea Santilli, Silvio Severino, Emilian Postolache, Valentino Maiorca, Michele Mancusi, **Riccardo Marin**, Emanuele Rodolà. *Accelerating Transformer Inference for Translation via Parallel Decoding*. To appear at the 61st Annual Meeting of the Association for Computational Linguistics (ACL), 2023.
- Ilya A. Petrov, **Riccardo Marin**, Julian Chibane, Gerard Pons-Moll. *Object pop-up: Can we infer 3D objects and their poses from human interactions alone?*. To appear at IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023.
- Donato Crisostomi, Simone Antonelli, Valentino Maiorca, Luca Moschella, **Riccardo Marin**, Emanuele Rodolà. *Metric Based Few-Shot Graph Classification*. Learning on Graphs Conference (LoG), 2022.
- Ramana Subramanyam Sundararaman, Riccardo Marin, Emanuele Rodolà, Maks Ovsjanikov. Reduced Representation of Deformation Fields for Effective Non-rigid Shape Matching. Conference on Neural Information Processing Systems (NeurIPS), 2022.
- Filippo Maggioli, **Riccardo Marin**, Simone Melzi, Emanuele Rodolà. *MoMaS: Mold Manifold Simulation for real-time procedural texturing*. Computer Graphics Forum (CGF), presented at Pacific Graphic (PG), 2022.
- Marco Pegoraro, Simone Melzi, Umberto Castellani, Emanuele Rodolà, Riccardo Marin. Localized Shape Modelling with Global Coherence: An Inverse Spectral Approach. Computer Graphics Forum (CGF), presented at Symposium on Geometry Processing (SGP), 2022.
- Giovanni Trappolini, Luca Cosmo, Luca Moschella, Riccardo Marin, Simone Melzi, Emanuele Rodolà. Shape registration in the time of transformers. Conference on Neural Information Processing Systems (NeurIPS), 2021.
- Pietro Musoni, **Riccardo Marin**, Simone Melzi, *A Functional Skeleton Transfer*. ACM in Computer Graphics and Interactive Techniques (PACMCGIT), 2021, presented at the Symposium of Computer Animation (SCA2021).
- Riccardo Marin, Arianna Rampini, Umberto Castellani, Emanuele Rodolà, Maks Ovsjanikov, Simone Melzi.
 Spectral Shape Recovery and Analysis Via Data-driven Connections, International Journal of Computer Vision,
 2021
- Eleonora Tagliabue, Marco Piccinelli, Diego Dall'Alba, Juan Verde, Micha Pfeiffer, Riccardo Marin, Stefanie Speidel, Paolo Fiorini, Stéphane Cotin. Intra-operative Update of Boundary Conditions for Patient-specific Surgical Simulation, MICCAI, 2021

Tuebingen, June 7, 2023, Akarlo Muin

- Letizia Squarcina, Guido Nosari, Riccardo Marin, Umberto Castellani, Marcella Bellani, Carolina Bonivento, Franco Fabbro, Massimo Molteni, Paolo Brambilla. Automatic classification of autism spectrum disorder in children using cortical thickness and support vector machine. Brain and Behavior, 2021
- Eleonora Tagliabue, Diego Dall'Alba, Micha Pfeiffer, Marco Piccinelli, Riccardo Marin, Umberto Castellani, Stefanie Speidel, Paolo Fiorini. Data-driven Intra-operative Estimation of Anatomical Attachments for Autonomous Tissue Dissection. IEEE Robotics and Automation Letters (RA-L), 2021
- Riccardo Marin, Marie-Julie Rakotosaona, Simone Melzi, Maks Ovsjanikov. Correspondence Learning via Linearly-invariant Embedding. Conference on Neural Information Processing Systems (NeurIPS), 2020.
- Roberto M.Dyke, Yu-Kun Lai, Paul L.Rosin, Stefano Zappalà, Seana Dykes, Daoliang Guo, Kun Li, Riccardo Marin, Simone Melzi, Jingyu Yang. SHREC'20: Shape correspondence with non-isometric deformations. Computer & Graphics, 2020.
- Roberto M. Dyke, Feng Zhou, Yu-Kun. Lai, Paul L. Rosin, Daoliang Guo, Kun Li, Riccardo Marin, Jingyu Yang. SHREC'20: Non-rigid Shape Correspondence of Physically-Based Deformations. 13th Workshop on 3D Object Retrieval (3DOR), 2020.
- Riccardo Marin, Arianna Rampini, Umberto Castellani, Emanuele Rodolà, Maks Ovsjanikov, Simone Melzi. *Instant recovery of shape from spectrum via latent space connections.* International Conference on 3D Vision (3DV), 2020. [Best Student Paper Award]
- Simone Melzi, Riccardo Marin, Pietro Musoni, Filippo Bardon, Marco Tarini, Umberto Castellani. Intrinsic/extrinsic embedding representation for functional remeshing of 3D shapes. Computer & Graphics, 2020.
- Riccardo Marin, Simone Melzi, Emanuele Rodolà, Umberto Castellani. High-Resolution Augmentation for Automatic Template-Based Matching of Human Models. International Conference on 3D Vision (3DV), 2019.
- Riccardo Marin, Simone Melzi, Emanuele Rodolà, Umberto Castellani. FARM: Functional Automatic Registration Method for 3D Human Bodies. Computer Graphics Forum (CGF), 2019. Presented at Eurographics (EG), 2020. [Top Cited Article in CGF 2020-2021 Award]
- Riccardo Marin, Simone Melzi, Niloy Mitra, Umberto Castellani. POP: full Parametric modelling estimation for Occluded People. The 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 2019.
- Riccardo Marin, Simone Melzi, Pietro Musoni, Filippo Bardon, Marco Tarini, Umberto Castellani. CMH: Coordinates Manifold Harmonics for Functional Remeshing. The 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 2019.
- Simone Melzi, Riccardo Marin, Pietro Musoni, Umberto Castellani, Marco Tarini. Visual Assessments of Functional Maps. Poster at Symposium on Geometry Processing (SGP), 2019.
- Simone Melzi, Riccardo Marin, Emanuele Rodolà, Umberto Castellani, Jing Ren, Adrien Poulenard, Peter Wonka, Maks Ovsjanikov. SHREC'19: Matching Humans with Different Connectivity, the 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 2019.

Tuebingen, June 7, 2023, Ricords Mysin