Riccardo Marin, Ph.D. Curriculum Vitae - updated: December 8, 2021

Research Interests

- Geometry Processing, 3D Generative Models, Deep Learning, Spectral shape Analysis, Computer Graphics and Computer Vision.

Research Profile

I am a Post Doctoral researcher at the 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 professor Umberto Castellani. I graduated in Computer Science and Engineering at University of Verona (2017).I work on Genereative Models, Deep Learning, Geometry Processing, 3D spectral shape analysis, and Virtual Humans. I was awarded with Best Poster in Computer Science at the PhD Day held by the University of Verona (In May 2018), and with a Best Student Paper Award (3DV 2020). I served as Volunteer Chair at 3DV 2018 and STAG 2021, and as reviewer for several journals and conferences like TCVG, 3DV, NeurIPS, ICLR, ICML, IJCV, CVPR, SIGGRAPH, and obtaining also three Outstanding Reviewer Awards (3DV 2020 and 2021, ICLR 2021). I am involved in many fruitful collaborations (École polytechnique (LIX), 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

- **Sapienza University of Rome,** Italy - Computer Science department *01/12/2020 – present*
  Post Doctoral researcher (12 months); Advisor: Prof. Emanuele Rodolà

- **Sapienza University of Rome,** Italy - Computer Science department *04/2021 – 04/2022*
  Contract Professor for Algorithm Design (Exerciser and member of the Exam Committee)

- **École polytechnique (FRA),** France - Computer Science department *09/2019 – 03/2020*
  Visiting Student; Advisor: Prof. Maks Ovsjanikov

- **University of Verona,** Italy - Computer Science department *03/2019 – 06/2019*
  University **Tutor** for Pattern Recognition Course.

- **University of Verona,** Italy - Computer Science department *11/2018 – 02/2019*
  University **Tutor** for Image Processing II Course.

- **University of Verona,** Italy - Computer Science department *03/2018 – 06/2018*
  University **Tutor** for Introduction to Programming Course.

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 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)

- **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 – 07/2018*
  Deep Learning Specialization; held by *Prof. Andrew Ng*
  Certificate

- **Alberta University,** coursera.org *01/2021 – 04/2021*
  Reinforcement Learning Specialization; held by *Prof. Marta White and Prof. Adam White*
  Certificate

- **University of Verona,** Italy *2013 – 2017*
  Laurea 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 – 2013*
  Laurea Degree (3 years degree, B.S. equivalent) in Computer Science.
  Grade: *101/110*

Professional Activities / Academic Service

- **Volunteers Chair** *12/2021*
  STAG 2021, Smart Tools and Applications in Graphics, *Roma, Italy*.

- **Member** *08/2021*
  SIGGRAPH Research Career Development Committee, *Tokyo, Japan (remotely)*.

- **Mentor** *05/2021*
  International Conference on Learning Representations (ICLR) 2021, *Virtual*.

- **SHREC19 Challenge Track Organizer** *02/2019*
  Eurographics 2019 Workshop on 3D Object Retrieval, *Genova, Italy*.
  Track: Correspondence in Humans with Different Connectivity.
  Web site

- **Volunteers Chair** *09/2018*
  3DV 2018, International Conference on 3D Vision, *Verona, Italy*.

- **Volunteer**
  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*.

- **Reviewer**
  - BMVC 2018
  - 3DV 2019, 2020, 2021
  - TVCG
  - GMDL 2019
  - NeurIPS 2020, 2021
  - ICLR 2021, 2022
  - AAAI 2021
  - CVPR 2021, 2022
  - International Journal of Industrial Ergonomics
  - ICML 2021
  - Computer and Graphics Journal
  - 3DOR 2021
  - MVA 2021
  - ICCV 2021
  - Siggraph ASIA 2021
  - EuroGraphics 2022
  - WACV 2022
  - International Journal of Computer Vision
  - IEEE/CAA Journal of Automatica Sinica
  - Journal of Imaging

Teaching

- **Tutorial on Spectral Geometry in Practice** *30/11/2021*
  at the International Conference on 3D Vision 2021.
  Length: 4 hours, Attendance: ~250, *London, United Kingdom*.

- **Algorithm Design**   *04/2021 - 04/2022*
  Lecturer 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**   *July 2020*
  Organizer and Lecturer, Ph.D. School in Computer Science, University of Verona, Algorithm Design.
  Teaching responsibility: 6 hours, Enrollment: ~20 students, *Verona, Italy*.

Honors, Awards and Scholarships

- **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) with the paper *Instant recovery of shape from spectrum via latent space connections*

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

- **Best Poster in Computer Science at the University of Verona's PhD Day Event**   *2018*
  Poster title: *FARM: Functional Automatic Registration Method for 3D Human Bodies*

- **MIUR Scholarship** for pursuing a PhD in Computer Science at University of Verona.   *2017*
  Funding: ~45k €, 3 years

Funding and Grants

- **Funds for international mobility - long periods**   *September 2019 - March 2020*
  Funding: University of Verona (3.5K€)

International Research Visits

- **University College London (UK)**   *06/2018*
  Research visit; collaborator *Prof. Niloy Mitra*.

- **École polytechnique (FRA)**   *09/2019 - 03/2020*
  Research visit; collaborator *Prof. Maks Ovsjanikov*.

Invited Talks and Seminars

- *When the sun goes down: a story on telling stories*   *12/11/2021*
  DiDo Workshop, Sapienza University of Rome; hosted by *Prof. E. Rodolà*.

- *Functional Matching*   *11/11/2021*
  DiDo Workshop, Sapienza University of Rome; hosted by *Prof. E. Rodolà*.

- *Digital Humans*   *19/04/2021*
  OpenDI, Sapienza University of Rome; hosted by *Prof. E. Rodolà*.

- *Functional Maps and Non-Rigid Registration: A crash course*   *02/03/2021*
  Inria Strasbourg; hosted by *Prof. S. Cotin*.

- *Digital Humans: minds and bodies*   *02/03/2021*
  The Sapienza School for Advanced Studies; hosted by *Prof. E. Rodolà*.

- *Correspondence Learning via Linearly-invariant Embedding*   *20/11/2020*
  Sapienza University of Rome; hosted by *Prof. E. Rodolà*.

- *Functional template based matching for human bodies.*   *04/03/2020*
  École polytechnique; hosted by *Prof. P. Memari*.

- *Introduction to Spectral Graph Theory: from Fourier to 3D models.*   *18,19,20/12/2018*
  University of Verona; hosted by *Prof. G. Menegaz*.

- *Instant recovery of shape from spectrum via latent space connections*   *25/11/2020*
  International Conference on 3D Vision (3DV), 2020

- *FARM: Functional Automatic Registration Method for 3D Human Bodies.*   *29/05/2019*
  Eurographics (EG), 2020

- *POP: full Parametric modelling estimation for Occluded People.*   *05/05/2019*
  The 12th Eurographics Workshop on 3D Object Retrieval (3DOR), 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).

- *EXPROTEA - Exploring Relations in Structured Data with Functional Maps.*   *2019 - present*
  Role: Researcher;
  Funding: ERC Starting Grant (Horizon2020).
  Coordinator: Prof. M. Ovsjanikov (École Polytechnique).

Supervising and mentoring activities

- *Graduate Student (official co-advisor)*
  - Filippo Bardon, 2019 (Verona, Thesis)
  - Marco Pegoraro, 2021 (Verona, Thesis) - **Awarded Best Thesis at the Italian Chapter of Eurographics**
  - Silvio Severino, 2021 (Rome, Thesis)
  - Valentino Maiorca, 2021 (Rome, Thesis)

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*

Skills

Technical specialties: Software design and implementation, with(in) a team. Expert programming in MATLAB, Python and use of libraries for Deep Learning and Data Science as PyTorch, PyTorch Lightning, Tensorflow (1 and 2), Keras, Pandas, Scipy and Scikit-learn. Good programming in C/C++. Knowledge of graphic tools as Blender, Povray, ZBrush, Unity.

Natural languages: Italian *(mother tongue)*, English *(full professional proficiency)*, French *(elementary proficiency)*

List of Publications

- Marco Pegoraro, **Riccardo Marin**, Umberto Castellani, Simone Melzi, Emanuele Rodolà, Learning to generate shape from global-local spectra, Arxiv

- Giovanni Trappolini, Luca Cosmo, Luca Moschella, **Riccardo Marin**, Simone Melzi, Emanuele Rodolà, Shape registration in the time of transformers, to appear at 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 by Pietro Musoni 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

- 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. Presented by me.

- 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. Presented by me. [**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 by me at Eurographics (EG), 2020.

- **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. Presented by me.

- **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. Presented by Simone Melzi.

- Simone Melzi, **Riccardo Marin**, Pietro Musoni, Umberto Castellani, Marco Tarini. Visual Assessments of Functional Maps. Poster at Symposium on Geometry Processing (SGP), 2019. Presented by me.

- 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. Presented by me.