

Simone Parisi

Curriculum Vitae

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Research Interests

Machine Learning: Reinforcement Learning, Exploration, Intrinsic Motivation, Policy Search, Feature Learning, Transfer Learning, Multi-objective Optimization, Deep Learning.

Autonomous Robots: Motor Skill Learning, Trajectory Optimization, Imitation Learning, Movement Primitives.

Work Experience

- 2022 - Today **Postdoctoral Fellow**, *University of Alberta*, Edmonton, Alberta, Canada
with Michael Bowling and Matthew Taylor
- 2020 - 2022 **Postdoctoral Researcher**, *Meta AI Research*, Pittsburgh, Pennsylvania, United States
with Abhinav Gupta

Education

- 2014 - 2019 **PhD in Computer Science**, *Technische Universität Darmstadt*, Germany
Thesis: *Reinforcement Learning with Sparse and Multiple Rewards*
Advisor: Jan Peters
Honors: Magna Cum Laude
- 2017 **Research Intern**, *RIKEN Center for Advanced Intelligence Project*, Tokyo, Japan
Advisors: Masashi Sugiyama, Emtiyaz Khan
- 2015 **Machine Learning Summer School**, *Max Planck Institute*, Tübingen, Germany
- 2012 **Exchange Student**, *University of Queensland*, Brisbane, Australia
- 2011 - 2014 **MSc in Computer Science and Engineering**, *Politecnico di Milano*, Italy
Thesis: *Study and Analysis of Policy Gradient Approaches for Multi-objective Decision Problems*
Advisors: Marcello Restelli, Matteo Pirota
- 2008 - 2011 **BSc in Computer Science and Engineering**, *Politecnico di Milano*, Italy
Advisor: Carlo Ghezzi

Publications

Journal Articles

- [1] **Simone Parisi**, Davide Tateo, Maximilian Hensel, Carlo D'Eramo, Jan Peters, and Joni Pajarinen, "Long-Term Visitation Value for Deep Exploration in Sparse Reward Reinforcement Learning", *Algorithms*, 15(3), 2022
- [2] **Simone Parisi**, Voot Tangkaratt, Jan Peters, and Mohammad Emtiyaz Khan, "TD-Regularized Actor-Critic Methods", *Machine Learning (MLJ)*, 2019
- [3] **Simone Parisi**, Matteo Pirota, and Jan Peters, "Manifold-based Multi-objective Policy Search with Sample Reuse", *Neurocomputing*, 263:3–14, 2017
- [4] **Simone Parisi**, Matteo Pirota, and Marcello Restelli, "Multi-objective Reinforcement Learning through Continuous Pareto Manifold Approximation", *Journal of Artificial Intelligence Research (JAIR)*, 57:187–227, 2016

Conference and Workshop Papers

- [5] **Simone Parisi**, Montaser Mohammedalamen, Alireza Kazemipour, Matthew E. Taylor, and Michael Bowling, “Monitored Markov Decision Processes”, *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2024
- [6] **Simone Parisi**, Aravind Rajeswaran, Senthil Purushwalkam, and Abhinav Gupta, “The (Un)Surprising Effectiveness of Pre-Trained Vision Models for Control”, *International Conference on Machine Learning (ICML)*, 2022 [**Long oral, acc. rate 2%**]
- [7] **Simone Parisi**, Victoria Dean, Deepak Pathak, and Abhinav Gupta, “Interesting Object, Curious Agent: Learning Task-Agnostic Exploration”, *International Conference on Neural Information Processing Systems (NeurIPS)*, 2021 [**Oral, acc. rate <1%**]
- [8] **Simone Parisi**, Voot Tangkaratt, Jan Peters, and Mohammad Emtiyaz Khan, “TD-Regularized Actor-Critic Methods”, *European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML PKDD)*, 2019
- [9] **Simone Parisi**, Voot Tangkaratt, Jan Peters, and Mohammad Emtiyaz Khan, “TD-Regularized Actor-Critic Methods”, *European Workshop on Reinforcement Learning (EWRL)*, 2018
- [10] **Simone Parisi**, Simon Ramstedt, and Jan Peters, “Goal-Drive Dimensionality Reduction for Reinforcement Learning”, *International Conference on Intelligent Robots and Systems (IROS)*, 2017
- [11] **Simone Parisi**, Voot Tangkaratt, and Jan Peters, “Regularized Contextual Policy Search via Mutual Information”, *Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM)*, 2017
- [12] Voot Tangkaratt, Herke van Hoof, **Simone Parisi**, Gerhard Neumann, Jan Peters, and Masashi Sugiyama, “Policy Search with High-Dimensional Context Variables”, *AAAI Conference on Artificial Intelligence (AAAI)*, 2017
- [13] **Simone Parisi**, Alexander Blank, Tobias Viernickel, and Jan Peters, “Local-utopia policy selection for multi-objective reinforcement learning”, *International Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)*, 2016
- [14] **Simone Parisi**, Hany Abdulsamad, Alexandros Paraschos, Christian Daniel, and Jan Peters, “Reinforcement Learning vs Human Programming in Tetherball Robot Games”, *International Conference on Intelligent Robots and Systems (IROS)*, 2015
- [15] Matteo Pirodda, **Simone Parisi**, and Marcello Restelli, “Multi-Objective Reinforcement Learning with Continuous Pareto Frontier Approximation”, *AAAI Conference on Artificial Intelligence (AAAI)*, 2015
- [16] **Simone Parisi**, Matteo Pirodda, Nicola Smacchia, Luca Bascetta, and Marcello Restelli, “Policy gradient approaches for multi-objective sequential decision making”, *International Joint Conference on Neural Networks (IJCNN)*, 2014
- [17] **Simone Parisi**, Matteo Pirodda, Nicola Smacchia, Luca Bascetta, and Marcello Restelli, “Policy gradient approaches for multi-objective sequential decision making: A comparison”, *International Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)*, 2014

Invited Talks

26 Sep 2022 **Alberta Machine Intelligence Institute (AMII)**, Edmonton, Canada

Host: Michael Bowling

6 Sep 2022 **Montréal Institute for Learning Algorithms (MILA)**, Montréal, Canada

Host: Glen Berseth

- 19 Aug 2022 **UC Berkley, Robotic Artificial Intelligence and Learning Lab**, Berkeley, United States
Host: Sergey Levine
- 14 Apr 2022 **NVIDIA, Robotics Research**, Seattle, United States
Host: Dieter Fox
- 30 Aug 2019 **University of Texas, Learning Agents Research Group (LARG)**, Austin, United States
Host: Peter Stone
- 28 Aug 2019 **Brown University, Dept. of Computer Science**, Providence, United States
Host: Michael Littman
- 26 Aug 2019 **Meta AI Research**, Pittsburgh, United States
Host: Abhinav Gupta
- 24 May 2019 **Max Planck Institute (MPI), Dept. of Empirical Inference**, Tübingen, Germany
Host: Bernhard Schölkopf
- 6 May 2019 **Delft University of Technology, Dept. of Cognitive Robotics (CoR)**, Delft, Netherlands
Host: Jens Kober
- 3 May 2019 **University of Amsterdam, Machine Learning Lab (AMLab)**, Amsterdam, Netherlands
Hosts: Herke van Hoof, Max Welling
- 15 Dec 2017 **Advanced Telecommunications Research Institute (ATR)**, Kyoto, Japan
Host: Jun Morimoto
- 2 Oct 2017 **RIKEN Center for Advanced Intelligence Project (AIP)**, Tokyo, Japan
Hosts: Emtiyaz Khan, Masashi Sugiyama

Reviewing Experience

Journals

Transactions on Machine Learning Research (TMLR)	<i>Action Editor</i>
Transactions on Machine Learning Research (TMLR)	2024
IEEE Robotics and Automation Letters (RA-L)	2021
Neurocomputing	2016, 2017
Journal of Machine Learning Research (JMLR)	2016
International Journal of Advanced Robotic Systems (IJARS)	2016

Conferences

Conference on Neural Information Processing Systems (NeurIPS)	2021, 2023
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)	2015, 2017, 2020, 2021, 2023
International Conference on Automated Planning and Scheduling (ICAPS)	2020
International Conference on Learning Representations (ICLR)	2019, 2021, 2022
Conference on Robot Learning (CoRL)	2018, 2021
AAAI Conference on Artificial Intelligence (AAAI)	2017, 2018
IEEE International Conference on Robotics and Automation (ICRA)	2017, 2021
Robotics: Science and Systems (R:SS)	2016
International Joint Conference on Artificial Intelligence (IJCAI)	2016
IEEE International Conference on Automation Science and Engineering (CASE)	2015

Workshops

Multi-Objective Decision Making Workshop (MODeM)	2021
Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)	
Workshop on Robot Learning	2019
Conference on Neural Information Processing Systems (NeurIPS)	

Workshop on Reinforcement Learning under Partial Observability	2018
Conference on Neural Information Processing Systems (NeurIPS)	
Workshop on Prediction and Generative Modeling in Reinforcement Learning	2018
International Conference on Flexible Automation and Intelligent Manufacturing (FAIM)	
European Workshop on Reinforcement Learning (EWRL)	2015, 2018

Workshop Proposals

International Conference on Robotics and Automation (ICRA)	2020
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Teaching Experience

Teaching Assistant

2018 - 2019	Reinforcement Learning, <i>Technische Universität Darmstadt</i>
2017	Statistical Machine Learning, <i>Technische Universität Darmstadt</i>
2016 - 2017	Robot Learning, <i>Technische Universität Darmstadt</i>
2016	Statistical Machine Learning, <i>Technische Universität Darmstadt</i>

MSc Thesis Supervision

2020	Eike Mentzendorff (TUDa). <i>Bridging the Gap Between Multi-objective and Multi-task Deep Reinforcement Learning</i>
2019	Kai Cui (TUDa). <i>A Study on TD-regularized Actor-critic Methods</i>
2019	Stefan Hübecker (TUDa). <i>Curiosity-driven Reinforcement Learning for Autonomous Driving</i>
2019	Shuo Zhang (TUDa). <i>Integration of Self-imitation and Model-based Learning to Actor-critic Algorithms</i>

BSc Thesis Supervision

2019	Leon Keller (TUDa). <i>Application of Reinforcement Learning Algorithms to Robotics Simulators</i>
2016	Simon Ramstedt (TUDa). <i>Deep Reinforcement Learning with Continuous Actions</i>

Project Supervision

2021	Jacob Adkins (CMU). <i>Transfer Exploration in RL: A Study on Recent Count-Based Methods</i>
2018	Shuo Zhang, Lu Wan (TUDa). <i>Enhancing Exploration Through Curiosity for Robotics</i>
2016 - 2017	Simon Ramstedt (TUDa). <i>Bayesian Deep Reinforcement Learning: Tools and Methods</i>
2015 - 2016	Jan-Christoph Klie, Xuelei Li (TUDa). <i>Feature Selection for Tetherball Robot Games</i>
2014 - 2015	Alexander Blank, Tobias Viernickel (TUDa). <i>Multi-objective Reinforcement Learning for Tetherball Robot Games</i>

Computer Skills

Python, MATLAB, L^AT_EX, Git

Languages

Italian (Mother tongue), English (Fluent)

Hobbies

Strength Training, Movies, Cooking, Photography

References

Michael Bowling, University of Alberta
Matthew Taylor, University of Alberta

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Abhinav Gupta, Carnegie Mellon University
Jan Peters, Technische Universität Darmstadt

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