

ROBERTA RAILEANU

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RESEARCH INTERESTS

Reinforcement Learning, Continual Learning, Multi-Agent Learning

EDUCATION

New York University, NY, USA

August 2016 - Present

PhD Candidate in Computer Science

Advisor: Rob Fergus

Princeton University, NJ, USA

Sep 2012 - June 2016

A.B. in Astrophysical Sciences, *magna cum laude*

Certificates: Statistics and Machine Learning, Applications of Computing

Thesis: Clustering Redshift Estimation for the Hyper Suprime-Cam Survey

Advisor: Michael Strauss

PUBLICATIONS

Raileanu R., Goldstein M., Yarats D., Kostrikov I., Fergus R., Automatic Data Augmentation for Generalization in Deep Reinforcement Learning, **spotlight** at *Inductive Biases, Invariances, and Generalization in Reinforcement Learning Workshop, ICML*, 2020. <https://arxiv.org/pdf/2006.12862.pdf>.

Raileanu R., Goldstein M., Szlam A., Fergus R., Fast Adaptation to New Environments via Policy-Dynamics Value Functions, *ICML 2020*, **spotlight** at *Beyond "Tabula Rasa" in Reinforcement Learning Workshop, ICLR*, 2020. <http://www.betr-rl.ml/2020/abs/23/>.

Raileanu R., Rocktäschel T., RIDE: Rewarding Impact-Driven Exploration for Procedurally-Generated Environments, *ICLR*, 2020. <https://opdairenreview.net/pdf?id=rkg-TJBFPB>.

Heinrich K., Nardelli N., **Raileanu R.**, Selvatici M., Grefenstette E., Rocktäschel T., The NetHack Learning Environment, *Beyond "Tabula Rasa" in Reinforcement Learning (BeTR-RL) Workshop, ICLR*, 2020. <http://www.betr-rl.ml/2020/abs/24/>.

Campero A., **Raileanu R.**, Heinrich K., Tenenbaum J., Rocktäschel T., Grefenstette E., Learning with AMIGo: Adversarially Motivated Intrinsic Goals, *preprint*, 2020. <https://arxiv.org/pdf/2006.12122.pdf>.

Resnick C.*, **Raileanu R.***, Kapoor S., Peysakhovich A., Cho K., Bruna J., Backplay: "Man Muss Immer Umkehren", *Reinforcement Learning in Games Workshop, AAAI*, 2019. <https://arxiv.org/pdf/1807.06919.pdf>.

Raileanu R., Denton E.L., Szlam A., Fergus R., Modeling Others using Oneself in Multi-Agent Reinforcement Learning, *ICML*, 2018. <http://proceedings.mlr.press/v80/raileanu18a/raileanu18a.pdf>.

Raileanu R., Szlam A., Fergus R., Modeling Other Agents' Hidden States in Deep Reinforcement Learning, *Emergent Communication Workshop, NIPS*, 2017.

Kim C.K., Ostriker E.C., **Raileanu R.**, Superbubbles in the Multiphase ISM and the Loading of Galactic Winds, *The Astrophysical Journal*, 2016. <http://iopscience.iop.org/article/10.3847/1538-4357/834/1/25/pdf>.

RESEARCH EXPERIENCE

Facebook AI Research, London, UK

June - Sep 2019

Research Intern

Developed a new algorithm for exploration in sparse reward procedurally-generated environments.

Advisor: Tim Rocktäschel

Microsoft Research, Cambridge, UK

June - Aug 2018

Research Intern

Researched methods for zero-shot and few-shot generalization in multi-agent settings.

Advisors: Katja Hofmann, Sam Devlin

Facebook AI Research, New York, USA

June - Aug 2017

Research Intern

Researched methods for modeling other agents in semi-cooperative reinforcement learning settings.

Advisors: Arthur Szlam, Rob Fergus

Princeton University, Princeton, USA

June - Aug 2015

Undergraduate Researcher

Developed 3D hydrodynamical simulations of supernovae in the multiphase interstellar medium.

Advisors: Eve Ostriker, Chang-Goo Kim

Princeton University, Princeton, USA

Feb - May 2015

Undergraduate Researcher

Implemented and evaluated machine learning techniques for the prediction of stellar rotation periods.

Advisor: Timothy Morton

ETH, Zürich, Switzerland

Jun - Aug 2014

Research Intern

Created Monte Carlo simulations for exoplanet detection with the James Webb Space Telescope.

Advisor: Michael Meyer

Max Planck for Extraterrestrial Physics, Garching, Germany

Jun - Aug 2013

Research Intern

Developed N-Body simulations and theoretical models of the Milky Way Galaxy.

Advisor: Ortwin Gerhard

HONORS & AWARDS

Finalist of the Open Phil AI Fellowship	2019
Sigma Xi: Scientific Research Honor Society	2016
Bell Burnell Award for Early Career Female Physicist	2013
Bronze Medals at the International Physics Olympiad	2012
Silver Medal at the International Physics Olympiad	2011
Gold Medal at the International Astrophysics Olympiad	2011
Silver Medal at Tuymaada International Olympiad in Physics	2010

REVIEWING EXPERIENCE

2020: ICLR, UAI, NeurIPS, ICML LAOW Workshop, IEEE

2019: ICLR, ICML, NeurIPS, ICML I3 Workshop

TEACHING EXPERIENCE

African Master's of Machine Intelligence (AMMI), Kigali, Rwanda

March 2019

RELEVANT SKILLS

PyTorch, Tensorflow, Torch, Python, Java, Matlab, R, C++, OCaml