

Gerhard Neumann

Curriculum Vitæ

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Current Position

Position Full Professor, Chair of *Learning for Autonomous Systems*
Institution University of Lincoln
Office Address Brayford Pool, Lincoln

Research Interests

Autonomous Systems Reinforcement Learning, Policy Search, Inverse Reinforcement Learning, Hierarchical Reinforcement Learning, Learning from Human Feedback, Imitation Learning, POMDPs, Curiosity and Empowerment

Machine Learning Kernel Embeddings, Deep Learning, Bayesian Non-Parametrics, Variational Inference, Structured Prediction, Stochastic Search, Policy Evaluation

Robotics Movement Primitives, Motor Skill Learning, Robot Table Tennis, Grasping Strategies, Optimal Control, Hierarchical Control, Human-Robot Interaction

Multi-Agent Systems Multi-Agent Learning, Swarm Robotics, Decentralized-POMDPs, Opponent Modeling, Game Theory, Skill Learning for Competitive Agents

Professional Experience

2016/11–now **Full Professor, Chair of Learning for Autonomous Systems,**
University of Lincoln.

2014/09–2016/10 **Assistant Professor, Head of the institute for Computational Learning for Autonomous Systems (CLAS),**
TU Darmstadt.

2013/11–2014/08 **Research group leader: ‘Machine Learning for Robot Control’,**
TU Darmstadt.

2012/04–2013/11 **Postdoctoral fellow,** *TU Darmstadt.*

2011/11–2012/04 **Research Associate,** *TU Darmstadt.*

2008 **Visiting Researcher,** *Max Plank Institute for Biological Cybernetics.*
Department B. Schölkopf

2007/03–2011/10 **Teaching Assistant,** *Graz University of Technology.*

2005/08–2011/10 **Graduate Student,** *Graz University of Technology.*
Supervised by Prof. Wolfgang Maass, Institute for Theoretical Computer Science.

Awards

- 2016 **Best Student Paper**, *ECML*, supervisor.
- 2015 **Best Lecture Award**, *Fachschaft Informatik*, TU Darmstadt.
Best Paper Finalist, *ICRA*.
Best Paper Finalist, **Best Service Robotics Paper Finalist**, *ICRA*.
- 2014 **Best Paper Finalist**, *ICRA 2014*.
- 2012 **Best Cognitive Systems Paper Award and Best Paper Finalist**, *IROS*.
- 2007 **Best Paper Award**, *HUMANOIDS*.

Funding

EU Projects (HORIZON 2020)

- HORIZON 2020: *Smart Manipulation for Nuclear Sorting and Segregation (ROMANS)*, started in May 2015, **main author** from TU Darmstadt, TUDa budget: 1.4M euro

DFG Projects

- *Learning Modular Control Architectures for Robot Motor Skills (LearnRobots)* for the SPP 'Autonomous Learning', started in April 2015, **main author**, TUDa budget: 242K euro

Key Publications

- [1] C. Daniel, **G. Neumann**, O. Kroemer, and J. Peters. *Hierarchical Relative Entropy Policy Search*. *Journal of Machine Learning Research (JMLR)*, 2016.
- [2] R. Abdo, Lioutikov, A., J. Peters, N. Nau, L. Reis, and **G. Neumann**. *Model-based Relative Entropy Stochastic Search*. In *Advances in Neural Information Processing Systems (NIPS)*, **acceptance rate 22%**, 2015.
- [3] A. Paraschos, C. Daniel, J. Peters, and **G. Neumann**. *Probabilistic Movement Primitives*. In *Advances in Neural Information Processing Systems (NIPS)*, Cambridge, MA: MIT Press., **acceptance rate 24%**, 2013.
- [4] A. Kupcsik, M. P. Deisenroth, J. Peters, and **G. Neumann**. *Model-Based Contextual Policy Search for Data-Efficient Generalization of Robot Skills*. *Artificial Intelligence Journal*, 2014.
- [5] **G. Neumann** and J. Peters. *Fitted Q-Iteration by Advantage Weighted Regression*. In *Advances in Neural Information Processing Systems (NIPS)*, **accepted as spotlight, 12% acceptance rate**, 2009.