

Curriculum Vitae - January 2021

Name: Robert Tjarko Lange (*01/02/96)
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Education

- Oct 2017 – Sep 2018 **Imperial College London, London, UK**
Master of Science in Computing (Specialism: Machine Learning - Distinction)
Supervision: Aldo Faisal
- Sep 2016 – July 2017 **Barcelona Graduate School of Economics (UPF/UAB), Barcelona, Spain**
Master of Science in Data Science (GPA: 9.04/10.00 - Ranked 2nd out of 25)
Supervision: Omiros Papaspiliopoulos & Ioannis Kosmidis (UoWarwick)
- Oct 2012 – Feb 2016 **University of Cologne, Cologne, Germany**
Bachelor of Science in Economics (GPA: 1.4/1.0 - Top 5% of Cohort)
- Sep 2005 – Jun 2012 **Ernst-Mach-Gymnasium, Hürth, Germany**
A-levels (GPA: 1.4/1.0) being 16 years old - Shortening 2nd, 9th & 10th grade

Professional Experience

- Oct 2019 – **Science of Intelligence Cluster of Excellence, Berlin, Germany**
Research Assistant: Project: ‚Learning of Intelligent Swarm Behavior‘
Working with Henning Sprekeler & Pawel Romanczuk (HU Berlin)
- Oct 2018 – Oct 2019 **Einstein Center for Neuroscience, Berlin, Germany**
Research Assistant/Lab Rotations in Cognitive Computational Neuroscience
Worked with F. Blankenburg (FUB); H. Sprekeler (TUB); R. Cichy (FUB)
- Apr 2017 – Jul 2017 **Accenture Analytics Innovation Center, Barcelona, Spain**
Applied Projects in Computer Vision, Robotics & NLP
- Mar 2014 – Mar 2016 **Center for Macroeconomic Research, Cologne, Germany**
RA & TA to Prof. Helge Braun (RGS Econ) & Prof. A. Ludwig (SAFE Frankfurt)
Research on the interaction of retirement and unemployment insurance systems.

Teaching Experience

- 2019 – **MSc Student Supervision - SprekelerLab, TU Berlin**
3 lab rotation students and 2 MSc theses (N. Moneta, M. Vischer, D. Müller)
- 2019 – **Teaching Assistant - ‚Models of Higher Brain Function‘, TU Berlin**
Teaching lectures on Deep Reinforcement Learning & supervision of projects
- 2014 – 2016 **Teaching Assistant - ‚Introduction to Macroeconomics‘, UoCologne**
Weekly tutorial sessions and exam correction assistance

Scholarships & Awards

- Oct 2018 – Oct 2019 **Einstein Center for Neurosciences Berlin - Research Scholarship**
- Oct 2018 **Best MSc Specialism Project 2018 - ICL - DoC (sponsored by Winton Capital)**
- Sep 2016 **Award of 50% tuition fee waiver by the BGSE (UPF/UAB) faculty**
- Jun 2014 **Dean’s award of the University of Cologne (Top 10% of faculty students)**
- 2012 – 2018 **German National Academic Foundation (‚Studienstiftung‘) - Scholarship**

Skills

Languages	German <i>Mother tongue</i>	Italian <i>Basic (A1)</i>	English <i>Fluent (C1)</i>	Spanish <i>Basic (A1)</i>
Programming	Python, R, Git, Shell, AWS, Google Cloud Platform – advanced			

Publications & Pre-Prints

- 2020 Gómez Nava, L., [Lange, R. T.](#), Klamsner, P. P., Sprekeler H., Romanczuk, P. (2020). *In Preparation*.
‚Criticality as a strategy to optimally spread information in high-responsive groups‘
- [Lange, R. T.](#), Sprekeler, H. (2020). *Meta-Learning Workshop NeurIPS 2020. arXiv. [\[Link\]](#)*
‚Learning not to Learn: Nature versus nurture in silico‘ (Submitted to ICLR 2021 - Scores: 7, 6, 6, 5)

Gijssen, S.* , Grundei, M.* , [Lange, R. T.](#), Ostwald, D., & Blankenburg, F. (2020). *BioRxiv*. [\[Link\]](#)
,*Neural surprise in somatosensory Bayesian learning* (Accepted in *PLOS Computational Biology*)

2019 Christodoulou, P.* , [Lange, R. T.*](#), Shafti, A., & Faisal, A. A. (2019). *arXiv*. [\[Link\]](#)
,*Reinforcement Learning with Structured Hierarchical Grammar Representations of Actions*

[Lange, R. T.](#), & Faisal, A. (2019). *Deep Reinforcement Learning Workshop NeurIPS 2019*. [\[Link\]](#)
,*Semantic RL with Action Grammars: Data-Efficient Learning of Hierarchical Task Abstractions*

2017 [Lange, R. T.](#) (2017). *Public repository - Universitat Pompeu Fabra* [\[Link\]](#)
,*Randomized Numerical Linear Algebra for GLMs with Big Datasets*

Poster Presentations & Talks

2020 *Posters: MLSS Summer School (Virtual), NeurIPS Workshop (Meta-Learning)*
Talks: SCIOI Excellence Cluster Morning Talks (11/20)

2019 *Posters: NeurIPS Workshop (Deep RL, Transferable Skills), Cognitive Computational Neuroscience Conference, Eastern European ML Summer School, RAAI Conference, FENS ENCODS*

2017 *Posters: DS³ Summer School École Polytechnique (Paris)*

Open Source Projects

2020 – **Machine Learning Experiment (MLE) - Toolbox** [\[Link\]](#)
Toolbox for smooth scheduling & evaluation of distributed ML experiments on Slurm, OpenGridEngine & GCP (multi-seed evaluation & hyper-parameter optim.).

2019 – **Visual Machine Learning Notes** [\[Link\]](#)
Collection of visual sketch notes from ML talks including popular conferences & summer schools. The goal is to provide an accessible one-page summary.

2019 – **Rob's Machine Learning Blog with Code** [\[Blog, Code\]](#)
Collection of blog posts on various topics in Deep (Reinforcement) Learning (e.g. Meta-Policy Gradients, Lottery Ticket Hypothesis, JAX, Forward mode AD, DQN).

2017 **Hidden Markov Models for Stochastic Volatility Estimation** [\[Link\]](#)
Model which describes the volatility process as a latent state in a HMM. The dynamics are inferred using Sequential Monte Carlo. Code written in R and C.

2016 **UNHCR IOM - Migrant Death Report/News Filter** [\[Link\]](#)
Python application that collects migrant death reports from Google News/Twitter feeds & classifies them by credibility using an RNN with pre-trained embeddings.

Further Academic Activities

2020 *Reviewer - Meta-Learning Workshop at NeurIPS, IFAC Workshop on Discrete Event Systems*

2020 – *Independent researcher at for.AI - A distributed AI Research Collaboration* [\[Link\]](#)

2019 – *Organiser ,Flexible Learning' Reading Group (Meta, Transfer, Continual, etc.) at TU Berlin* [\[Link\]](#)

2018 *Part of Advanced Data Science Team at ICL Data Science Society* [\[Link\]](#)

2017 *Editor-in-Chief of Barcelona GSE Data Science Student Blog* [\[Link\]](#)

2016 – *Summer schools: Analysis - [LSE](#) (16'), ML - [DS³](#) (17'), [EEML](#) (19'), [MLSS](#) (20')*

Further Non-Academic Activities

2016 – *Member of ,Kölnischer Kunstverein' (Cologne Art Society)*

2013 – *Member of ,Freunde des Wallraf-Richartz-Museum und des Museums Ludwig e.V.'*

2011 – *Member of ,Mensa in Deutschland e.V.' (Mensa in Germany)*

2011 *Participation in the ,Magic: The Gathering' German National Championships (qualified via rating)*

2008 *Participation in the ,Magic: The Gathering' Pro Tour in San Diego (qualified twice more via PTQs)*