Fabian Fuchs

fabian@robots.ox.ac.uk, -> Website, -> LinkedIn, -> Google Scholar, -> Twitter

Education

09/2017 - 10/2021	**University of Oxford** **PhD in Machine Learning**, AIMS CDT
09/2016 - 08/2017	**University of Oxford** **PhD preparation year**, (taught modules & lab rotations), AIMS CDT
10/2013 - 06/2016	**University of Heidelberg** **M.Sc. Physics**, final grade 1.0 (Top of class)
10/2010 - 08/2013	**University of Erlangen-Nuremberg** **B.Sc. Physics**, final grade 1.2 (First-class, top 10%)
09/2012 - 06/2013	**Imperial College London** (year abroad)

Research Experience

03/2021 - 07/2021	**Google DeepMind, Research Scientist Internship,** London/Montreal Projects on Graph Neural Networks, Self-Supervised Learning and Biochemistry; Supervised by Adam Santoro
10/2017 - 08/2021	**PhD in Machine Learning: 'Learning Invariant Representations'** **University of Oxford,** Prof. Ingmar Posner (A2I, Oxford Robotics Institute) Learning Invariant & Equivariant Representations
01/2020 - 06/2020	**Bosch Center for AI, Research Sabbatical: 'Equivariance for Molecules'** Supervised by Volker Fischer (Bosch) and Prof. Max Welling (Amsterdam)
07/2017 - 09/2017	**Project in Machine Learning: Computer Vision for Self-Driving Cars** **University of Oxford**, Prof. Ingmar Posner Developing a deep learning approach for visual odometry
04/2017 - 06/2017	**Project in Machine Learning: Forecasting the stock market** **University of Oxford**, Prof. Steve Roberts Information extraction from multiple data streams using CNNs
05/2015 - 05/2016	**Master Thesis, Computational Biophysics** (C++, Python) **University of Heidelberg**, Prof. Ulrich Schwarz

Experience in Industry

05/2014 - 09/2016	**GalileiConsult e.V.**, Heidelberg Project leader at a student consultancy
05/2015 - 07/2015	**RoadAds Interactive GbR**, Mannheim Co-founded a start-up for digital advertising on trucks, now worth €3m
02/2015 - 04/2015	**Bain & Company,** Internship in Consulting, Munich Project in financial services including an efficiency analysis for retail banks with Visual Basic
11/2014 - 01/2015	**Siemens Management Consulting,** Internship in Consulting, Munich

Skills

Programming Experience	Proficient in Python; Exposure to C++, Java, C, Matlab, Visual Basic	Languages	German (native) English (fluent) French (basic)

Publications

2021
E(n) Equivariant Normalizing Flows for Molecule Generation in 3D
Victor Garcia Satorras, Emiel Hoogeboom, Fabian B. Fuchs, Ingmar Posner, Max Welling
ArXiv, 2021.

2021
Universal Approximation of Functions on Sets
Edward Wagstaff, Fabian B. Fuchs, Martin Engelcke, Michael Osborne, Ingmar Posner
ArXiv, 2021.

2021
Iterative SE(3)-Transformers
Fabian B. Fuchs, Edward Wagstaff*, Justas Dauparas, Ingmar Posner*
International Conference on Geometric Science of Information, Paris. (oral)

2020
SE(3)-Transformers: 3D Roto-Translation Equivariant Attention Networks
Fabian B. Fuchs, Daniel E. Worrall*, Volker Fischer, Max Welling*
NeurIPS, 2020.

2020
End-to-end Recurrent Multi-Object Tracking and Trajectory Prediction with Relational Reasoning
Fabian B. Fuchs, Adam R. Kosiorek, Li Sun, Oiwi Parker Jones, Ingmar Posner
Sets and Partitions Workshop @ NeurIPS, 2019.

2019
On the Limitations of Representing Functions on Sets
*Ed Wagstaff *, Fabian B. Fuchs *, Martin Engelcke *, Ingmar Posner, Michael Osborne*
ICML, 2019

2019
Neural Stethoscopes: Unifying Analytic, Auxiliary and Adversarial Network Probing
Fabian B. Fuchs, Oliver Groth, Adam R. Kosoriek, Alex Bewley, Markus Wulfmeier, Andrea Vedaldi, Ingmar Posner
BMVC, 2019

2018
ShapeStacks: Learning Vision-Based Physical Intuition for Generalised Object Stacking
Oliver Groth, Fabian B. Fuchs, Ingmar Posner, Andrea Vedaldi
ECCV, 2018

2013
Unidirectional Side Scattering of Light by a Single-Element Nanoantenna
Dries Vercruysse, Yannick Sonnefraud, Niels Verellen, Fabian B. Fuchs, Giuliana Di Martino, Liesbet Lagae, Victor V. Moshchalkov, Stefan A. Maier, Pol Van Dorpe
Nano Letters, 2013 (13)