

CONTACT	www.ta.co.nl <i>E-mail:</i> taco.cohen@gmail.com
RESEARCH INTERESTS	Machine learning, representation learning, deep learning, geometric & equivariant deep learning, visual & auditory perception, medical applications of deep learning, theory of deep learning, generative models & data compression.
EDUCATION	<p><b>Universiteit van Amsterdam</b></p> <p>PhD candidate <span style="float: right;"><b>2013–June 2021</b></span></p> <ul style="list-style-type: none"> <li>• Supervisor: prof. Max Welling.</li> <li>• Area of study: machine learning.</li> <li>• Thesis “Equivariant Convolutional Networks”</li> </ul> <p><b>Universiteit van Amsterdam</b></p> <p>M.Sc. Artificial Intelligence <span style="float: right;"><b>2011–2013</b></span></p> <ul style="list-style-type: none"> <li>• <i>Cum laude</i>, GPA: 9.3 / 10.</li> <li>• Thesis: “Learning Transformation Groups and their Invariants”. Supervisor: prof. Max Welling. Won the university-wide <b>UvA Thesis Prize</b>, 2014.</li> </ul> <p><b>Universiteit Utrecht</b></p> <p>B.Sc., Computer Science <span style="float: right;"><b>2007–2010</b></span></p> <ul style="list-style-type: none"> <li>• <i>Cum Laude</i>, GPA: 4.0 / 4.0.</li> <li>• Elective courses in AI, Cognitive Neuroscience and Human Perception.</li> </ul>
PROFESSIONAL EXPERIENCE	<p>Qualcomm Research Netherlands</p> <p><i>Research Scientist (Senior Staff Eng.)</i> <span style="float: right;"><b>08/2017 – Now</b></span></p> <ul style="list-style-type: none"> <li>• Leading the generative modelling &amp; data compression team.</li> <li>• Co-Supervising PhD students working on geometric deep learning, equivariance &amp; causality.</li> </ul> <p><b>Scyfer (acquired)</b></p> <p><i>Cofounder</i> <span style="float: right;"><b>05/2013 – 08/2017</b></span></p> <ul style="list-style-type: none"> <li>• Successful machine learning startup specialized in deep active learning.</li> <li>• Developed data-efficient deep learning &amp; active learning technologies.</li> <li>• The company served many high-profile clients in medical, social media, retail, finance, broadcasting, manufacturing, telecommunications, and other industries.</li> <li>• Acquired by Qualcomm in 2017.</li> </ul> <p><b>OpenAI, Inc.</b></p> <p><i>Research Intern</i> <span style="float: right;"><b>11/2016 – 03/2017</b></span></p> <p><b>Google DeepMind</b></p> <p><i>Research Intern</i> <span style="float: right;"><b>05/2016 – 08/2016</b></span></p> <ul style="list-style-type: none"> <li>• Semi-supervised learning of equivariant representations, with prof. Geoff Hinton.</li> </ul>

## Several independent game studios

*Freelance programmer*

2005–2010

## TEACHING EXPERIENCE

### Universiteit van Amsterdam

*Teaching Assistant*

2011 – 2016

- Courses: calculus, statistics, computer vision, datastructures, machine learning I, machine learning II.
- BSc thesis supervision: Carla Groenland.
- MSc thesis or project supervision: Luisa Zintgraf, Jorn Peters, Emiel Hogeboom, Marcel Boersma, Liam Schoneveld, Jonas Koehler, Tim Davidson, Pim de Haan, Mario Geiger, Maurice Weiler, Jim Winkens, Jasper Linmans, Marysia Winkels, Ties van Rozendaal.

## PRIZES AND AWARDS

- MIT 35 innovators under 35 Europe, 2018.
- ICLR 2018 Best Paper Award for “Spherical CNNs”.
- Google PhD Fellowship, 2017.
- Best review award ICLR 2017 and Outstanding Reviewer award ICML 2018.
- First place in the university-wide thesis prize of the University of Amsterdam, for my master’s thesis “Learning Transformation Groups and their Invariants”.
- World champion mobile phone throwing 2007 (Freestyle category).

## SELECTED TALKS

2021

- Tutorial on Equivariance @ MINDS TRIPODS Winterschool

2020

- Tutorial on Equivariant Networks @ NeurIPS
- Gauge Theory in Geometric Deep Learning @ DiffGeo4DL workshop (NeurIPS)
- Natural Graph Networks @ This Week in ML & AI (TWIML)
- Equivariant Networks and Natural Graph Networks @ UPenn Workshop on Equivariance and Data Augmentation
- Keynote: Omnidirectional CNNs @ OmniCV Workshop (CVPR)
- Natural Graph networks @ Microsoft Physics meets ML
- Equivariant and Geometric DL @ QC 3D DL Workshop

2019

- Gauge Equivariant CNNs @ UCLA / IPAM Workshop on Deep Geometric Learning of Big Data and Applications
- Gauge Equivariant CNNs @ Berkeley
- Gauge Equivariant CNNs @ ICLR Workshop “Representation Learning on Graphs and Manifolds”
- Gauge Equivariant CNNs @ MSR Workshop on Physics & ML
- Introduction to Equivariant Networks @ ASCI Course on Computer Vision by Learning
- Gauge Equivariant CNNs @ YES X: “Understanding Deep Learning: Generalization, Approximation and Optimization”
- Gauge Equivariant CNNs @ Oxford
- Gauge Equivariant CNNs @ Cambridge
- Gauge Equivariant CNNs @ Imperial College London
- Gauge Equivariant CNNs @ Math+X Symposium on Inverse Problems and Deep Learning in Space Exploration, Rice University

2018

- Power efficient on-device AI @ Re-Work Deep Learning Summit
- Equivariant CNNs: A General Theory @ ECCV Workshop “Geometry Meets Deep Learning”
- General Theory of Equivariant Convolutional Networks @ ICML Workshop “Towards learning with limited labels: Equivariance, Invariance, and Beyond”
- Equivariant Networks @ Data Science Meetup Nijmegen
- Advanced Neural Networks @ iQ Winterschool

2017

- G-CNNs & Steerable CNNs @ Facebook
- G-CNNs & Steerable CNNs @ Google Brain Mountainview
- G-CNNs & Steerable CNNs @ Qualcomm
- Data efficient deep learning @ Scyfer DL & AI Meetup

2016

- Machine Learning @ Nuon college tour
- G-CNNs @ Saclay-Paris
- G-CNNs @ OpenAI
- G-CNNs @ Berkeley Redwood Center
- G-CNNs @ ICT-Open
- De Empathische Machine with Max Welling @ Paradiso Amsterdam

2015

- Learning irreducible Representations @ Tsinghua University
- Equivariant Representations @ Soatto Lab, UCLA
- Harmonic Exponential Families @ ICML
- G-CNNs @ Google Deepmind
- G-CNNs @ Cambridge ML Lab
- G-CNNs @ Alan Turing Institute

2014

- Learning irreducible Representations @ ICML Tractable models workshop