

CONTACT	<a href="http://www.ta.co.nl">www.ta.co.nl</a> <i>E-mail:</i> <a href="mailto:taco.cohen@gmail.com">taco.cohen@gmail.com</a>
RESEARCH INTERESTS	<ul style="list-style-type: none"> <li>• Causal representation learning, interactive learning, unsupervised reinforcement learning, skill learning, intrinsic motivation, embodied AI.</li> <li>• Geometric deep learning, equivariant networks, medical &amp; scientific applications of geometric deep learning, theory of deep learning, theoretical foundations of AI.</li> <li>• Generative models &amp; data compression.</li> </ul>
EDUCATION	<p><b>Universiteit van Amsterdam</b></p> <p>PhD in Machine Learning <span style="float: right;"><b>2013–2021</b></span></p> <ul style="list-style-type: none"> <li>• <i>Cum laude</i>.</li> <li>• Advisor: prof. dr. Max Welling.</li> <li>• Thesis “Equivariant Convolutional Networks”.</li> <li>• Committee: Geoffrey Hinton, Erik Verlinde, Michael Bronstein, Risi Kondor, Erik Bekkers, Leo Dorst, Joris Mooij.</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. dr. 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</i></p> <p>Principal Engineer <span style="float: right;"><b>2021 – Now</b></span></p> <p>Senior Staff Engineer <span style="float: right;"><b>2019 – 2021</b></span></p> <p>Staff Engineer <span style="float: right;"><b>2017 – 2019</b></span></p> <ul style="list-style-type: none"> <li>• Leading the causality &amp; interactive learning team.</li> <li>• Previously founded and led the generative modelling &amp; data compression team and grew it to ~ 12 people.</li> <li>• Co-Supervising several PhD students working on geometric deep learning, equivariance &amp; causality: Pim de Haan, Gabriele Cesa, Natasha Butt, Phillip Lippe, Adeel Pervez, Maurice Weiler, Berkay Kicanaoglu</li> <li>• Intern (co)-supervision: Risto Vuorio, Oriol Corcoll, David Romero, Yura Perugachi Diaz, Iris Huijben, Emiel Hoogeboom, Adam Golinsky, Mirgahney Mohamed, Yadong Lu, Jongha Jon Ryu, Vijay Veerabadran</li> <li>• Actively participating in external/academic collaborations.</li> </ul>

## Scyfer (acquired)

*Co-founder*

**05/2013 – 08/2017**

- Machine learning startup specialized in deep active learning.
- Developed data-efficient deep learning & active learning technologies.
- The company served many high-profile clients in medical, social media, retail, finance, broadcasting, manufacturing, telecommunications, and other industries.
- Acquired by Qualcomm in 2017.

## OpenAI

*Research Intern*

**11/2016 – 03/2017**

## Google DeepMind

*Research Intern*

**05/2016 – 08/2016**

- Semi-supervised learning of equivariant representations, with prof. Geoff Hinton.

## Several indie 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

- Kees Schouhamer Immink prize for my PhD thesis, from the Koninklijke Hollandische Maatschappij der Wetenschappen (Royal Dutch Scientific Society, est. 1752), 2022.
- Graduated *cum laude* for BSc, MSc and PhD.
- MIT 35 innovators under 35 Europe, 2018.
- ICLR 2018 Best Paper Award for “Spherical CNNs”.
- Google PhD Fellowship, 2017.
- Best review award ICLR 2017, Outstanding Reviewer award ICML 2018 and NeurIPS 2021.
- 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).

## SERVICE

### European Lab for Learning and Intelligent Systems

*Co-Director*

**2020 – Now**

- Co-director of the ELLIS Geometric Deep Learning program.
- Connecting the European GDL community at regular workshops.

### Reviewer

*Reviewer*

**2014 – Now**

- Regular reviewer at ICLR, ICML, NeurIPS, TMLR. Occasional reviewer for ICCV, ECCV, AAAI, TPAMI, JMLR

SELECTED TALKS  
& INTERVIEWS

2021

- Course on Geometric Deep Learning @ African Masters in Machine Intelligence (With M. Bronstein, J. Bruna, P. Veličković)
- Webinar: How AI research is enabling next-gen codecs
- 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
- Spherical CNNs @ ICLR

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