

CONTACT INFORMATION	Brantasgracht 15 1019 RK Amsterdam, The Netherlands	<i>Mobile:</i> +31-(0)6-48309145 <i>E-mail:</i> taco.cohen@gmail.com
RESEARCH INTERESTS	Machine learning, representation learning, deep learning, computer vision, reinforcement learning, applications of group representation theory.	
EDUCATION	Universiteit van Amsterdam	
	PhD candidate	2013–2017
	<ul style="list-style-type: none">• Supervisor: prof. Max Welling.• Area of study: machine learning.	
	Universiteit van Amsterdam	
	M.Sc. Artificial Intelligence	2011–2013
	<ul style="list-style-type: none">• <i>Cum laude</i>, GPA: 9.3 / 10.• Thesis: “Learning Transformation Groups and their Invariants”. Supervisor: prof. Max Welling.• Won the university-wide UvA thesis prize, 2014.	
	Universiteit Utrecht	
	B.Sc., Computer Science	2007–2010
	<ul style="list-style-type: none">• <i>Cum Laude</i>, GPA: 4.0 / 4.0.• Elective courses in AI, Cognitive Neuroscience and Human Perception.	
PROFESSIONAL EXPERIENCE	OpenAI	
	<i>Research Intern</i>	November 2016 – March 2017
	DeepMind	
	<i>Research Intern</i>	May – August 2016
	<ul style="list-style-type: none">• Worked with prof. Geoff Hinton on semi-supervised learning of equivariant representations.	
	Scyfer	
	<i>Cofounder</i>	2013 –
	<ul style="list-style-type: none">• Successful machine learning startup specialized in bringing deep learning to business and institutions in a wide range of sectors.	
	ThirdSight (now SightCorp)	
	<i>Scientific programmer</i>	Juli – August 2012
	<ul style="list-style-type: none">• Created a highly optimized GPU implementation of Constrained Local Models.	

Dutch Global Game Jam, **Virtual Fairground**,

Freelance programmer, concept development

2009–2010

- Created a rhythm-action game called Pulse in 48 hours with fellow students, winning the “audience favorite” prize at the DGGJ. Subsequently got a development deal from Amsterdam based game developer and publisher Virtual Fairground, and developed an iPhone version of the game.

Several independent game studios

Freelance programmer

2005–2007

TEACHING EXPERIENCE

Universiteit van Amsterdam

Teaching Assistant

2011 –

- Courses: datastructures, continuous mathematics and statistics, computer vision, machine learning I, machine learning II
- Project or thesis supervision: Carla Groenhart (BSc), Luisa Zintgraf (MSc), Jorn Peters (MSc), Emiel Hogeboom (MSc), Maartje ter Hoeve (MSc), Liam Schoneveld (MSc), Jonas Koehler (MSc)

SKILLS

Computer Programming (in decreasing order of proficiency):

- Python, C++, Java, Lua, Matlab, GPU programming using HLSL, ActionScript 3.0, SQL, Haskell, prolog, PHP

Mathematics:

- Linear & geometric algebra, statistics, calculus, discrete mathematics, group theory, group representation theory, non-commutative harmonic analysis, differential geometry.

PRIZES AND AWARDS

- Google PhD Fellowship, 2017.
- Best review award, International Conference on Learning Representations, 2017.
- First place in the university-wide thesis prize of the University of Amsterdam, for my master’s thesis “Learning Transformation Groups and their Invariants”.
- First place in a machine learning competition organized by ING Bank. I built a deep learning system that outperformed systems from ING, IBM and another major consultancy firm by a very large margin.
- Audience favorite prize for our 48-hour game “Pulse” at the Dutch Game Jam.

PUBLICATIONS

- T.S. Cohen, M. Welling, Steerable CNNs, International Conference on Learning Representations (ICLR), 2017
- L.M. Zintgraf, T.S. Cohen, T. Adel, M. Welling, Visualizing Deep Neural Network Decisions: Prediction Difference Analysis, International Conference on Learning Representations (ICLR), 2017
- T. Adel, T.S. Cohen, M.W. Caan, M. Welling, 3D Scattering Transforms for Disease Classification in Neuroimaging, NeuroImage: Clinical, 2017
- A. Eck, L. Zintgraf, E. de Groot, T. de Meij, T. Cohen, P. Savelkoul, M. Welling and A. Budding, Explaining Individual Classifier Decisions for Microbiota Diagnosis, *under review* BMC Bioinformatics.
- T.S. Cohen, M. Welling, Group Equivariant Convolutional Networks. Proceedings of the International Conference on Machine Learning (ICML), 2016
- L.M. Zintgraf, T.S. Cohen, M. Welling, A New Method to Visualize Deep Neural Networks. ArXiv preprint 1603.02518, 2016

- T.S. Cohen, M. Welling, Harmonic Exponential Families on Manifolds. Proceedings of the International Conference on Machine Learning (ICML), 2015
- T.S. Cohen, M. Welling, Transformation Properties of Learned Visual Representations. International Conference on Learning Representations (ICLR), 2015.
- T.S. Cohen, M. Welling, Learning the Irreducible Representations of Commutative Lie Groups. Proceedings of the International Conference on Machine Learning (ICML), 2014.
- T.S. Cohen, Learning Transformation Groups and their Invariants. Masters thesis, University of Amsterdam, 2013. (1st place University of Amsterdam thesis prize 2014)