Tim B. Bakker

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Do not go gentle into that good night.
Rage, rage against the dying of the light.
~ Dylan Thomas

Publications

2022   **On learning adaptive acquisition policies for undersampled multi-coil MRI reconstruction**, *T. Bakker, M. Muckley, A. Romero-Soriano, M. Drozdzal, L. Pineda*, Medical Imaging with Deep Learning, MIDL 2022.

2021   **Back to Basics: Deep Reinforcement Learning in Traffic Signal Control**, *S. Kanis, L. Samson, D. Bloembergen, T. Bakker*, The 10th International Workshop on Urban Computing, UrbComp 2021.
Best paper-award runner-up

2020   **Experimental design for MRI by greedy policy search**, *T. Bakker, H. van Hoof, M. Welling*, Conference on Neural Information Processing Systems, NeurIPS 2020.
Spotlight presentation

Relevant work experience

2019-current   **PhD student at AMLab**, *University of Amsterdam*, Amsterdam.
My main research topics are active learning and active sensing. Other interests include Bayesian probability theory and reinforcement learning. I have recently become interested in applying my research topics to 'AI4Science' applications. I have taught for multiple courses on basic machine learning and reinforcement learning. I have supervised Master students on multiple final projects, one of which resulted in a workshop paper.

2021-2021   **Research internship at FAIR**, *Facebook AI Research*, Montreal (remote).
Research internship on machine learning for active sensing in Magnetic Resonance Imaging. Resulted in a conference paper at MIDL, 2022.

2017-2019   **Machine learning engineer**, *BrainCreators*, Amsterdam.
I did various projects on applying classical and deep learning models to client use-cases. I laid the ground work on audio segmentation for the award-winning BNR Smart Radio.

Education

2014–2016   **Master of Science (Theoretical Physics)**, *University of Amsterdam*, *8.4 (Cum Laude)*.
Interdisciplinary courses: Statistical Programming, Advanced Statistics, Programming in Mathematica, Information Theory, Group Theory.
Master project: On the Cox-Jaynes justification for objective Bayesian probability theory and the mind projection fallacy in physics.

2011–2014 **Bachelor of Science (Physics and Astronomy)**, *University of Amsterdam*, *8.6 (Cum Laude, Cum Honore)*.
Interdisciplinary courses: Programming in Python, Algebra (Group Theory), Chaos Theory, Complex Analysis.
Bachelor project: Area Dependence of Scalar Field Entanglement Entropy.

Miscellaneous coursework

Course **Teaching skills for PhD students**, *July 2019 and October 2020*, Amsterdam.

Traineeship **Young Mavericks data science traineeship**, *April 2017*, Amsterdam.

Course **Neural Networks for Machine Learning - University of Toronto**, *December 2016*, Online.

Course **Machine Learning - Stanford University**, *October 2016*, Online.

Workshop **Center for Applied Rationality Workshop**, *May 2016*, San Francisco.

Programming

Primary Cumulative six years experience in Python doing scientific programming and machine learning. Proficient in PyTorch.

Organising

Organiser **Inclusive AI**, *April 2019 - current*, University of Amsterdam.

Organiser **Effective Altruism Amsterdam**, *March 2016 - current*, Amsterdam.

Organiser **LessWrong Meetup Netherlands**, *July 2016 - July 2018*, Amsterdam.

Organiser **Effective Altruism Netherlands**, *May 2016 - July 2017*, Utrecht.

Languages

Dutch **Native**

English **Full professional proficiency**