# Tim B. Bakker

Amsterdam The Netherlands ⊠ t.b.bakker@uva.nl



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

# Publications

T. Bakker, T. Hehn, T. Orekondy, A. Behboodi, and F. V. Massoli. Active Learning Policies for Solving Inverse Problems. In *Neural Information Processing Systems Workshop on Adaptive Experimental Design and Active Learning in the Real World*, Dec 2023. Qualcomm Al internship.

T. Bakker, F. V. Massoli, T. Hehn, T. Orekondy, and A. Behboodi. Switching policies for solving inverse problems. In *Neural Information Processing Systems Workshop on Deep Learning and Inverse Problems*, Dec 2023. Qualcomm AI internship.

T. Bakker, M. Muckley, A. Romero-Soriano, M. Drozdzal, and L. Pineda. On learning adaptive acquisition policies for undersampled multi-coil MRI reconstruction. In *Proceedings of Machine Learning Research*, Jul 2022. FAIR internship.

T. Bakker, H. van Hoof, and M. Welling. Experimental design for MRI by greedy policy search. In *Advances in Neural Information Processing Systems 33*, Dec 2020. Spotlight presentation.

T. Bakker, H. van Hoof, and M. Welling. Learning objective-specific active learning strategies with attentive neural processes. In *Proceedings of the European Conference on Machine Learning*, Sep 2023.

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

T. Pandeva, T. Bakker, C. Naesseth, and P. Forré. E-Valuating Classifier Two-Sample Tests. *pre-print*, Oct 2022. arXiv eprint 2210.13027.

# Selected talks

- 2023 National AI Debate, BNR Radio, Rotterdam.
- 2023 Academic Panel on Al Risk, University of Amsterdam, Amsterdam.
- 2023 Panel on Existential Risks of AI, Pakhuis de Zwijger, Amsterdam.
- 2020 Active Sensing for MRI, Qualcomm AI, Amsterdam.

## Relevant work experience

2019-current **PhD student at AMLab**, *University of Amsterdam*, Amsterdam. My research primarily focuses on reinforcement learning for active learning and active sensing.

- 2023-2023 **Research internship at Qualcomm AI**, *Qualcomm AI*, Amsterdam. Research internship on reinforcement learning for inverse problem optimisation. Resulted in two NeurIPS 2023 workshop papers.
- 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. 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).

**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).

Bachelor project: Area Dependence of Scalar Field Entanglement Entropy.

# Volunteering and organising

- Co-founder **AI Safety Initiative Amsterdam**, *September 2023 current*, University of Amsterdam.
- Mentor Inclusive AI, April 2019 current, University of Amsterdam.
- Co-founder Effective Altruism Amsterdam, March 2016 current, Amsterdam.
- Co-founder LessWrong Meetup Netherlands, July 2016 July 2018, Amsterdam.
- Organiser Effective Altruism Netherlands, May 2016 July 2017, Utrecht.

#### Languages

Dutch Native

English Full professional proficiency