MIKKO A. HEIKKILÄ

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EDUCATION

University of Helsinki *2017-22 (expected)*
PhD Statistics
Privacy-preserving machine learning

University of Helsinki *2016*
MSc Computational statistics
Minor in Mathematics & Computer science

University of Helsinki *2015*
BSc Statistics
Minor in Mathematics & Computer science

University of Helsinki *2013*
MA Folklore studies
Minor in Sociology & Finnish literature studies

RESEARCH EXPERIENCE

University of Helsinki 2017 - Present
Doctoral candidate *Helsinki, Finland*

· I concentrate on privacy-preserving (differentially private) machine learning with the general aim of combining new theoretical insights with practical implementations. My research has mostly focused on combining distributed (federated) Bayesian learning with differential privacy.

University of Helsinki June 2016-2017
Research assistant *Helsinki, Finland*

· Working on probabilistic graphical models and on differential privacy.

Tutkimustoimisto Kide Oy January-December 2015
Data analyst *Helsinki, Finland*

· Doing statistical analysis and visualisation.

IFO Institute February-March 2014
Undergraduate intern *Munich, Germany*

· Assisting in statistical research by running statistical analysis and doing visualisations.

PUBLICATIONS

M. A. Heikkilä, M. Ashman, S. Swaroop, R. E. Turner & A. Honkela: *Differentially private partitioned variational inference.* ArXiv:2209.11595, 2022.

A. Koskela, **M. A. Heikkilä**, & A. Honkela: *Tight accounting in the shuffle model of differential privacy.* ArXiv:2106.00477, 2021.

M. A. Heikkilä, A. Koskela, K. Shimizu, S. Kaski, & A. Honkela: *Differentially private cross-silo federated learning.* ArXiv:2007.05553, 2020.

M. A. Heikkilä, J. Jälkö, O. Dikmen & A. Honkela: *Differentially private Markov chain Monte Carlo.* In NeurIPS 2019.

T. Niinimäki, **M. A. Heikkilä**, A. Honkela & S. Kaski: *Representation transfer for differentially private drug sensitivity prediction.* In ISMB 2019.

M. A. Heikkilä, E. Lagerspetz, S. Kaski, K. Shimizu, S. Tarkoma & A. Honkela: *Differentially private Bayesian learning on distributed data.* In NIPS 2017.

GRANTS

Nokia Scholarship 2017, 2020

TEACHING EXPERIENCE

Statistics for Data Science	Autumn 2022 Teaching Assistant (University of Helsinki)
Computational Statistics	Autumn 2021 & Spring 2022 Teaching Assistant (University of Helsinki)
Computational Statistics II	Autumn 2017 & 2018 Main lecturer (project course in University of Helsinki)
Bachelor student seminar	Spring 2020 Supervisor (seminar in CS department, University of Helsinki)
Trustworthy Machine Learning	Autumn 2020 Teaching Assistant (University of Helsinki)

SERVICE

Peer-reviewer

NeurIPS, ICLR (Highlighted reviewer), ICML, AISTATS, UAI, JMLR

TECHNICAL STRENGTHS

Computer Languages Python, R, Matlab, Java

POSTER PRESENTATIONS, INTERNATIONAL

Differentially Private Markov Chain Monte Carlo.
M. Heikkilä, J. Jälkö, O. Dikmen & A. Honkela
NeurIPS 2019, 6.-12.12. Vancouver, Canada.

Representation Transfer for Differentially Private Drug Sensitivity Prediction.
T. Niinimäki, **M. Heikkilä**, A. Honkela & S. Kaski
Amazon Research Days, 5.10.2018, Berlin, Germany.

Differentially Private Bayesian Learning on Distributed Data
M. Heikkilä, E. Lagerspetz, S. Kaski, K. Shimizu, S. Tarkoma & A. Honkela
NeurIPS 2017, 4.-9.12., Long Beach, CA, USA.

POSTER PRESENTATIONS, NATIONAL

Tight accounting in the shuffle model of differential privacy.
A. Koskela, **M. Heikkilä** & A. Honkela
AI Day 2021, Finnish Centre for AI (FCAI), 4.11.21, Espoo, Finland.

Differentially Private Cross-silo Federated Learning.
M. Heikkilä, A. Koskela, K. Shimizu, S. Kaski & A. Honkela
AI Day 2020, Finnish Centre for AI (FCAI), virtual conference.

Representation Transfer for Differentially Private Drug Sensitivity Prediction.
T. Niinimäki, **M. Heikkilä**, A. Honkela & S. Kaski
AI Day, Finnish Centre for AI (FCAI), 12.12.2018, Espoo, Finland.

CONFERENCE & SEMINAR PRESENTATIONS, NATIONAL

Differentially Private Bayesian Learning on Distributed Data
M. Heikkilä, E. Lagerspetz, S. Kaski, K. Shimizu, S. Tarkoma & A. Honkela
Oral presentation, Statistics seminar, University of Helsinki, 23.1.2018, Helsinki, Finland

Differentially Private Bayesian Learning on Distributed Data
M. Heikkilä, E. Lagerspetz, S. Kaski, K. Shimizu, S. Tarkoma & A. Honkela
Oral presentation, European Meeting of Statisticians, 24.-28.7.2017, Helsinki, Finland

WORKSHOP PRESENTATIONS

Tight accounting in the shuffle model of differential privacy.
A. Koskela, **M. Heikkilä** & A. Honkela
Poster in PriML, NeurIPS 2021, virtual conference.

Tight accounting in the shuffle model of differential privacy.
A. Koskela, **M. Heikkilä** & A. Honkela
Poster in Google federated learning workshop 2021.

Differentially Private Cross-silo Federated Learning.
M. Heikkilä, A. Koskela, K. Shimizu, S. Kaski & A. Honkela
Poster in PriML/PPML, NeurIPS 2020, virtual conference.

Differentially Private Markov Chain Monte Carlo.
M. Heikkilä, J. Jälkö, O. Dikmen & A. Honkela
Poster in Theory and Practice of Differential Privacy (TPDP), 11.11.2019 London, UK.

Representation Transfer for Differentially Private Drug Sensitivity Prediction.
T. Niinimäki, **M. Heikkilä**, A. Honkela & S. Kaski
Poster in Privacy in Machine Learning and Artificial Inteligence (PiMLAI), ICML 2018, 10.-15.7., Stockholm, Sweden

Differentially Private Bayesian Learning on Distributed Data
M. Heikkilä, E. Lagerspetz, S. Kaski, K. Shimizu, S. Tarkoma & A. Honkela
Poster in Private and Secure Machine Learning, ICML 2017, 6.-11.8., Sydney, Australia