CURRICULUM VITAE OF ANDREAS KRAUSE

Professor of Computer Science, ETH Zürich

November 2017

CONTACT INFORMATION

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EDUCATIONAL BACKGROUND

Ph.D. in Computer Science, Carnegie Mellon University, December 2008.

Diplom in Mathematik, (M.Sc. equiv. in Mathematics) Technische Universität München, Sept. 2004.

Diplom in Informatik, (M.Sc. equiv. in Computer Science) Technische Universität München, Apr. '04.

POSITIONS HELD

Professor of Computer Science, ETH Zurich (Assistant '11-'14, Associate '15-'17, Full Prof. since '17).

Leading the *Learning & Adaptive Systems Group*,
Academic Co-Director of the *Swiss Data Science Center* for ETH Zurich,
Member of the *Institute for Machine Learning*,
Member of the *Max Planck ETH Center for Learning Systems*.

Assistant Professor of Computer Science (Jan.'09-Dec.'12).

Member of the *Rigorous Systems Research Group (RSRG)*, *Computation and Neural Systems (CNS) faculty* and *Center for the Mathematics of Information (CMI) faculty* at Caltech.

VISITING POSITIONS

Visiting Scholar, University of California, Berkeley (Jan '17-May'17).

Invited long-term visitor at the Simons Institute's Foundations of Machine Learning program

ACADEMIC HONORS AND RECOGNITIONS

- *European Research Council (ERC) Starting Grant*, 2012
- *Microsoft Research Faculty Fellow*, 2012
- *Deutscher Mustererkennungspreis* (highest award of German Pattern Recognition Society DAGM) 2012
- *Kavli Frontiers of Science Fellow*, National Academy of Sciences 2010
- *NSF CAREER* Award 2010
- *Okawa Foundation* Award recognizing top young researcher in the telecommunications field, 2009
- *Honorable Mention for the CMU School of Computer Science Distinguished Dissertation Award*, 2009
- *Microsoft Research Graduate Fellowship* 2007-2008
- *Top score* at Battle of the Water Sensor Networks (BWSN) sensor placement challenge '07

AWARDS FOR PUBLICATIONS

- *Best Application Paper Award* for the paper "Bayesian Optimization for Maximum Power Point Tracking in Photovoltaic Power Plants" at ECC 2016
- *SIGPLAN and CACM Research Highlights* for "Predicting Program Properties from Big Code" at POPL 2015
- *Best Student Paper Award* for the paper "Tradeoffs for Space, Time, Data and Risk in Unsupervised Learning", at AISTATS 2015
- *IJCAI-JAIR Best Paper Award 2013* for the paper "Adaptive Submodularity: Theory and Applications in Active Learning and Stochastic Optimization", awarded annually to an outstanding paper published in the Journal of AI Research in the preceding 5 years
- *Best Paper Award* for the paper "A Fresh Perspective: Learning to Sparsify for Detection in Massive, Noisy Sensor Networks", at IPSN 2013
- *Best Conference Robotics Paper Award Nominee* for the paper "Robot Navigation in Dense Human Crowds: the Case for Cooperation", at ICRA 2013
- *Best Paper Award Nominee* for the paper ""Smart" Design Space Sampling to Predict Pareto-Optimal Solutions", at LCTES 2012
- *IJCAI-JAIR Best Paper Runner Up Award 2012* for the paper "Optimal Value of Information in Graphical Models", awarded annually to an outstanding paper published in JAIR in the preceding 5 years
- *Outstanding Paper Award* for the paper "Dynamic Resource Allocation in Conservation Planning", at AAAI 2011
- *Best Research Paper Award Honorable Mention* for the paper "Inferring Networks of Diffusion and Influence" at KDD 2010
- *Best Research Paper Award* of the ASCE Journal of Water Resources Planning and Management Engineering for the paper "Efficient Sensor Placement Optimization for Securing Large Water Distribution Networks" 2008
- *Best Student Paper Award* for the paper "Cost-effective Outbreak Detection in Networks" at KDD 2007
- *Best Paper Award* for the paper "Near-optimal Sensor Placements: Maximizing Information while Minimizing Communication Cost" at IPSN 2006
- *Best Paper Runner Up Award* for the paper "Near-optimal Sensor Placements in Gaussian Processes", ICML 2005
- *Best Paper Runner Up Award* for the paper "Near-optimal Nonmyopic Value of Information in Graphical Models" at UAI 2005
- *NRW Undergraduate Science Award* for publishing an outstanding journal paper (in IEEE Transactions on Mobile Computing) during undergraduate studies – April 2005

TEACHING AWARDS

- *VIS Teaching Award* at ETH Zurich 2013
- *Golden Owl* teaching award at ETH Zurich 2012

PROFESSIONAL ACTIVITIES

CONFERENCE ORGANIZATION SERVICE:

Program Co-Chair for ICML 2018
Tutorial Co-Chair for IJCAI 2017
Member of the International Machine Learning Society (IMLS) Board since 2015
NIPS Award Committee 2013

CHAIRING INVITED SESSIONS AT CONFERENCES:

Session on Active Learning and Sequential Design. IMS/ASA Spring Research Conference 2012, Harvard University, Boston, USA.

SUMMER SCHOOL ORGANIZATION:

ETH/MPI Research Network on Learning Systems Summer School, June 2014.

WORKSHOP ORGANIZATION:

NIPS Workshop "Discrete Structures in Machine Learning", December 2017, with J. Bilmes (University of Washington), S. Jegelka (UC Berkeley), A. Karbasi (Yale) and Y. Singer (Harvard)

Bertinoro Workshop "Data-driven Algorithmics", November 2017, with Y. Singer (Harvard University)

Dagstuhl Seminar "Machine Learning and Formal Methods", August 2017, with S. Seshia (UC Berkeley), J. Zhu (U Wisconsin), S. Jha (UTRC Berkeley)

ICML Workshop "Data Efficient Machine Learning", June 2016, with M. Deissenroth, S. Mohamed, D. Finale, M. Welling.

Data-Driven Algorithmics workshop at Harvard University, September 2015, with Y. Singer.

DALI Workshop "Networks: Processes and Causality", April 2015, with M. G. Rodriguez and J. Peters.

NIPS Workshop "Discrete Optimization in Machine Learning", December 2014, with J. Bilmes (University of Washington) and S. Jegelka (UC Berkeley).

NIPS Workshop "Machine Learning for Sustainability', December 2013, with E. Bonilla (NICTA), T. Dietterich (Oregon State University) and T. Damoulas (NYU).

NIPS Workshop "Discrete Optimization in Machine Learning: Theory and Practice", December 2013, with P. Ravikumar (University of Wisconsin), J. Bilmes (University of Washington) and S. Jegelka (UC Berkeley).

NIPS Workshop "Discrete Optimization in Machine Learning: Structure and Scalability", December 2012, with P. Ravikumar (University of Wisconsin), J. Bilmes (University of Washington) and S. Jegelka (Max Planck Institute for Biological Cybernetics, Tübingen).

NIPS Workshop "Discrete Optimization in Machine Learning: Uncertainty, Generalization and Feedback", December 2011, with P. Ravikumar (University of Wisconsin), J. Bilmes (University of Washington) and S. Jegelka (Max Planck Institute for Biological Cybernetics, Tübingen).

NIPS Workshop "Discrete Optimization in Machine Learning: Structures, Algorithms and Applications", December 2010, with P. Ravikumar (University of Wisconsin), J. Bilmes (University of Washington) and S. Jegelka (Max Planck Institute for Biological Cybernetics, Tübingen).

RSS Workshop "Active Learning in Robotics", June 2010, with Ruben Martinez-Cantin (Instituto Superior Tecnico, Lisbon, Portugal) and Jan Peters (MPI Tuebingen, Germany).

Dagstuhl Seminar "Probabilistic Methods for Perceiving, Learning and Reasoning about Everyday Activities", June 2010, with M. Beetz (TU München), T. Choudhury (Dartmouth), F. de la Torre (CMU), D. Fox (University of Washington).

NIPS Workshop "Discrete Optimization in Machine Learning: Submodularity, Polyhedra and Sparsity", December 2009, with P. Ravikumar (University of Wisconsin) and J. Bilmes (University of Washington).

PANELS AND PROPOSAL REVIEWING:

European Research Council, External Reviewer, 2016
Swiss National Science Foundation, 2011, 2014-2016
Österreichische Forschungsförderungsgesellschaft mbH (FFG), 2015-2016
Israel Science Foundation, 2015
Agence Nationale de la Recherche (ANR), 2014, 2015
Netherlands Organisation for Scientific Research (NWO), 2011
Natural Sciences and Engineering Research Council of Canada, 2011
US National Science Foundation, 2010, 2013
US Department of Energy, 2009

EDITORSHIP:

Journal of Machine Learning Research (Action Editor, since 2014)
Journal of Artificial Intelligence Research (Associate Editor, 2014-2016)
ACM Transactions on Sensor Networks (Associate Editor, 2010-2015)
AI Access Foundation (Associate Editor, since 2013)

MANUSCRIPT REVIEWING:

Foundations and Trends in Machine Learning. now publishers.
STAR Series. Springer

JOURNAL REVIEWING:

Journal of Machine Learning Research
Journal of Machine Learning Research Machine Learning Open Source Software
Journal of Artificial Intelligence Research
Journal of Computational and Graphical Statistics
Journal of Dynamic Systems, Measurement and Control
IEEE Transactions on Automatic Control
IEEE Transactions on Knowledge and Data Engineering
IEEE Transactions on Information Theory
IEEE Transactions on Mobile Computing
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on Robotics
IEEE Transactions on Signal Processing
IEEE Transactions on Systems, Man and Cybernetics
IEEE Transactions on Haptics
IEEE/ACM Transactions on Networking
IEEE Signal Processing Letters
IEEE Pervasive Computing Magazine
IEEE Journal on Selected Areas in Communications
ACM Transactions on Algorithms
ACM Transactions on Autonomous and Adaptive Systems
ACM Transactions on Sensor Networks
ACM Transactions on Embedded Computing Systems
Artificial Intelligence
Decision Analysis
Discrete Applied Mathematics
Operations Research
Robots and Autonomous Systems
ASCE Journal of Water Resources Planning and Management

Nature Communications
Proceedings of the IEEE
Journal of the Royal Society Interface

SENIOR PROGRAM COMMITTEE MEMBERSHIP / AREA CHAIR:

International Conference on Machine Learning (ICML) 2012-2017 Area Chair;
Neural Information Processing Systems (NIPS) 2013-2015 Area Chair;
European Conference on Artificial Intelligence (ECAI) 2012 Area Chair;
AAAI Conference on Human Computation (HCOMP) 2013 TPC;
International Conference on Information Processing in Sensor Networks (IPSN) '12, '13 TPC;
Conference on Uncertainty in Artificial Intelligence (UAI) 2012;
AAAI Conference on Artificial Intelligence 2012, 2013, 2015, 2017 SPC;
International Joint Conference on Artificial Intelligence (IJCAI) 2011, 2013, 2015, 2016.

PROGRAM COMMITTEE MEMBERSHIP:

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2013-2015;
International World Wide Web Conference (WWW) 2013;
Conference on Neural Information Processing Systems (NIPS) Reviewer 2010, 2011, 2012;
International Conference on Computational Sustainability (CompSust) 2010;
International Conference on Autonomous Agents and Multiagent Systems (AAMAS) 2010;
International Conference on Artificial Intelligence and Statistics (AISTATS) 2010, 2011;
Conference on Uncertainty in Artificial Intelligence (UAI) 2009; 2011
International Conference on Machine Learning (ICML) 2008, 2010, 2011;
AAAI Conference on Artificial Intelligence 2008, 2011, 2012, 2013;
European Conference on Artificial Intelligence (ECAI) 2010;
European Conference on Machine Learning (ECML) 2008; 2009.

EXTERNAL CONFERENCE REVIEWING:

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2012;
International Statistical Signal Processing Workshop (SSP) 2012;
Conference on Decision and Control (CDC) 2012;
ACM Conference on Embedded Networked Sensor Systems (SenSys) 2011;
Conference on Learning Theory (COLT) 2010;
IEEE Conference on Computer Communications (INFOCOM) 2010;
International Conference on Machine Learning (ICML) 2006, 2007;
Conference on Neural Information Processing Systems (NIPS) 2006;
ACM/IEEE International Conf. Information Processing in Sensor Networks (IPSN) '06, '07, '09;
International World Wide Web Conference (WWW) 2005;
IEEE Symposium on Foundations of Computer Science (FOCS) 2007;
International Conference on Robotics and Applications (ICRA) 2008, 2009, 2010.

ADVISORY BOARD MEMBER

ElectricFeel Scientific Advisory Board.

COURSES TAUGHT

- 252-5051-00L – Seminar: Advanced Topics in Machine Learning (Fall 2017, taught 25%)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2017)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Fall 2017, taught 50%)
- 252-5051-00L – Seminar: Advanced Topics in Machine Learning (Fall 2016, taught 25%)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Fall 2016)

- 252-0220-00L – Learning and Intelligent Systems (Spring 2016)
- 252-5051-00L – Seminar: Advanced Topics in Machine Learning (Fall 2015, 33%)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2015)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Fall 2015)
- 252-0220-00L – Learning and Intelligent Systems (Spring 2015)
- 252-5051-00L – Seminar: Advanced Topics in Machine Learning (Fall 2014, 33%)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2014)
- 263-5220-00L – Projects in Machine Learning: Selected Topics (Spring 2014, 33%)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Spring 2014)
- 252-0535-00L – Machine Learning (Fall 2013)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2013)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Spring 2013)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2012)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Spring 2012)
- 263-5210-00L – Probabilistic Artificial Intelligence (Fall 2011)
- 252-0341-01L – Information Retrieval (Fall 2011, 40%)
- 263-5200-00L – Data Mining: Learning from Large Data Sets (Spring 2011)
- CS/CNS/EE 154 – Artificial Intelligence (Fall '10/'11, at Caltech)
- CS/CNS/EE 253 – Advanced Topics in Machine Learning (Winter '09/'10, at Caltech).
- CS/CNS/EE 155 – Probabilistic Graphical Models (Fall '09/'10, at Caltech).
- CS 101.2 – Active Learning and Optimized Information Gathering (Winter '08/'09, at Caltech).

Advising and Thesis Committees

Current postdoctoral scholars:

- Hoda Heidari (since 08/2017)
- Kfir Levy (since 10/2016)
- Jens Witkowski (since 06/2015)

Current Ph.D. students:

- Anastasia Makarova (since 09/2017)
- Sebastian Curi (since 07/2017)
- Zalán Borsos (since 05/2017)
- Matteo Turchetta (since 10/2016)
- Manuel Wüthrich (since 10/2016) – external, with Max Planck Institute for Intelligent Systems
- Johannes Kirschner (since 09/2016)
- Aytunç Şahin (since 01/2016) – with Joachim Buhmann
- Felix Berkenkamp (since 02/2015)
- Olivier Bachem (since 10/2014)
- Josip Djolonga (since 02/2014)
- Alkis Gotovos (since 10/2013)
- Baharan Mirzasoleiman (since 02/2013) – defended July 2017

Current M.Sc. students:

- Teymur Babayev (08/2017-02/2018)
- Stefan Beyeler (08/2017-02/2018)
- Michael Bühler (05/2017-11/2017)

Former Students and Postdocs

Former postdoctoral scholars associated with the group

- Dr. Sebastian Tschiatschek (02/2015-09/2017); now Researcher at MSR Cambridge
- Dr. Hamed Hassani (04/2014-01/2017); now Assistant Prof. at University of Pennsylvania
- Dr. Gábor Bartók (07/2012-08/2014); now at Google
- Dr. Amin Karbasi (03/2013-07/2014; ETH Fellow); now Assistant Professor at Yale University
- Dr. Daniel Golovin (09/2009-07/2011, partially supported by CMI), now at Google
- Dr. Imre Risi Kondor (09/2009-07/2011, partially supported by CMI), now Assistant Professor at the University of Chicago Computer Science and Statistics
- Dr. Dan Feldman (02/2010-07/2011, supported by CMI), now Assistant Professor at the University of Haifa

Ph.D. students supervised

- Mario Lŭcíc (01/2013-07/2017) – *Computational and Statistical Tradeoffs via Data Summarization*. Now at Google Brain.
- Adish Singla (01/2012-05/2017) – *Learning and Incentives in Crowd-Powered Systems*. Now tenure-track faculty member at Max Planck Institute for Software Systems
- Yuxin Chen (09/2011-12/2016) – *Near-optimal Adaptive Information Acquisition: Theory and Applications*. Now postdoc at Caltech
- Hastagiri P. Vanchinathan (05/2011-12/2015) – *Learning to Recommend: Interactive Learning with Limited Feedback*. Now Research and Development Lead at 1plusx.
- Matthew Faulkner (09/2009-05/2014, at Caltech) – *Community Sense and Response Systems*. Now Data Scientist at Qadium.
- Peter Stobbe (09/2009-05/2013, at Caltech) – *Convex Analysis for Minimizing and Learning Submodular Set Functions*. Now Quantitative Researcher at Optiver.
- Pete Trautman (01/2010-04/2012, at Caltech, coadvised with Richard Murray) – *Robot Navigation in Dense Crowds: Statistical Models and Experimental Studies of Human Robot Cooperation*. Now at Boeing Research & Technology.
- Stefanie Jegelka (external Ph.D. student at Max-Planck Institute for Intelligent Systems, co-supervised by Jeff Bilmes and Bernhard Schölkopf) – *Combinatorial Problems with Submodular Coupling in Machine Learning and Computer Vision*. Now Assistant Professor at the Massachusetts Institute of Technology.

M.Sc. students supervised

- Max Paulus (05/2017-10/2017) – *Learning Determinantal Point Processes From Weak Supervision*
- Arthur Habicht (05/2017-10/2017, with ABB) – *Deep Reinforcement Learning with Real-World Data for the Control of PV Power Plants*
- Samarth Shukla (04/2017-08/2017, with ASL) – *Map-less Navigation through Deep Reinforcement Learning*
- Iveri Prangishvilii (04/2017-10/2017) – *Diversity Models for Video Summarization with Long Short-Term Memory*
- Taivo Pungas (03/2017-09/2017) – *Uncertainty-based active imitation learning*
- Wolf Vollprecht (03/2017-09/2017, external at Stanford University) –*Predicting Human Driver Behavior for Planning under Uncertainty for Autonomous Cars*
- Mutný Mojmir (03/2017-09/2017) – *Random Fourier Features in Bayesian Optimization*
- Dejan Mircic (03/2017-09/2017) – *Deep Learning for Choosing Crop Varieties*
- Aleksandra Klimkina (03/2017-09/2017) – *Learning Distributions over Sequences of Items*
- Yassine Nemmour (01/2017-07/2017) – *Safe exploration in robotics with Gaussian Processes*
- Yihui Ma (11/2016-04/2017) – *Probabilistic Inference for Sequence Model with Submodularity*

- Zalán Borsos (09/2016-03/2017) – *Variational Inference with Coresets*
- Milica Petrovic (09/2016-03/2017) – *Air Quality Prediction using Machine Learning*
- Mariyana Koleva (10/2016-04/2017) – *Applications of machine learning for choosing crop varieties*
- Sebastian Aschwanden (06/2016-12/2016) – *Scalable Bayesian Optimization using Bayesian Neural Networks with Applications to Policy Learning*
- Simon Hatt (05/2016-11/2016, with ElectricFeel) – *Predictive Planning for Shared Mobility Systems*
- Julian Viereck (since 04/2016, with MPI Tübingen) – *Learning to Hop Using Guided Policy Search*
- Thijs Vogels (03/2016-09/2016, with Disney Research) – *Kernel-Predicting Convolutional Neural Networks for Denoising Monte Carlo Renderings*
- Christoph Hirnschall (03/2016-09/2016) – *Online Learning with Structural Information with Applications to Online Marketplaces*
- Svetoslav Karaivanov (03/2016-09/2016) – *Sky View Factor Estimation in Urban Areas*
- Matteo Pozzetti (03/2016-09/2016) – *Access Path Design for Quality Assurance in Crowdsourcing*
- Nico Neureiter (02/2016-08/2016) – *A Bayesian Approach to Learning User Preferences*
- Rabeeh Karimi (10/2015-04/2016) – *Active Multi-class Video Segmentation With Log-supermodular Models*
- Diego Ballesteros Villamizar (10/2015-04/2016) – *Probabilistic Modeling of City-scale Image Collections*
- Philipe Fatio (09/2015-03/2016, with ElectricFeel) – *Understanding Station-Less, Free-Floating Electric Scooter Sharing Systems*
- Johannes Kirschner (10/2015-03/2016) – *Sequential Indirect Information Maximization*
- Riccardo Moriconi (04/2015-10/2015) – *Safe controller learning with Gaussian processes dynamic programming*
- Matteo Turchetta (04/2015-10/2015) – *Safe Exploration in Model Based Reinforcement Learning with Gaussian Processes*
- Mathias Solér (03/2015-09/2015, with Disney) – *Learning Sounds of Objects from Videos in the Wild*
- Hany Abdelrahman (02/2015-08/2015, with ABB) – *Bayesian Optimization for Maximum Power Point Tracking in Photovoltaic Power Plants*
- Stefan Willi (11/2014-05/2015, with ESA) – *Reinforcement Learning for Spacecraft Maneuvering*
- Jian Zhang (10/2014-04/2015) – *Higher-Order Inference for Multi-class Log-supermodular Models*
- Kirill Zhuravlev (since 11/2014, with Teralytics) – *Highway Traffic Speed Estimation from Cell Phone Data*
- Olivier Bachem (02/2014-08/2014) – *Coresets for the DP-Means Clustering Problem*
- Nedyalko Prisadnikov (02/2014-08/2014) – *Exploration–Exploitation Tradeoffs via Probabilistic Matrix Factorization*
- Mircea Grecu (01/2014-01/2014) – *Navigability in Information Networks*
- Marco Santoni (11/2013-05/2014, w. Electric Feel) – *Incentives for Optimizing Bike Sharing Systems*
- Jiang Yu (11/2013-05/2014, w. B. Price at Xerox PARC) – *Hierarchical Dirichlet Process Hidden Semi-Markov Model for Anomaly Detection in Distributed Framework*
- Victor Carbune (10/2013-04/2014) – *Active Learning for Source Localization*
- Victor Ungureanu (10/2013-04/2014) – *WikiMining – Summarising Wikipedia using submodular function maximisation*
- Ian Lienert (03/2013-10/2013) – *Exploiting Side Information in Partial Monitoring Games*
- Hiroaki Shioi (02/2013-08/2013) – *Active Object Detection on Micro-UAV Data for Biodiversity Monitoring*
- Thorben Bochenek (11/2012-05/2013) – *Optimizing Workplans for Supermarkets via Submodular Functions*
- Cesar Fuentes Montesinos (10/2012-04/2013) – *Efficient Active Object Detection with Deformable Parts Model*
- Andreas Marfurt (10/'12-04/'13, w. D. Kossmann) – *Predicting Price Changes for Flight Bookings*

- Andreas Tschofen (10/2012-04/2013, with D. Kossmann) – *Joint Inference of Concepts and Networks of Documents*
- Alkis Gkotovos (10/2012-04/2013) – *Active Learning for Level Set Estimation*
- Josip Djolonga (10/2012-04/2013) – *High-Dimensional Gaussian Process Bandit Optimization*
- Ilija Bogunovic (05/2012-11/2012) – *Robust Protection of Networks against Cascading Phenomena*
- Nan Zhong (05/2012-11/2012) – *Towards a Unified Approach to Diffusion Network Inference*
- Nina Gonova (04/2012-09/2012, with Google Zurich) – *Skimming Google News: Large-scale Topic Modeling using Coresets on MapReduce*
- Giovanni A. Garcia (03/2012-08/2012, with Markus Pueschel) – *High-Performance Submodular Function Minimization*
- Jonathan Ziller (09/2011-04/2012; with Srdjan Capkun) – *Machine Learning for Fraud Detection in Online Banking Environments*
- Benjamin Rupprechter (09/2011-04/2012; with Google Zurich) – *Noisy Active Learning from a Bayesian Perspective*
- Isidor Nikolic (09/2011-03/2012) – *Large Scale Book Recommendation*
- Philippe Pautex (09/2011-03/2012; with T. Maillart) – *Innovation Dynamics of Open Source Software*
- Vincent Martinez (09/2011-03/2012; with D. Kossmann and Amadeus) – *Flight Delay Prediction*

FORMER PH.D. STUDENT THESIS COMMITTEE MEMBER:

- Severin Klingler, ETH Zurich Dept. Computer Science, Ph.D. committee, since 11/2016
- Ulrich Schwesinger, ETH Zurich Dept. Mechanical and Process Engineering, Ph.D. committee, since 10/2013
- Carl Malings, Carnegie Mellon University Dept. of Civil and Environmental Engineering, Ph.D. committee, 10/2015-03/2017
- Goran Radanovic, EPFL, Ph.D. review committee, 07/2016-09/2016
- Emile Contal, ENS Cachan, Ph.D. review committee, 07/2016-09/2016
- Sesh Kumar, INRIA, Ph.D. review committee, 05/2016-09/2016
- Bo Chen, California Institute of Technology Dept. of Electrical Engineering, Ph.D. committee, 01/2014-05/2016
- Gregory Hitz, ETH Dept. of Mechanical and Process Engineering, Ph.D. committee, 11/2012-02/2016
- Ina Fiterau, Carnegie Mellon University, Machine Learning Department, Ph.D. committee, 05/2014-08/2015
- Rishabh Iyer, University of Washington Dept. of Computer Science and Engineering, Ph.D. committee, 10/2013-03/2015
- Max Beinhofer, Universitaet Freiburg, Ph.D. committee, 01/2014-08/2014
- Debayjoti Ray, California Institute of Technology Dept. of Electrical Engineering, Ph.D. committee, 2009-06/2014
- Alexander Schwing, ETH Dept. Computer Science, Ph.D. committee, 11/2013-01/2013
- Gajamohan Mohanarajah, ETH Dept. Mech. and Process Engineering, Ph.D. committee, 04/2012-04/2014
- Ralf Kaestner, ETH Dept. of Mechanical and Process Engineering, Ph.D. committee, 05/2012-01/2013
- Annie Liu, Caltech Computing and Mathematical Sciences, Ph.D. candidacy committee, 10/2011;
- Peter Welinder, Caltech Computation and Neural Systems, Ph.D. thesis committee, 08/2011-05/2012;
- Ryan Gomes, Caltech Computation and Neural Systems, Ph.D. thesis committee, 08/2010-01/2011;
- Thomas Desautels, Caltech Mechanical Engineering, Ph.D. candidacy committee, 05/2010-06/2013;

International Conference Plenary Talks and Keynotes

International Conference on Artificial Intelligence and Statistics (AISTATS, Lanzarote, 04/2018)

AAAI Conference on Artificial Intelligence (Phoenix, AZ, 02/2016)

International Conference on Integration of Artificial Intelligence (AI) and Operations Research (OR) techniques in Constraint Programming (CPAIOR, Yorktown Heights, 05/2013)

International Workshop on the Algorithmic Foundations of Robotics (WAFR, Boston, 06/2012)

Invited Talks and Seminars (Past and Upcoming)

Stanford University (05/2017) – *Distinguished AI Speaker Series*

University of California, Berkeley (05/2017) – *Simons Institute Seminar*

California Institute of Technology (05/2017) – *Machine Learning Seminar*

Harvard University (04/2017)

SGAICO Annual Meeting (Lucerne, 11/2016) – *Keynote Talk*

Workshop on "Mastering the Challenges of our Digital Society", Zurich (11/2016)

Ecole Normale Supérieur (Machine Learning Seminar 09/2016)

EPFL (Automatic Control Seminar Series, 09/2016)

Amazon, Berlin (Research Seminar, 06/2016)

Research Topics in Biomedical Engineering Seminar (ETH Zurich, 04/2016)

Max Planck Institute for Computer Science, Saarbrücken (Distinguished Lecture Series, 04/2016)

DALI Workshop on Learning and Optimization (Sestri Levante, 04/2016)

SIAM Uncertainty Quantification (Lausanne, 04/2016) – Minisymposium Invited Talk

University of California, Los Angeles (Seminar in Electrical Engineering 02/2016)

NIPS Bayesian Optimization Workshop (Montreal, 12/2015)

Learning in Robotics Workshop (Tuebingen, 11/2015)

University of Basel, Workshop on Machine Learning in the Natural Sciences (11/2015)

Yandex Conference on Machine Learning and Applications (Berlin, 10/2015)

University of Cambridge, Alan Turing Institute Workshop (Cambridge, 09/2015)

Yale University (Distinguished Lecture in Institute for Network Science, 09/2015)

MIT - MSR Colloquium (09/2015)

Dagstuhl Seminar on Computational and Mathematical Foundations of Learning Theory (08/2015)

Complex Systems Summer School (Lipari, 07/2015)

Active Learning Workshop (ICML, 07/2015)

Amazon Research Berlin (03/2015)

University of Minnesota (Computer Science Colloquium, 02/2015)

Institute for Mathematics and its Applications (IMA) Workshop: Convexity and Optimization (02/2015)

AAAI Workshop on Computational Sustainability (02/2015)

University of Basel, Computer Science Colloquium (12/2014)

NIPS Workshop on Crowdsourcing and Machine Learning (12/2014)

HUMANOIDS Conference Workshop on Active Learning in Robotics (11/2014)

University of Prague, Pattern Recognition and Computer Vision Colloquium (10/2014)

EPFL Summer Research Institute (06/2014)

MAscotNum conference (ETH Zurich, 04/2014 – *Invited plenary talk*)

International Workshop on Information Quality and Quality of Service for Pervasive Computing (IQ2S, Budapest, March 2014 – *Invited plenary talk*)

Stanford University (Info-Seminar 02/2014)
California Institute of Technology (02/2014)
UC Berkeley Seminar (02/2014)
UC Los Angeles (Computer Science Dept. Colloquium 02/2014)
NIPS Workshop on Bayesian Optimization (Lake Tahoe, 12/'13)
Cargese Workshop on Combinatorial Optimization (Corsica, 10/2013)
Machine Learning Summer School (Tuebingen, 08/2013)
RSS Workshop: Active Learning in Robotics (Berlin, 06/'13)
RSS Workshop: Nonparam. Bayesian Methods f. Space-time Modeling and Exploration (Berlin, 06/'13)
ETH / Universität Zürich, PermaSense Seminar (Zurich 06/2013)
Bühler Top-Management Seminar (Zurich, 05/2013)
Max Planck Institute for Intelligent Systems, Tübingen (Intelligent Systems Colloquium, 02/2013)
CREST Open Workshop on Machine Learning and Search Based Software Engineering (UCL, 01/2013)
University of Edinburgh (01/2013)
ETH Zurich Optimization and Applications Seminar (11/2012)
Swiss Re Centre for Global Dialogue (Symposium on Big Data, Zurich, 10/2012)
DAGM-ÖAGM Conference (*Deutscher Mustererkennungspreis Award Lecture*, Graz, 08/2012)
Starting Artificial Intelligence Research Symposium, (STAIRS, Montpellier, 08/2012)
University of Freiburg (Intelligent Autonomous Systems group, 08/2012)
International Symposium on Mathematical Programming (08/2012)
TNG Big TechDay (Munich, 05/2011)
University of Dortmund (Guest lecture for SFB 876, 04/2012)
University of Zurich (Institute of Neuroinformatics Colloquium, 03/2012)
University College London (Centre for Computational Statistics and Machine Learning Seminar, 03/2012)
Microsoft Research, Cambridge (03/2012)
University of Oxford (Robotics Seminar, 02/2012)
IBM Research Rueschlikon (01/2012)
Google Zurich (TechTalk, 01/2012)
Carnegie Mellon University "Intelligence Seminar" (01/2012)
NIPS Workshop on "Machine Learning for Sustainability" (12/2011)
NIPS Workshop on "Bayesian optimization, experimental design and bandits: Theory and applications" (12/2011)
Qualcomm Context Aware-Computing Symposium (09/2011)
ABB Corporate Research (09/2011)
Paul Scherrer Institute (08/2011)
Ecole Polytechnique Fédérale de Lausanne (Summer School on Sensor and Social Networks 06/2011)
Massachusetts Institute of Technology (CSAIL Colloquium; 04/2011)
Boston University (Center for Information and Systems Engineering Seminar; 04/2011)
Dagstuhl Seminar (03/2011) on "Curiosity and Exploration in Robot Learning"
Stanford University (PAIL Seminar; 11/2010)
National Academy of Sciences (Kavli Frontiers of Science Symposium, Irvine, 11/2010)
IPAM Workshop on "Machine Reasoning" (10/2010)
Microsoft Research, Redmond (07/2007, 05/2008, 08/2010)

University of Cambridge (Machine Learning Seminar 07/2010)
Swiss Federal Institute for Technology (ETH) Zurich (02/2010, 07/2010)
Microsoft Research, Cambridge (Tractability workshop 07/2010)
University of California, San Diego (05/2009, 06/2010)
Jet Propulsion Lab (02/2009, 05/2010)
Ecole Polytechnique Fédérale de Lausanne (06/2010)
USC Information Sciences Institute (AI Seminar; 04/2010)
Cornell University (AI / Sustainability Seminar; 03/2010)
NIPS Workshop on "Adaptive Sensing, Active Learning and Experimental Design" (12/2009)
University of California, Los Angeles (CENS Seminar; 10/2009)
Rice University (Department Colloquium; 09/2009)
Conference on Computational Sustainability at Cornell University (06/2009)
Workshop on "Regression in Robotics" at RSS (06/2009)
Technische Universität München, (04/2007, 01/2008, 03/2009)
Johns Hopkins University (SPAR-Seminar 11/2008)
Intel Research Seattle (05/2008)
University of North Carolina at Chapel Hill (04/2008)
Toyota Technological Institute at Chicago (04/2008)
Purdue University (04/2008)
Carnegie Mellon University Machine Learning Research Day (03/2008)
University of Southern California (03/2008)
University of Michigan, Ann Arbor (03/2008)
California Institute of Technology (03/2008)
Duke University (03/2008)
Siemens Corporate Technology (01/2006, 01/2008)
Fraunhofer IAIS, Sankt Augustin, (09/2007)
Max Planck Institute for Biological Cybernetics, Tübingen (09/2007)
Max Planck Institute for Computer Science, Saarbrücken, (09/2007)
Boeing M&CT (07/2007)

PUBLICATIONS

Bibliographic indicators (Google Scholar November 2017). Citations: 13067. h-index: 58. i10-index: 115.
Conference publications are archival and selectively refereed in Computer Science.
Publications available at `https://las.inf.ethz.ch/publications`

REFEREED JOURNAL ARTICLES

[1] Y. Chen, H. Hassani, A. Krause. "Near-optimal Bayesian Active Learning with Correlated and Noisy Tests". To appear in the Electronic Journal of Statistics, Vol. 11 (2017) pp. 1-49

[2] H. Tyagi, A. Kyrillidis, B. Gaertner, A. Krause. "Algorithms for Learning Sparse Additive Models with Interactions in High Dimensions". To appear in the Journal of Information and Inference, Vol. 00 (2017) pp. 1-67

[3] B. Mirzasoleiman, A. Karbasi, R. Sarkar, A. Krause. "Distributed Submodular Maximization". Journal of Machine Learning Research (JMLR) vol. 17 (238), pp 1-44, Dec 2016

[4] M. Zuluaga, A. Krause, M. Püschel. "ε-PAL: An Active Learning Approach to the Multi-Objective Optimization Problem". Journal of Machine Learning Research (JMLR) vol. 17 (104), pp 1-32, Aug 2016

[5] P. Trautman, J. Ma, R. Murray, A. Krause "Robot Navigation in Dense Human Crowds: Statistical Models and Experimental Studies of Human Robot Cooperation". International Journal of Robotics Research (IJRR), vol. 34 no. 3 pp. 335-356, March 2015

[6] T. Desautels, A. Krause, J. Burdick. "Parallelizing Exploration-Exploitation Tradeoffs in Bayesian Global Optimization". Journal of Machine Learning Research (JMLR) vol. 15, pp 3873-3923, Dec 2014

[7] J. Binney, A. Krause, G. Sukhatme. "Optimizing Waypoints for Monitoring Spatiotemporal Phenomena". International Journal on Robotics Research (IJRR) July 2013 vol. 32 no. 8 873-888

[8] P. Romero, A. Krause, F. Arnold. "Navigating the protein fitness landscape with Gaussian processes". Proceedings of the National Academy of Sciences (PNAS), Published online before print on December 31, 2012. PNAS January 15, 2013 vol. 110 no. 3

[9] M. Paolucci, D. Kossmann, R. Conte, P. Lukowicz, P. Argyrakis, A. Blandford, G. Bonelli, S. Anderson, S. de Freitas, B. Edmonds, N. Gilbert, M. Gross, J. Kohlhammer, P. Koumoutsakos, A. Krause, F. Lemke, B. Linner, P. Slusallek, O. Sorkine, R. Sumner, D. Helbing. "Towards a Living Earth Simulator". European Physical Journal Special Topics, Vol 214, Issue 1, pp 77-108, November 2012.

[10] M. Gomez Rodriguez, J. Leskovec, A. Krause "Inferring Networks of Diffusion and Influence". ACM Transactions on Knowledge Discovery from Data, Vol 5 Issue 4, 2012, pages 21:1-21:37

[11] N. Srinivas, A. Krause, S. Kakade, M. Seeger. "Information-Theoretic Regret Bounds for Gaussian Process Optimization in the Bandit Setting". IEEE Transactions on Information Theory, Vol. 58 Issue 5, 2012, pages 3250-3265 .

[12] P. Romero, E. Stone, C. Lamb, L. Chantranupong, A. Krause, A Miklos, R. Hughes, B. Fechte, A. Ellington, F.H. Arnold, G. Georgiou. "SCHEMA Designed Variants of Human Arginase I & II Reveal Sequence Elements Important to Stability and Catalysis". ACS Synthetic Biology, Vol 1 (6) pp 221-228, March 2012

[13] R. Clayton, T. Heaton, M. Chandy, A. Krause, M. Kohler, J. Bunn, M. Olson, M. Faulkner, M. Cheng, L. Strand, R. Chandy, D. Obenshain, A. Liu, M. Aivazis, R. Guy. "Community Seismic Network". Annals of Geophysics, Vol 54, No 6, pages 738-747, 2012. .

[14] D. Golovin, A. Krause. "Adaptive Submodularity: Theory and Applications in Active Learning and Stochastic Optimization". Journal of Artificial Intelligence Research, Volume 42, pp. 427-486, 2011. *Winner of the IJCAI-JAIR Best Paper Award 2013* .

[15] V. Cevher, A. Krause. "Greedy Dictionary Selection for Sparse Representation". IEEE Journal of Selected Topics in Signal Processing, Vol 5, No 5, September 2011 .

[16] A. Krause, R. Rajagopal, C. Guestrin, A. Gupta. "Simultaneous Optimization of Sensor Placements and Balanced Schedules". IEEE Transactions on Automatic Control, Special Issue on Wireless Sensor and Actuator Networks, Vol 56 (10), pp. 2390-2405, October 2011 .

[17] A. Krause, C. Guestrin, A. Gupta, J. Kleinberg. "Robust Sensor Placements at Informative and Cost-Effective Locations". ACM Transactions on Sensor Networks Vol 7 (4), Nov. 2011.

[18] A. Krause, C. Guestrin. "Submodularity and its Applications in Optimized Information Gathering: An Introduction", ACM Transactions on Intelligent Systems and Technology 2011. Vol 2 (4), July 2011.

[19] A. Krause, E. Horvitz. "A Utility-theoretic Approach to Privacy and Personalization". Journal of Artificial Intelligence Research, Volume 39 pp. 633-662, November 2010.

[20] A. Krause. "SFO: A Toolbox for Submodular Function Optimization". Journal of Machine Learning Research, Volume 11 pp. 1141-1144, 2010.

[21] A. Krause, C. Guestrin. "Optimal Value of Information in Graphical Models". Journal of Artificial Intelligence Research, Volume 35, pp. 557-591, 2009. *Winner of the IJCAI-JAIR Best Paper Runner Up Award 2012*

[22] A. Singh, A. Krause, C. Guestrin, W. Kaiser. "Efficient Informative Sensing using Multiple Robots". Journal of Artificial Intelligence Research Vol. 34 pp. 707-755, 2009.

[23] A. Krause, B. McMahan, C. Guestrin, and A. Gupta. "Robust Submodular Observation Selection". Journal of Machine Learning Research Vol. 9 pp. 2761–2801, 2008.

[24] A. Krause, J. Leskovec, C. Guestrin, J. VanBriesen, and C. Faloutsos. "Efficient Sensor Placement Optimization for Securing Large Water Distribution Networks". Journal of Water Resources Planning and Management Vol. 136 (6) pp. 516-526, November 2008 *Winner of the Best Research Paper Award.*

[25] A. Ostfeld, et.al. "The Battle of Water Sensor Networks (BWSN): A Design Challenge for Engineers and Algorithms". Journal of Water Resources Planning and Management 2008 (Joint publication by all participants of the BWSN challenge).

[26] A. Krause, A. Singh, and C. Guestrin. "Near-optimal Sensor Placements in Gaussian Processes: Theory, Efficient Algorithms and Empirical Studies". Journal of Machine Learning Research Vol. 9 pp. 235-284, 2008.

[27] A. Krause, A. Smailagic, and D. P. Siewiorek. "Context-Aware Mobile Computing: Learning Context-Dependent Personal Preferences from a Wearable Sensor Array". IEEE Transactions on Mobile Computing, Vol. 5 No. 2 pp. 113-127, 2006.

[28] H. Meier, A. Krause, and M. Kräutner. "Development and implementation of a parallel algorithm for the fast design of oligonucleitide probe sets for diagnostic DNA microarrays". Concurrency and Computation: Practice and Experience, Vol. 16 pp. 873-893, 2004.

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REFEREED PUBLICATIONS AT SELECTIVE CONFERENCES

[30] C. Hirnschall, A. Singla, S. Tschiatschek, A. Krause. "Learning User Preferences to Incentivize Exploration in the Sharing Economy". In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI) 2018 *Acceptance rate: 25%*

[31] A. Singla, H. Hassani, A. Krause. "Learning to Interact with Learning Agents". In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI) 2018 *Acceptance rate: 25%*

[32] A. Singla, G. Radanovic, A. Krause, B. Faltings. "Information Gathering with Peers: Submodular Optimization with Peer-Prediction Constraints". In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI) 2018 *Acceptance rate: 25%*

[33] B. Mirzasoleiman, S. Jegelka, A. Krause. "Streaming Non-monotone Submodular Maximization: Personalized Video Summarization on the Fly". In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI) 2018 *Acceptance rate: 25%*

[34] J. Witkowski, R. Freeman, J. Wortman Vaughan, D. Pennock and A. Krause. "Incentive-Compatible Forecasting Competitions". In Proc. 32nd AAAI Conference on Artificial Intelligence (AAAI) 2018 *Acceptance rate: 25%*

[35] J. Djolonga, A. Krause. "Differentiable Learning of Submodular Functions". In Proc. Neural Information Processing System (NIPS) 2017 *Accepted as Spotlight (3% of submissions)*

[36] M.R. Karimi, M. Lucic, H. Hassani, A. Krause. "Stochastic Submodular Maximization: The Case of Coverage Functions". In Proc. Neural Information Processing System (NIPS) 2017 *Acceptance rate: 21%*

[37] F. Berkenkamp, M. Turchetta, A. Schoellig, A. Krause. "Safe Model-based Reinforcement Learning with Stability Guarantees". In Proc. Neural Information Processing System (NIPS) 2017 *Acceptance rate: 21%*

[38] A. Bian, J. Buhmann, A. Krause, K. Levy. "Non-monotone Continuous DR-submodular Maximization: Structure and Algorithms". In Proc. Neural Information Processing System (NIPS) 2017 *Acceptance rate: 21%*

[39] L. Chen, A. Krause, A. Karbasi. "Interactive Submodular Bandit". In Proc. Neural Information Processing System (NIPS) 2017 *Acceptance rate: 21%*

[40] O. Bachem, M. Lucic, A. Krause. "Distributed and Provably Good Seedings for k-Means in Constant Rounds". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[41] A. Bian, J. Buhmann, A. Krause, S. Tschiatschek. "Guarantees for Greedy Maximization of Non-submodular Functions with Applications". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[42] O. Bachem, M. Lucic, H. Hassani, A. Krause. "Uniform Deviation Bounds for Unbounded Loss Functions like k-Means". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[43] M. Mitrovic, M. Bun, A. Krause, A. Karbasi. "Differentially Private Submodular Maximization: Data Summarization in Disguise". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[44] B. Mirzasoleiman, A. Karbasi, A. Krause. "Deletion-Robust Submodular Maximization: Data Summarization with "the Right to be Forgotten"". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[45] Serban Stan, Morteza Zadimoghaddam, A. Krause, A. Karbasi. "Probabilistic Submodular Maximization in Sub-Linear Time". In Proc. International Conference on Machine Learning (ICML) 2017 *Acceptance rate: 25%*

[46] Y. Bian, B. Mirzasoleiman, J. Buhmann, A. Krause. "Guaranteed Non-convex Optimization: Submodular Maximization over Continuous Domains". In Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2017 *Acceptance rate: 32%*

[47] Y. Chen, H. Hassani, A. Krause. "Near-optimal Bayesian Active Learning with Correlated and Noisy Tests". In Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2017 *Acceptance rate: 32%*

[48] S. Tschiatschek, A. Singla, A. Krause. "Selecting Sequences of Items via Submodular Maximization". In Proc. Conference on Artificial Intelligence (AAAI) 2017 *Acceptance rate: 25%*

[49] J. Witkowski, P. Atanasov, L. Ungar, A. Krause. "Proper Proxy Scoring Rules". In Proc. Conference on Artificial Intelligence (AAAI) 2017 *Acceptance rate: 25%*

[50] O. Bachem, M. Lucic, H. Hassani, A. Krause. "Fast and Provably Good Seedings for k-Means". In Proc. Neural Information Processing Systems (NIPS) 2016 *Accepted as oral presentation (2% of submissions)*

[51] J. Djolonga, S. Jegelka, S. Tschiatschek, A. Krause. "Cooperative Graphical Models". In Proc. Neural Information Processing Systems (NIPS) 2016 *Acceptance rate: 22%*

[52] I. Bogunovic, J. Scarlett, A. Krause, V. Cevher. "Truncated Variance Reduction: A Unified Approach to Bayesian Optimization and Level-Set Estimation". In Proc. Neural Information Processing Systems (NIPS) 2016 *Acceptance rate: 22%*

[53] J. Djolonga, S. Tschiatschek, A. Krause. "Variational Inference in Mixed Probabilistic Submodular Models". In Proc. Neural Information Processing Systems (NIPS) 2016 *Acceptance rate: 22%*

[54] M. Turchetta, F. Berkenkamp, A. Krause. "Safe Exploration in Finite Markov Decision Processes with Gaussian Processes". In Proc. Neural Information Processing Systems (NIPS) 2016 *Acceptance rate: 22%*

[55] Y. Sun, A. Singla, T. Yan, A. Krause, D. Fox. "Evaluating Task-Dependent Taxonomies for Navigation". In Proc. AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2016) *Acceptance rate: 30%*

[56] B. Nushi, A. Singla, A. Krause, D. Kossmann. "Learning and Feature Selection under Budget Constraints in Crowdsourcing". In Proc. AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2016) *Acceptance rate: 30%*

[57] F. Berkenkamp, R. Moriconi, A. Schoellig, A. Krause. "Safe Learning of Regions of Attraction for Uncertain, Nonlinear Systems with Gaussian Processes". In Proc. IEEE Conference on Decision and Control (CDC) 2016

[58] A. Singla, S. Tschiatschek, A. Krause. "Actively Learning Hemimetrics with Applications to Eliciting User Preferences". In Proc. International Conference on Machine Learning (ICML) 2016 *Acceptance rate: 24%*

[59] E. Balkanski, B. Mirzasoleiman, A. Krause, Y. Singer. "Learning Sparse Combinatorial Representations via Two-stage Submodular Maximization". In Proc. International Conference on Machine Learning (ICML) 2016 *Acceptance rate: 24%*

[60] M. Lucic, O. Bachem, M. Zadimoghaddam, A. Krause. "Horizontally Scalable Submodular Maximization". In Proc. International Conference on Machine Learning (ICML) 2016 *Acceptance rate: 24%*

[61] M. Lucic, O. Bachem, A. Krause. "Linear-time Outlier Detection via Sensitivity". To appear in International Joint Conference on Artificial Intelligence (IJCAI) 2016 *Acceptance rate: 25%*

[62] H. Abdelrahman, F. Berkenkamp, J. Poland, A. Krause. "Bayesian Optimization for Maximum Power Point Tracking in Photovoltaic Power Plants". In Proc. European Control Conference (ECC) 2016 *Best Application Paper Award*

[63] H. Tyagi, A. Kyrillidis, B. Gaertner, A. Krause. "Learning Sparse Additive Models with Interactions in High Dimensions". To appear in Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2016 *Accepted as oral presentation (7% of submissions)*

[64] S. Tschiatschek, J. Djolonga, A. Krause. "Learning Probabilistic Submodular Diversity Models Via Noise Contrastive Estimation. To appear in Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2016 *Acceptance rate: 31%*

[65] M. Lucic, O. Bachem, A. Krause. "Strong Coresets for Hard and Soft Bregman Clustering with Applications to Exponential Family Mixtures". To appear in Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2016 *Acceptance rate: 31%*

[66] A. Singla, S. Tschiatschek, A. Krause. "Noisy Submodular Maximization via Adaptive Sampling with Applications to Crowdsourced Image Collection Summarization". To appear in Conference on Artificial Intelligence (AAAI) 2016 *Acceptance rate: 26%*

[67] O. Bachem, M. Lucic, H. Hassani, A. Krause. "K-MC^2: Approximate K-Means++ in Sublinear Time". In Proc. Conference on Artificial Intelligence (AAAI) 2016 *Acceptance rate: 26%*

[68] F. Berkenkamp, A. Schoellig, A. Krause. "Safe Controller Optimization for Quadrotors with Gaussian Processes". In Proc. of the International Conference on Robotics and Automation (ICRA), 2016 *Acceptance rate: 34.7%*

[69] V. Raychev, P. Bielik, M. Vechev, A. Krause. "Learning Programs from Noisy Data". To appear in Proc. ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL) 2016

[70] E. Schulz, Q. Huys, D. Bach, M. Speekenbrink, A. Krause. "Better safe than sorry: Risky function exploitation through safe optimization". To appear in Proc. 38th Annual Meeting of the Cognitive Science Society (CogSci) 2016 *Acceptance rate: 73%*

[71] B. Mirzasoleiman, A. Karbasi, A. Badanidiyuru, A. Krause. "Distributed Submodular Cover: Succinctly Summarizing Massive Data". In Proc. Neural Information Processing Systems (NIPS) 2015 *Accepted as spotlight (4% of submissions)*

[72] A. Gotovos, H. Hassani, A. Krause "Sampling from Probabilistic Submodular Models". In Proc. Neural Information Processing Systems (NIPS) 2015 *Accepted as oral presentation (1% of submissions)*

[73] J. Zhang, J. Djolonga, A. Krause. "Higher-Order Inference for Multi-class Log-supermodular Models". To appear in Proc. International Conference on Computer Vision (ICCV) 2015

[74] B. Nushi, A. Singla, A. Gruenheid, E. Zamanian, A. Krause, D. Kossmann. "Crowd Access Path Optimization: Diversity Matters". In Proc. AAAI Conference on Human Computation & Crowdsourcing (HCOMP) 2015 *Acceptance rate: 30%*

[75] A. Singla, E. Horvitz, P. Kohli, A. Krause, D. Kossmann. "Learning to Hire Teams". In Proc. AAAI Conference on Human Computation & Crowdsourcing (HCOMP) 2015 *Accepted as short paper.*

[76] H. Vanchinathan, A. Marfurt, C-A. Robelin, D. Kossmann, A. Krause. "Discovering Valuable Items in Massive Data". In Proc. ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2015 *Acceptance rate: 19%*

[77] Y. Chen, H. Hassani, A. Karbasi, A. Krause "Sequential Information Maximization: When is Greedy Near-Optimal?". In Proc. Conference on Learning Theory (COLT) 2015 *Acceptance rate: 40%*

[78] J. Djolonga, A. Krause. "Scalable Variational Inference in Log-supermodular Models". In Proc. International Conference on Machine Learning (ICML) 2015 *Acceptance rate: 26%*

[79] Y. Sui, A. Gotovos, A. Krause. "Safe Exploration for Optimization with Gaussian Processes". In Proc. International Conference on Machine Learning (ICML) 2015 *Acceptance rate: 26%*

[80] O. Bachem, M. Lucic, A. Krause. "Coresets for Nonparametric Estimation - the Case of DP-Means". In Proc. International Conference on Machine Learning (ICML) 2015 *Acceptance rate: 26%*

[81] Y. Sun, A. Singla, D. Fox, A. Krause "Building Hierarchies of Concepts via Crowdsourcing". In Proc. International Joint Conference on Artificial Intelligence (IJCAI) 2015 *Acceptance rate: 29%*

[82] A. Gotovos, A. Karbasi, A. Krause "Non-monotone Adaptive Submodular Maximization". In Proc. International Joint Conference on Artificial Intelligence (IJCAI) 2015 *Acceptance rate: 29%*

[83] A. Singla, E. Horvitz, P. Kohli, R. White, A. Krause "Information Gathering in Networks via Active Exploration". In Proc. International Joint Conference on Artificial Intelligence (IJCAI) 2015 *Acceptance rate: 29%*

[84] L. Heng, A. Gotovos, A. Krause, M. Pollefeys. "Efficient Visual Exploration and Coverage with a Micro Aerial Vehicle in Unknown Environments". Proc. IEEE International Conference on Robotics and Automation (ICRA) 2015 *Acceptance rate: 41%*

[85] M. Lucic, M. Ohannessian, A. Karbasi, A. Krause. "Tradeoffs for Space, Time, Data and Risk in Unsupervised Learning". Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2015 *Acceptance rate: 27%. Best Student Paper Award (1 out of 442 submissions)*

[86] A. Singla, M. Santoni, G. Bartók, P. Mukerji, M. Meenen, A. Krause. "Incentivizing Users for Balancing Bike Sharing Systems". Proc. Conference on Artificial Intelligence (AAAI) 2015 *Acceptance rate: 26% One of 10 papers selected for AAAI 2015 Open House*

[87] Y. Chen, S. Javdani, A. Karbasi, J.A. Bagnell, S. Srinivasa, A. Krause. "Submodular Surrogates for Value of Information". Proc. Conference on Artificial Intelligence (AAAI) 2015 *Acceptance rate: 26%*

[88] B. Mirzasoleiman, A. Badanidiyuru, A. Karbasi, J. Vondrak, A. Krause. "Lazier than Lazy Greedy". Proc. Conference on Artificial Intelligence (AAAI) 2015 *Acceptance rate: 26%*

[89] V. Raychev, M. Vechev, A. Krause. "Predicting Program Properties from Big Code". Proc. ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages (POPL) 2015 *Acceptance rate: 23%*

[90] J. Djolonga, A. Krause. "From MAP to Marginals: Variational Inference in Bayesian Submodular Models". Proc. Neural Information Processing Systems (NIPS) 2014 *Acceptance rate: 25%*

[91] H. Tyagi, B. Gärtner, A. Krause. "Efficient Sampling for Learning Sparse Additive Models in High Dimensions". Proc. Neural Information Processing Systems (NIPS) 2014 *Acceptance rate: 25%*

[92] H. Vanchinathan, G. Bartók, A. Krause. "Efficient Partial Monitoring with Prior Information". Proc. Neural Information Processing Systems (NIPS) 2014 *Acceptance rate: 25%*

[93] H. Vanchinathan, I. Nikolic, F. De Bona, A. Krause. "Explore-Exploit in Top-N Recommender Systems via Gaussian Processes". Proc. ACM Conference on Recommender Systems (RecSys) 2014 *Acceptance rate: 23%*

[94] A. Badanidiyuru, B. Mirzasoleiman, A. Karbasi, A. Krause. "Streaming Submodular Maximization: Massive Data Summarization on the Fly". Proc. ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2014 *Acceptance rate: 15%*

[95] A. Singla, I. Bogunovic, G. Bartok, A. Karbasi, A. Krause. "Near-optimally Teaching the Crowd to Classify".In Proc. International Conference on Machine Learning (ICML) 2014 *Acceptance rate: 25%*

[96] S. Javdani, Y. Chen, A. Karbasi, A. Krause, D. Bagnell, S. Srinivasa. "Near Optimal Bayesian Active Learning for Decision Making". In Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2014 *Acceptance rate: 36%*

[97] G. Hitz, A. Gotovos, F. Pomerleau, M.E. Garneau, C. Pradalier, A. Krause, R. Siegwart. "Fully Autonomous Focused Exploration for Robotic Environmental Monitoring". In Proc. International Conference on Robotics and Automation (ICRA) 2014 *Acceptance rate: 48%*

[98] Y. Chen, H. Shioi, C. Fuentes, L.P. Koh, S. Wich, A. Krause. "Active Detection via Adaptive Submodularity". In Proc. International Conference on Machine Learning (ICML) 2014 *Acceptance rate: 25%*

[99] B. Mirzasoleiman, A. Karbasi, R. Sarkar, A. Krause. "Distributed Submodular Maximization: Identifying Representative Elements in Massive Data". In Proc. Neural Information Processing Systems (NIPS) 2013 *Acceptance rate: 25%*

[100] J. Djolonga, A. Krause, V. Cevher. "High Dimensional Gaussian Process Bandit Optimization". In Proc. Neural Information Processing Systems (NIPS) 2013 *Acceptance rate: 25%*

[101] A. Singla, A. Krause. "Incentives for Privacy Tradeoff in Community Sensing". In Proc. AAAI Conference on Human Computation & Crowdsourcing (HCOMP) 2013 *Acceptance rate: 30%*

[102] M. Beinhofer, J. Müller, A. Krause, W. Burgard. "Robust Landmark Selection for Mobile Robot Navigation". In Proc. International Conference on Intelligent Robots and Systems (IROS) 2013 *Acceptance rate: 43%*

[103] A. Gotovos, N. Casati, G. Hitz, A. Krause. "Active Learning for Level Set Estimation". In Proc. International Joint Conference on Artificial Intelligence (IJCAI) 2013 *Acceptance rate: 28%*

[104] A. Singla, A. Krause. "Truthful Incentives in Crowdsourcing Tasks using Regret Minimization Mechanisms". In Proc. International World Wide Web Conference (WWW) 2013 *Acceptance rate: 15%*

[105] M. Faulkner, A. Liu, A. Krause "A Fresh Perspective: Learning to Sparsify for Detection in Massive Noisy Sensor Networks". In Proc. ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN) 2013. *Acceptance rate: 21%. Best Paper Award (1 out of 115 submissions)*

[106] Y. Chen, A. Krause. "Near-optimal Batch Mode Active Learning and Stochastic Optimization". In Proc. International Conference on Machine Learning (ICML) 2013. *Acceptance rate: 24%*

[107] M. Zuluaga, A. Krause, G. Sergent, M. Püschel. "Active Learning for Multi-Objective Optimization". In Proc. International Conference on Machine Learning (ICML) 2013. *Acceptance rate: 24%*

[108] P. Trautman, J. Ma, R. Murray, A. Krause "Robot Navigation in Dense Human Crowds: the Case for Cooperation". In Proc. International Conference on Robotics and Automation (ICRA) 2013 *Nominee for best Robotics Conference Paper Award. Acceptance rate: 39%*

[109] T. Desautels, A. Krause, J. Burdick. "Parallelizing Exploration-Exploitation Tradeoffs with Gaussian Process Bandit Optimization". In Proc. International Conference on Machine Learning (ICML) 2012. *Acceptance rate: 27%*

[110] B. Chen, R. Castro, A. Krause. "Joint Optimization and Variable Selection of High-dimensional Gaussian Processes". In International Conference on Machine Learning (ICML) 2012. *Acceptance rate: 27%*

[111] M. Zuluaga, A. Krause, P. Milder, M. Pueschel "'Smart' Design Space Sampling to Predict Pareto-Optimal Solutions". In Proc. Languages, Compilers, Tools and Theory for Embedded Systems (LCTES) 2012. *Acceptance rate: 22%. Best Research Paper Award Nominee (3 out of 66 submissions)*

[112] P. Stobbe, A. Krause "Learning Fourier Sparse Set Functions". In Proc. International Conference on Artificial Intelligence and Statistics (AISTATS) 2012. *Full oral presentation (24 out of 400 submissions).*

[113] D. Feldman, M. Faulkner, A. Krause. "Scalable Training of Mixture Models via Coresets". In Proc. Neural Information Processing Systems (NIPS) 2011. *Full oral presentation (20 out of 1400 submissions).*

[114] A. Krause, C.S. Ong. "Contextual Gaussian Process Bandit Optimization". In Proc. Neural Information Processing Systems (NIPS) 2011. *Acceptance rate: 22%*

[115] R. Gomes, P. Welinder, A. Krause, P. Perona. "Crowdclustering". In Proc. Neural Information Processing Systems (NIPS) 2011. *Acceptance rate: 22%*

[116] D. Golovin, A. Krause, B. Gardner, S. Converse, S. Morey. "Dynamic Resource Allocation for Conservation Planning". In Proc. Conference on Artificial Intelligence (AAAI) – Computational Sustainability track, 2011. *Outstanding paper award (2 out of 975 submissions).*

[117] A. Krause, A. Roper, D. Golovin. "Randomized Sensing in Adversarial Environments". In Proc. International Joint Conference on Artificial Intelligence (IJCAI), 2011. *Accepted as talk and poster (17% of submissions)*

[118] M. Faulkner, R. Chandy, J. Krause, M. Olson, K. M. Chandy, A. Krause "The Next Big One: Detecting Earthquakes and other Rare Events from Community-based Sensors". In Proc. International Conference on Information Processing in Sensor Networks (IPSN), 2011. *Acceptance rate: 21%*

[119] P. Stobbe, A. Krause. "Efficient Minimization of Decomposable Submodular Functions". In Proc. Neural Information Processing Systems (NIPS) 2010. *Accepted as spotlight (6% of submissions)*

[120] D. Golovin, D. Ray, A. Krause. "Near-optimal Bayesian Active Learning with Noisy Observations". In Proc. Neural Information Processing Systems (NIPS) 2010. *Acceptance rate: 24%*

[121] R. Gomes, A. Krause, P. Perona. "Unsupervised Discriminative Classification via Regularized Information Maximization". In Proc. Neural Information Processing Systems (NIPS) 2010. *Acceptance rate: 24%*

[122] P. Trautman, A. Krause. "Unfreezing the Robot: Navigation in Dense, Interacting Crowds". Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2010. *Acceptance rate: 58%*

[123] D. Golovin, A. Krause. "Adaptive Submodularity: A New Approach to Active Learning and Stochastic Optimization". Proc. of the International Conference on Learning Theory (COLT) 2010. Extended version: arXiv:1003.3967v1 *Acceptance rate: 31%*

[124] M. Gomez Rodriguez, J. Leskovec, A. Krause "Inferring Networks of Diffusion and Influence". Proc. of the ACM Conference on Knowledge Discovery in Databases (KDD) 2010. *Acceptance rate: 13%. Best Research Paper Award Honorable Mention*

[125] N. Srinivas, A. Krause, S. Kakade, M. Seeger. "Gaussian Process Optimization in the Bandit Setting: No Regret and Experimental Design". Proc. of the International Conference on Machine Learning (ICML) 2010. *Acceptance rate: 26%*

[126] R. Gomes, A. Krause. "Budgeted Nonparametric Learning from Data Streams". Proc. of the International Conference on Machine Learning (ICML) 2010. *Acceptance rate: 26%*

[127] A. Krause, V. Cevher. "Submodular Dictionary Selection for Sparse Representation". Proc. of the International Conference on Machine Learning (ICML) 2010. *Acceptance rate: 26%*

[128] D. Golovin, M. Faulkner, A. Krause "Distributed Online Sensor Selection". Proc. of ACM/IEEE Conference on Information Processing in Sensor Networks (IPSN) 2010 *Acceptance rate: 17%*

[129] J. Binney, A. Krause, G. Sukhatme "Informative Path Planning for an Autonomous Underwater Vehicle". Proc. of IEEE International Conference on Robotics and Automation (ICRA) 2010 *Acceptance rate: 42%*

[130] M. Streeter, D. Golovin, A. Krause. "Online Learning of Assignments". Proc. of Neural Information Processing Systems (NIPS) 2009 *Accepted as spotlight (8% of submissions)*

[131] A. Singh, A. Krause, W. Kaiser. "Nonmyopic Adaptive Informative Path Planning for Multiple Robots". Proc. International Joint Conference on Artificial Intelligence (IJCAI) 2009. *Acceptance rate: 26%*

[132] A. Krause, R. Rajagopal, C. Guestrin, A. Gupta. "Simultaneous Placement and Scheduling of Sensors". Proc. Information Processing in Sensor Networks (IPSN) 2009. *Acceptance rate: 18%*. Longer version: CMU-ML-08-114.

[133] A. Krause, E. Horvitz. "A Utility-Theoretic Approach to Privacy and Personalization". Proc. 23rd Conference on Artificial Intelligence (AAAI) '08, Special Track on AI & the Web. Extended version: Technical Report (Microsoft Research) MSR-TR-2007-135.

[134] A. Krause, E. Horvitz, A. Kansal, F. Zhao. "Toward Community Sensing". Proc. of Information Processing in Sensor Networks (IPSN) '08. *Acceptance rate: 24%*. Extended version: Technical Report (Microsoft Research) MSR-TR-2007-136.

[135] A. Krause, B. McMahan, C. Guestrin, and A. Gupta. "Selecting Observations against Adversarial Objectives". In 21st Annual Conference on Neural Information Processing Systems (NIPS) 2007. *Accepted as spotlight (10% of submissions)*

[136] B. Mutlu, A. Krause, J. Forlizzi, C. Guestrin, and J. Hodgins. "Robust, Low-cost, Non-intrusive Sensing and Recognition of Seated Postures". In 20th ACM Symposium on User Interface Software and Technology (UIST) 2007. *Acceptance rate: 19%*

[137] J. Leskovec, A. Krause, C. Guestrin, C. Faloutsos, J. VanBriesen, N. Glance. "Cost-effective Outbreak Detection in Networks". In 13th International Conference on Knowledge Discovery and Data Mining (KDD) 2007. *Acceptance rate: 8%. Winner of the Best Student Paper Award*

[138] A. Krause, C. Guestrin. "Nonmyopic Active Learning of Gaussian Processes – An Exploration–Exploitation Approach". 24th International Conference on Machine Learning (ICML) 2007. *Acceptance rate: 29%*

[139] A. Meliou, A. Krause, C. Guestrin, J. Hellerstein. "Nonmyopic Informative Path Planning in Spatio-Temporal Models". In 22nd Conference on Artificial Intelligence (AAAI) 2007. *Acceptance rate: 27%*

[140] A. Krause, C. Guestrin. "Near-optimal Observation Selection using Submodular Functions". In 22nd Conference on Artificial Intelligence (AAAI) 2007 – Nectar track. *Acceptance rate: 38%*

[141] A. Singh, A. Krause, C. Guestrin, W. Kaiser, M. Batalin. "Efficient Planning of Informative Paths for Multiple Robots". In 20th International Joint Conference on Artificial Intelligence (IJCAI) 2007. *Accepted for oral presentation (16% of submissions)*

[142] A. Krause, J. Leskovec, C. Guestrin. "Data Association for Topic Intensity Tracking". In 23rd International Conference on Machine Learning (ICML) 2006. *Acceptance rate: 20%*. Extended version: Technical Report, CMU-ML-06-100

[143] A. Krause, C. Guestrin, A. Gupta, and J. Kleinberg. "Near-optimal Sensor Placements: Maximizing Information while Minimizing Communication Cost". In 5th International Conference on Information Processing in Sensor Networks (IPSN) 2006. *Acceptance rate: 15%. Winner of the Best Paper Award*

[144] V. Singhvi, A. Krause, C. Guestrin, J. Garrett, H.S. Matthews. "Intelligent Light Control using Sensor Networks", In 3rd ACM Conference on Embedded Networked Sensor Systems (SenSys) 2005. *Acceptance rate: 17%*

[145] A. Krause, C. Guestrin. "Near-optimal Nonmyopic Value of Information in Graphical Models", In 21st Conference on Uncertainty in Artificial Intelligence (UAI) 2005. *Acceptance rate: 34%. Winner of the Best Paper Runner-Up Award.*

[146] C. Guestrin, A. Krause, A. Singh. "Near-optimal Sensor Placements in Gaussian Processes", In 22nd International Conference on Machine Learning (ICML) 2005. *Acceptance rate: 29%. Winner of the Best Paper Runner-Up Award.*

[147] A. Krause, C. Guestrin. "Optimal Nonmyopic Value of Information in Graphical Models – Efficient Algorithms and Theoretical Limits", In 19th International Joint Conference on Artificial Intelligence (IJCAI) 2005. *Acceptance rate: 18%*

[148] A. Krause, M. Ihmig, E. Rankin, S. Gupta, D. Leong, D. P. Siewiorek, A. Smailagic, M. Deisher, U. Sengupta. "Trading off Prediction Accuracy and Power Consumption for Context-Aware Wearable Computing", In 9th International Symposium on Wearable Computers (ISWC) 2005. *Acceptance rate: 25%*

[149] D. P. Siewiorek, A. Smailagic, J. Furukawa, A. Krause, N. Moraveji, K. Reiger, J. Shaffer, F. L. Wong. "SenSay: A Context-Aware Mobile Phone" In Proc. 7th Internat. Symposium on Wearable Computers, White Plains, NY, USA, 2003 *Accepted as short paper*

[150] A. Krause, D. P. Siewiorek, A. Smailagic, and J. Farringdon. "Unsupervised, Dynamic Identification of Physiological and Activity Context in Wearable Computing". In 7th International Symposium on Wearable Computers (ISWC) 2003. *Accepted as full paper (35% of submissions)*

Magazine Articles

[151] M. Faulkner, R. Clayton, T. Heaton, M. Chandy, M. Kohler, J. Bunn, R. Guy, A. Liu, M. Olson, M. Cheng, A. Krause. "Community Sense and Response Systems: Your Phone as Quake Detector". Communications of the ACM (CACM) Vol. 57 No. 7, pp. 66-75, 2014 *Cover Feature.*

[152] A. Krause, D. Golovin, S. Converse. "Sequential Decision Making in Computational Sustainability via Adaptive Submodularity". AI Magazine, Special Issue on Computational Sustainability, July 2014

[153] A. Krause, C. Guestrin. "Optimizing Sensing from Water to the Web", IEEE Computer Magazine, August 2009. *Cover Feature.*

Book Chapters

[154] A. Krause, D. Golovin. "Submodular Function Maximization". Chapter in "Tractability: Practical Approaches to Hard Problems", Cambridge University Press, February 2014.

Thesis

[155] A. Krause. "Optimizing Sensing – Theory and Applications", Ph.D. Thesis, Carnegie Mellon University, 2008.

Other Products of Scholarly Activity

Technical Demos at Selective Conferences

[1] M. Faulkner, A. Krause. "Detecting Quakes with Clouds and Phones: the Community Seismic Network", at 25th Annual Conference on Neural Information Processing Systems (NIPS) 2011.

[2] M. Faulkner, R. Chandy, J. Krause, M. Olson, K. M. Chandy, A. Krause. "The Next Big One: Detecting Earthquakes and other Rare Events from Community-based Sensors", at 10th International Conference on Information Processing in Sensor Networks (IPSN) 2011.

[3] A. Krause and C. Guestrin. "Near-optimal Data-driven Placement of Light Sensors under Communication Constraints", at 5th International Conference on Information Processing in Sensor Networks (IPSN) 2006.

[4] A. Krause and C. Guestrin. "Near-optimal Placement of Light Sensors in Gaussian Processes under Communication Constraints", at 19th Annual Conference on Neural Information Processing Systems (NIPS) 2005.

[5] N. Moraveji, A. Krause, A. Smailagic, D. Siewiorek. "SenSay: Context Aware Mobile Phone", at 7th International Symposium on Wearable Computers (ISWC) 2003.

TUTORIALS

[6] A. Krause, S. Jegelka. "Submodularity in Machine Learning". Invited Tutorial at Simons Institute Foundations of Machine Learning Bootcamp, 2017

[7] A. Krause. "Submodularity in Machine Learning and Computer Vision". Invited Tutorial at BMVC 2013 (Bristol 09/2013)

[8] A. Krause, S. Jegelka. "Submodularity in Machine Learning: New Directions". Tutorial at the International Conference on Machine Learning (ICML) 2013

[9] A. Krause, S. Jegelka. "Submodularity in Machine Learning and Computer Vision". Tutorial at the DAGM-OAGM Symposium 2012 (Graz 08/2012)

[10] A. Krause, S. Jegelka. "Submodularity in Artificial Intelligence". Invited Tutorial at the European Conference on Artificial Intelligence (Montpellier 08/2012)

[11] A. Krause. "Submodular Optimization in Computational Sustainability". Invited Tutorial at the Conference on Computational Sustainability (Copenhagen 07/2012)

[12] A. Krause. "Submodularity in Machine Learning". Invited Tutorial at the Workshop on Modern Aspects of Submodularity (Georgia Tech, 03/2012)

[13] A. Krause. "Intelligent Optimization with Submodular Functions" Invited Tutorial at the Learning and Intelligent Optimization Conference (LION) 2012.

[14] A. Krause and C. Guestrin. "Intelligent Information Gathering and Submodular Function Optimization" at the International Joint Conference in Artificial Intelligence (IJCAI) 2009.

[15] A. Krause and C. Guestrin. "Beyond Convexity: Submodularity in Machine Learning" at the International Conference on Machine Learning (ICML) 2008.

SOFTWARE

[16] A. Krause. "Matlab Toolbox for Submodular Function Optimization", 2008 (available at `http://www.submodularity.org`).

PATENTS

[17] R. Gomes, P. Welinder, A. Krause, P. Perona. "Systems and Methods for the Distributed Categorization of Source Data". US9355167 B2, granted 05/2016

[18] A. Krause, T. Desautels, J. Burdick. "Method and system for parallel batch processing of data sets using gaussian process with batch upper confidence bound". US9342786 B2, granted 05/2016

[19] C. Camerer, D. Golovin, A. Krause, D. Ray. "Active Learning Decision Engines". Patent US8838507 B2, granted 09/2014

[20] A. Krause and E. Horvitz. "Balancing the Costs of Sharing Private Data with the Utility of Enhanced Personalization of Online Services". Patent US8346749 B2 filed by Microsoft Research, granted 01/2013.

[21] A. Krause, E. Horvitz, A. Kansal and F. Zhao. "Selection of Sensors for Monitoring Phenomena Considering the Value of Information and Data Sharing Preferences". Patent US7818412 B2 filed by Microsoft Research, granted 10/2010