Christian Kroer

Contact information

Christian Kroer
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Research interests

Fields: artificial intelligence, algorithms, economics, operations research.

Specific: equilibrium computation, mechanism design, auctions, prediction markets, combinatorial optimization, convex optimization, machine learning, and practical applications of all the above.

Education

Carnegie Mellon University

Ph.D. Computer Science — May 2012 –

IT University of Copenhagen

M.Sc. IT - Software Development and Technology — August 2009 – April 2012

Aalborg University, Aalborg, Denmark

BA. Human-centered informatics — September 2006 – June 2009

Employment and internships

Carnegie Mellon University, *Research assistant.* — May 2012 –

Microsoft Research New York, *Research intern.* — May 2015 – August 2015

Aalborg University, *Research assistant.* — February 2012 – April 2012

IT University of Copenhagen, *Teaching assistant.* — September 2011 – June 2012

Netmester A/S, Copenhagen, Denmark, *Systems developer.* — January 2010 – August 2011

Honors and Awards

Facebook Fellowship in Economics and Computation, 2016.

Publications

Faster First-Order Methods for Extensive-Form Game Solving. Christian Kroer, Kevin Waugh, Fatma Kılınç-Karzan, and Tuomas Sandholm. *ACM Conference on Economics and Computation*, (EC), 2015.

Limited Lookahead in Incomplete-Information Games. Christian Kroer and Tuomas Sandholm. *International Joint Conference on Artificial Intelligence*, (IJCAI), 2015.

Discretization of Continuous Action Spaces in Extensive-Form Games. Christian Kroer and Tuomas Sandholm. *International Conference on Autonomous Agents and Multiagent Systems*, (AAMAS), 2015.

Computational Bundling for Auctions. Christian Kroer and Tuomas Sandholm. *International Conference on Autonomous Agents and Multiagent Systems*, (AAMAS), 2015. A longer version was released as a CMU tech report.

Extensive-form Game Abstraction with Bounds. Christian Kroer and Tuomas Sandholm. *ACM Conference on Economics and Computation*, (EC), 2014.

Power Napping with Loud Neighbors: Optimal Energy-Constrained Jamming and Anti-Jamming. Bruce DeBruhl, Christian Kroer, Anupam Datta, Tuomas Sandholm, and Patrick Tague *7th ACM Conference on Security & Privacy in Wireless and Mobile Networks*, (WiSec), 2014.

Symbolic Configuration for Interactive Container Ship Stowage Planning. Christian Kroer, Martin K. Svendsen, Rune M. Jensen, Joseph Kiniry, and Eilif Leknes. *Computational Intelligence*, 2014.

Robust Optimization of Recommendation Sets with the Maximin Utility Criterion. Paolo Viappiani and Christian Kroer. *3rd International Conference on Algorithmic Decision Theory*, (ADT). 2013. Previously appeared at *6th Multidisciplinary Workshop on Advances in Preference Handling*, (ECAI Workshop). 2012.

Automated Planning for Liner Shipping Fleet Repositioning. Kevin Tierney, Amanda Coles, Andrew Coles, Christian Kroer, Adam Britt and Rune M. Jensen. *International Conference on Automated Planning and Scheduling*, (ICAPS). 2012.

Feature Filtering for Instance Specific Algorithm Configuration. Christian Kroer and Yuri Malitsky. *IEEE International Conference on Tools in Artificial Intelligence*, (ICTAI). 2011.

Invited talks

Faster First-Order Methods for Extensive-Form Game Solving. INFORMS Annual Conference, 2015.

Faster First-Order Methods for Extensive-Form Game Solving. 22nd International Symposium on Mathematical Programming (ISMP), 2015.

Computational Bundling for Auctions. INFORMS Annual Conference, 2013.

Other talks

Discretization of Continuous Action Spaces in Extensive-Form Games. INFORMS Annual Conference, 2015.

Extensive-Form Game Abstraction with Bounds. CMU theory lunch, 2014.

Extensive-Form Game Abstraction with Bounds. CMU open house, 2014.

Teaching experience

CMU	2016	Electronic Negotiation	Graduate	Vertical mentor
CMU	2016	Graduate Artificial Intelligence	Graduate	TA
CMU	2015	Electronic Negotiation	Graduate	Vertical mentor
CMU	2014	Artificial Intelligence	Undergraduate	TA (**nominated for teaching award**)
CMU	2014	Electronic Negotiation	Graduate	Vertical mentor
ITU	2012	Intelligent Systems Programming	Graduate	TA
ITU	2011	Algorithm Design	Graduate	TA

Community service

IJCAI 2016, program committee.
INFORMS 2015, chair, sponsored session, "Efficient Algorithms for Large-Scale Convex Games."
CMU Computer Science PhD program admissions committee 2014-2015, 2015-2016.
CMU Immigration Course coordinator 2013.

Reviewing: WINE 2015, JAAMAS 2015, ACM Transactions on Economics and Computation, 2013, 2014, Transactions on Computational Intelligence and AI in Games 2014, 2015.

Relevant Graduate Coursework

CMU	2015	Analytical Performance Modeling (audit)
CMU	2015	Graduate Algorithms
CMU	2014	Modern Convex Optimization
CMU	2013	Foundations of Electronic Marketplaces
CMU	2013	Algorithms, Games, and Networks
CMU	2013	Convex Optimization
CMU	2012	Linear Programming
CMU	2012	Machine Learning
ITU	2010	Algorithm Design
ITU	2010	Efficient AI Programming

Programming

Strong experience: Java, Python, C++, C#.
Medium experience: SQL, Matlab, Scala, C, HTML, CSS.
Familiar with: R, Lua, XSLT.

Frameworks

Extensive UNIX and Windows development experience. Git, SVN, pandas, numpy, CPLEX, Gurobi, scikit-learn, XGBoost, .Net.

References

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Fatma Kılınç-Karzan
Assistant Professor of Operations Research
Tepper School of Business
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`http://www.andrew.cmu.edu/user/fkilinc/`
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Rune M. Jensen
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`http://www.itu.dk/people/rmj/pmwiki/`
Email: rmj@itu.dk

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