Dominik Peters *(PhD student)*

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Education

- **DPhil, Computer Science**
  Balliol College, University of Oxford, 2015–19 (expected)
  Supervised by Prof. Edith Elkind

- **MMathCompSci, Mathematics and Computer Science**
  St John's College, University of Oxford, 2011–15

Journal Papers

4. k-Majority Digraphs and the Hardness of Voting with a Constant Number of Voters.
   Georg Bachmeier, Felix Brandt, Christian Geist, Paul Harrenstein, Keyvan Kardel, Dominik Peters, and Hans Georg Seedig. Journal of Computer and System Sciences accepted 2019.

3. Fractional Hedonic Games.
   Haris Aziz, Florian Brandl, Felix Brandt, Paul Harrenstein, Martin Olsen, Dominik Peters. ACM Transactions on Economics and Computation accepted 2019.

2. An Axiomatic Characterization of the Borda Mean Rule.
   Florian Brandl and Dominik Peters. Social Choice and Welfare Vol. 52(4), 2019.

1. Optimal Bounds for the No-Show Paradox via SAT Solving.
   Felix Brandt, Christian Geist, Dominik Peters. Mathematical Social Science Vol. 90, 2017.

Conference Papers

23. Truthful Aggregation of Budget Proposals.
    Rupert Freeman, David M. Pennock, Dominik Peters, and Jennifer Wortman Vaughan. EC 2019.

22. Single Transferable Vote: Incomplete Knowledge and Communication Issues.
    Manel Ayadi, Nahla Ben Amor, Jérôme Lang, and Dominik Peters. AAMAS 2019.

21. Pareto-Optimal Allocation of Indivisible Goods with Connectivity Constraints.
    Ayumi Igarashi and Dominik Peters. AAAI 2019.

20. Almost Envy-Free Allocations with Connected Bundles.
    Vittorio Bilò, Ioannis Caragiannis, Michele Flammini, Ayumi Igarashi, Gianpiero Monaco, Dominik Peters, Cosimo Vinci, and William S. Zwicker. ITCS 2019.

19. Proportionality and Strategyproofness in Multiwinner Elections.
Dominik Peters. AAMAS 2018.

18. Single-Peakedness and Total Unimodularity: New Polynomial-Time Algorithms for Multi-Winner Elections.
Dominik Peters. AAAI 2018.

17. On Recognizing Nearly Single-Crossing Preferences.
Florian Jaeckle, Dominik Peters, and Edith Elkind. AAAI 2018.

16. Effective Heuristics for Committee Scoring Rules.
Piotr Faliszewski, Martin Lackner, Dominik Peters, and Nimrod Talmon. AAAI 2018.

15. Condorcet's Principle and the Preference Reversal Paradox.
Dominik Peters. TARK 2017.

14. Precise Complexity of the Core in Dichotomous and Additive Hedonic Games.
Dominik Peters. ADT 2017.

13. Fair Division of a Graph.
Sylvain Bouveret, Katarína Cechlárová, Edith Elkind, Ayumi Igarashi, and Dominik Peters. IJCAI 2017.

12. Proportional Rankings.
Piotr Skowron, Martin Lackner, Markus Brill, Dominik Peters, and Edith Elkind. IJCAI 2017.

11. Preferences Single-Peaked on a Circle.
Dominik Peters and Martin Lackner. AAAI 2017.

10. Recognising Multidimensional Euclidean Preferences.
Dominik Peters. AAAI 2017.

9. Group Activity Selection on Social Networks.
Ayumi Igarashi, Dominik Peters, and Edith Elkind. AAAI 2017.

8. Preference Restrictions in Computational Social Choice: Recent Progress.
Edith Elkind, Martin Lackner, and Dominik Peters. IJCAI 2016 (Early Career Spotlight Track).

7. Interdependent Scheduling Games.
A. Abeliuk, H. Aziz, G. Berbeglia, S. Gaspers, J. Gudmundsson, P. Stursberg, P. Kalina, N. Mattei, D. Peters, P. Van Hentenryck, and T. Walsh. IJCAI 2016.

6. Optimal Bounds for the No-Show Paradox via SAT Solving.
Felix Brandt, Christian Geist, and Dominik Peters. AAMAS 2016.

5. Preferences Single-Peaked on Nice Trees.
Dominik Peters and Edith Elkind. AAAI 2016.

4. Graphical Hedonic Games of Bounded Treewidth.
Dominik Peters. AAAI 2016.

3. Complexity of Hedonic Games with Dichotomous Preferences.
Dominik Peters. AAAI 2016.

2. Towards Structural Tractability in Hedonic Games.
   Dominik Peters. AAAI 2016 Student Abstracts (Best Presentation Award).

1. Simple Causes of Complexity in Hedonic Games.
   Dominik Peters and Edith Elkind. IJCAI 2015.

Awards, Distinctions, Scholarships

- **Best Paper Award Nomination**, AAMAS 2016 (4 out of 550 submissions).

- **Best Paper** at CoopMAS 2016.

- **AAAI Best Student 3-Minute Presentation Award** among 15 finalists selected from 95 submissions (*three minute thesis* format), Phoenix, AAAI 2016.

- **Gloucester Research Prize** for best computer science project in Oxford (equivalent to Master's thesis, title: *Extending Preferences in Hedonic Games*), 2015.

- **Junior Mathematics Prize** for outstanding performance in maths exams, Oxford, 2014.

- **IBM Prize** for best group design project, Oxford, 2013.

- **Casberd Scholar**, St John's College, Oxford, 2012–15.

- Scholarship from the **German Academic National Foundation**, 2010–15.

Book Chapters

3. Dominik Peters. Economic Design for Effective Altruism. In J.-F. Laslier, H. Moulin, M.R. Sanver, W.S. Zwicker, editors, *Future of Economic Design*. Springer, forthcoming.

2. Christian Geist and Dominik Peters. Computer-aided Methods for Social Choice Theory. In U. Endriss, editor, *Trends in Computational Social Choice*, chapter 13. AI Access, 2017.

1. Edith Elkind, Martin Lackner, and Dominik Peters. Structured Preferences. In U. Endriss, editor, *Trends in Computational Social Choice*, chapter 10. AI Access, 2017.

Workshop Presentations

14. Ayumi Igarashi and Dominik Peters. Pareto-Optimal Allocation of Indivisible Goods with Connectivity Constraints. At AI^3, IJCAI/AAMAS, Stockholm 2018.

13. Dominik Peters. Proportionality and Strategyproofness in Multiwinner Elections. At *COMSOC '18*, RPI 2018.

12. Piotr Skowron, Martin Lackner, Markus Brill, Dominik Peters, and Edith Elkind. Proportional Rankings. At *Workshop on Opinion Aggregation, Dynamics, and Elicitation (WADE)*, Cornell 2018.

11. Florian Brandl and Dominik Peters. An Axiomatic Characterization of the Borda Mean Rule. At *M-PREF 2018*, New Orleans 2018.

10. Dominik Peters. Single-Peakedness and Total Unimodularity for Multiwinner Elections. At *ADT 2017*, Luxembourg 2017.

9. Dominik Peters. An Impossibility for Approval-Based Committee Elections. At *Dagstuhl Seminar 17261 on Voting: Beyond Simple Majorities and Single-Winner Elections*, Dagstuhl 2017.

8. Dominik Peters. Recognising Multidimensional Euclidean Preferences. At *73rd Theory Day: Workshop on Algorithms and Complexity*, Hamburg 2017.

7. Felix Brandt, Christian Geist, and Dominik Peters. Optimal Bounds for the No-Show Paradox via SAT Solving. At the *13th Meeting of the Society for Social Choice and Welfare*, Lund 2016

6. Dominik Peters. Recognising Multidimensional Euclidean Preferences. At *COMSOC '16*, Toulouse 2016.

5. Dominik Peters. Graphical Hedonic Games of Bounded Treewidth. At *CoopMAS '16*, Singapore 2016.

4. Dominik Peters and Edith Elkind. Preferences Single-Peaked on Nice Trees. At *EXPLORE '16: Exploring Beyond the Worst Case in Computational Social Choice*, Singapore 2016.

3. Dominik Peters. Structural Tractability in Hedonic Games. At *Game Theory Workshop*, Hausdorff Research Institute for Mathematics, Bonn 2015.

2. Dominik Peters. Computational Complexity of Hedonic Games with Dichotomous Preferences. At *LABEX CIMI Pluridisciplinary Workshop on Game Theory*, Toulouse 2015.

1. Dominik Peters and Edith Elkind. Simple Causes of Complexity in Hedonic Games. At *CoopMAS '15*, Istanbul 2015.

Supervision

- Florian C. Jaeckle, *A Complexity Study of Nearly Single-Crossing Electorates*, Master's thesis (Part C project), co-supervised with Edith Elkind, Oxford 2017.

- James W. Turner, *Voting For Facility Location*, Master's thesis (MSc in Computer Science), co-supervised with Edith Elkind, Oxford 2017.

Teaching

- Guest Lecturer for *Computational Social Choice* (TU Munich, 2019).

- Guest Lecturer for *Algorithms and Data Structures* (Oxford, HT 2017).

- Class Tutor for *Computational Game Theory* (Oxford, MT 2017).

- Class Tutor for *Computational Game Theory* (Oxford, MT 2016).

- Departmental Tutorials for *Functional Programming* (Oxford, MT 2016).

- Class Tutor for *Computational Game Theory* (Oxford, HT 2016).

- Class Tutor for *Computational Learning Theory* (Oxford, MT 2015).

- Departmental Tutorials for *Functional Programming* (Oxford, MT 2015).

Reviewing

Journals. Artificial Intelligence Journal (AIJ), Journal of Artificial Intelligence Research (JAIR), Journal of Economic Theory (JET), Social Choice and Welfare, ACM Transactions on Economics and Computation (ACM TEAC), Autonomous Agents and Multi-Agent Systems (JAAMAS).

Conferences. AAAI 2019 (PC), AAAI/ACM Conference on AI, Ethics, and Society 2019 (PC), AAAI 2018, SAGT 2017, IJCAI 2017, EXPLORE 2017 (PC), AAMAS 2017, AAAI 2017, SODA 2016, ECAI 2016, COMSOC 2016, ACM EC 2016, IJCAI 2016, AAMAS 2016, AAAI 2016, AAMAS 2015, SAGT 2015.

Research Visits

- October 2018, Markus Brill, Berlin; Piotr Skowron, Warsaw.
- October 2018, Ariel Procaccia, Carnegie Mellon.
- July 2018, Felix Brandt, Munich.
- April and May 2018, Jérôme Lang, Paris.
- September 2017, Felix Brandt, Munich.
- September 2017, Jérôme Lang, Paris.
- April 2017, Markus Brill and Piotr Skowron, Berlin.
- September 2016, Jörg Rothe, Düsseldorf.
- September 2016, William Zwicker, Union College.
- September 2016, Lirong Xia and Elliot Anshelevich, Rensellaer.
- August/September 2016, Ariel Procaccia, Carnegie Mellon.
- April 2016, Felix Brandt, Munich.
- August/September 2015, Felix Brandt, Munich.