

# RUPERT FREEMAN

University of Virginia Darden School of Business  
FreemanR@darden.virginia.edu  $\diamond$  www.rupertfreeman.com

## APPOINTMENTS

---

<b>University of Virginia Darden School of Business</b> <i>Assistant Professor</i> Quantitative Analysis Group	2020-present
<b>Microsoft Research</b> <i>Postdoctoral Researcher</i> NYC Algorithmic Economics Group	2018-2020

## EDUCATION

---

<b>Ph.D. in Computer Science</b> <i>Duke University</i> Advisor: Vincent Conitzer	2013-2018
<b>Bachelor of Science (First Class Honours) in Mathematics</b> <i>University of Auckland, New Zealand</i>	2009-2012

## JOURNAL PUBLICATIONS

---

- Rupert Freeman, David M. Pennock, Jennifer Wortman Vaughan, and Jens Witkowski. *An Equivalence Between Fair Division and Wagering Mechanisms*. *Management Science*. (Supersedes the AAAI-19 paper below)
- Markus Brill, Rupert Freeman, Svante Janson, and Martin Lackner. *Phragmén's Voting Methods and Justified Representation*. *Mathematical Programming*. (Supersedes the AAAI-17 paper below)
- Haris Aziz, Rupert Freeman, Nisarg Shah, and Rohit Vaish. *Best of Both Worlds: Ex Ante and Ex Post Fairness in Resource Allocation*. *Operations Research*. (Supersedes the EC-20 paper below)
- Jens Witkowski, Rupert Freeman, Jennifer Wortman Vaughan, David M. Pennock, and Andreas Krause. *Incentive-Compatible Forecasting Competitions*. *Management Science*. (Supersedes the AAAI-18 paper below)
- Rupert Freeman, David M. Pennock, Dominik Peters, and Jennifer Wortman Vaughan. *Truthful Aggregation of Budget Proposals*. *Journal of Economic Theory*. (Supersedes the EC-19 paper below)
- Haris Aziz, Markus Brill, Vincent Conitzer, Edith Elkind, Rupert Freeman, and Toby Walsh. *Justified Representation in Approval-Based Committee Voting*. *Social Choice and Welfare*. (Supersedes the AAAI-15 paper below)

## PEER-REVIEWED CONFERENCE PUBLICATIONS

---

- Rupert Freeman and Ulrike Schmidt-Kraepelin. *Project-Fair and Truthful Mechanisms for Budget Aggregation*. In Proceedings of the Thirty-Eighth AAAI Conference on Artificial Intelligence (AAAI-24), Vancouver, Canada, 2024..
- Soroush Ebadian, Rupert Freeman, and Nisarg Shah. *Efficient Resource Allocation with Secretive Agents*. In Proceedings of the Thirty-First International Joint Conference on Artificial Intelligence (IJCAI-22), Vienna, Austria, 2022.

Rupert Freeman, Evi Micha, and Nisarg Shah. *Two-Sided Matching Meets Fair Division*. In Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence (IJCAI-21), virtual, 2021.

Rupert Freeman, David M. Pennock, Daniel M. Reeves, David Rothschild, and Bo Waggoner. *Towards a Theory of Confidence in Market-Based Predictions*. In Proceedings of the Twelfth International Symposium on Imprecise Probabilities: Theories and Applications (ISIPTA-21), Granada, Spain, 2021.

Rupert Freeman, David M. Pennock, Chara Podimata, and Jennifer Wortman Vaughan. *No-Regret and Incentive-Compatible Online Learning*. In Proceedings of the Thirty-Seventh International Conference on Machine Learning (ICML-20), virtual, 2020.

Rupert Freeman, Nisarg Shah, and Rohit Vaish. *Best of Both Worlds: Ex-ante and Ex-Post Fairness in Resource Allocation*. In Proceedings of the 21st ACM Conference on Economics and Computation (EC-20), virtual, 2020.

Rupert Freeman, Anson Kahng, and David M. Pennock. *Representation in Approval Elections with a Variable Number of Winners*. In Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence (IJCAI-20), virtual, 2020.

Rupert Freeman, Sujoy Sikdar, Rohit Vaish, and Lirong Xia. *Equitable Allocations of Indivisible Chores*. In Proceedings of the Nineteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-20), virtual, 2020.

Rupert Freeman, David M. Pennock, Dominik Peters, and Bo Waggoner. *Preventing Arbitrage from Collusion when Eliciting Probabilities*. In Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence (AAAI-20), New York City, New York, USA, 2020.

Rupert Freeman, Sujoy Sikdar, Rohit Vaish, and Lirong Xia. *Equitable Allocations of Indivisible Goods*. In Proceedings of the Twenty-Eighth International Joint Conference on Artificial Intelligence (IJCAI-19), Macao, China, 2019.

Rupert Freeman, David M. Pennock, Dominik Peters, and Jennifer Wortman Vaughan. *Truthful Aggregation of Budget Proposals*. In Proceedings of the 20th ACM Conference on Economics and Computation (EC-19), Phoenix, Arizona, USA, 2019.

Rupert Freeman, David M. Pennock, and Jennifer Wortman Vaughan. *An Equivalence Between Wagering and Fair-Division Mechanisms*. In Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-19), Honolulu, Hawaii, USA, 2019.

Vincent Conitzer, Rupert Freeman, Nisarg Shah, and Jennifer Wortman Vaughan. *Group Fairness for the Allocation of Indivisible Goods*. In Proceedings of the Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-19), Honolulu, Hawaii, USA, 2019.

Rupert Freeman and David M. Pennock. *An Axiomatic View of the Parimutuel Consensus Wagering Mechanism*. In Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence (IJCAI-18), Stockholm, Sweden, 2018.

Rupert Freeman, Seyed Majid Zahedi, Vincent Conitzer, and Benjamin Lee. *Dynamic Proportional Sharing: A Game-Theoretic Approach*. In Proceedings of the ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems, Irvine, California, USA, 2018.

Jens Witkowski, Rupert Freeman, Jennifer Wortman Vaughan, David M. Pennock, and Andreas Krause. *Incentive-Compatible Forecasting Competitions*. In Proceedings of the Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18), New Orleans, Louisiana, USA, 2018.

Rupert Freeman, Seyed Majid Zahedi, and Vincent Conitzer. *Fair and Efficient Social Choice in Dynamic Settings*. In Proceedings of the Twenty-Sixth International Joint Conference on Artificial Intelligence (IJCAI-17), Melbourne, Australia, 2017.

Vincent Conitzer, Rupert Freeman, and Nisarg Shah. *Fair Public Decision Making*. In Proceedings of the 18th ACM Conference on Economics and Computation (EC-17), Cambridge, Massachusetts, USA, 2017.

Rupert Freeman, David M. Pennock, and Jennifer Wortman Vaughan. *The Double Clinching Auction for Wagering*. In Proceedings of the 18th ACM Conference on Economics and Computation (EC-17), Cambridge, Massachusetts, USA, 2017.

Rupert Freeman, Sébastien Lahaie, and David Pennock. *Crowdsourced Outcome Determination in Prediction Markets*. In Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI-17), San Francisco, California, USA, 2017.

Markus Brill, Rupert Freeman, Svante Janson, and Martin Lackner. *Phragmén’s Voting Methods and Justified Representation*. In Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI-17), San Francisco, California, USA, 2017.

Rupert Freeman, Sam Haney, and Debmalya Panigrahi. *On the Price of Stability of Undirected Multicast Games*. In Proceedings of the Twelfth Conference on Web and Internet Economics (WINE-16), Montreal, Canada, 2016.

Haifeng Xu, Rupert Freeman, Vincent Conitzer, Shaddin Dughmi, and Milind Tambe. *Signaling in Bayesian Stackelberg Games*. In Proceedings of the Fifteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-16), Singapore, 2016.

Markus Brill, Vincent Conitzer, Rupert Freeman, and Nisarg Shah. *False-Name-Proof Recommendations in Social Networks*. In Proceedings of the Fifteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-16), Singapore, 2016.

Vincent Conitzer, Rupert Freeman, Markus Brill, and Yuqian Li. *Rules for Choosing Societal Tradeoffs*. In Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence (AAAI-16), Phoenix, Arizona, 2016.

Markus Brill, Rupert Freeman, and Vincent Conitzer. *Computing Possible and Necessary Equilibrium Actions (and Bipartisan Set Winners)*. In Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence (AAAI-16), Phoenix, Arizona, 2016.

Rupert Freeman, Markus Brill, and Vincent Conitzer. *General Tiebreaking Schemes for Computational Social Choice*. In Proceedings of the Fourteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-15), Istanbul, Turkey, 2015.

Vincent Conitzer, Markus Brill, and Rupert Freeman. *Crowdsourcing Societal Tradeoffs*. In Proceedings of the Fourteenth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS-15) Blue Sky Ideas Track, Istanbul, Turkey, 2015.

Haris Aziz, Markus Brill, Vincent Conitzer, Edith Elkind, Rupert Freeman, and Toby Walsh. *Justified Representation in Approval-Based Committee Voting*. In Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15), Austin, Texas, 2015.

Rupert Freeman, Markus Brill, and Vincent Conitzer. *On the Axiomatic Characterization of Runoff Voting Rules*. In Proceedings of the Twenty-Eighth AAAI Conference on Artificial Intelligence (AAAI-14), Quebec City, Canada, 2014.

## WORKING PAPERS

---

Rupert Freeman, Geoffrey Pritchard, and Mark C. Wilson. *Order Symmetry: A New Fairness Criterion for Assignment Mechanisms*.

Dana G. Popescu and Rupert Freeman. *Restock Alerts versus Waitlists: How to Manage Transient Excess Demand*.

## RESEARCH INTERNSHIPS AND VISITS

---

Microsoft Research, NYC Research Intern	Summer 2016, 2017
Simons Institute for the Theory of Computing Visiting student as part of the program on Economics and Computation	Fall 2015

## FELLOWSHIPS AND AWARDS

---

Duke Computer Science Department Outstanding Dissertation Award	2018
Facebook Ph.D. Fellowship	2017-2019
Duke Computer Science Department Outstanding Preliminary Exam Award	2016
Duke Computer Science Department Outstanding Teaching Assistant Award	2014

## INVITED TALKS

---

<i>Markets for Aggregation</i> Dagstuhl Seminar on Algorithms for Participatory Democracy	July 2022
<i>Order Symmetry: A New Fairness Criterion for Assignment Mechanisms</i> Frankfurt School of Finance & Management	June 2021
2021 INFORMS Annual Meeting	October 2021
Panthéon-Sorbonne University, Recent Advances in Fair Division Workshop	November 2022
<i>No-Regret and Incentive-Compatible Online Learning</i> 2020 INFORMS Annual Meeting	November 2020
<i>Best of Both Worlds: Ex-ante and Ex-Post Fairness in Resource Allocation</i> 2020 INFORMS Annual Meeting	November 2020
<i>Truthful Aggregation of Budget Proposals</i> Duke University, CS-Econ Seminar	May 2019
Stanford University, Research on Algorithms and Incentives in Networks Seminar	October 2019
UC Santa Cruz, AI for Social Good Guest Lecture	October 2019
Online Social Choice and Welfare Seminar Series	January 2021
<i>Wagering Mechanisms: From Fair Division to No-Regret Learning</i> Rensselaer Polytechnic Institute, CS Colloquium	October 2018
Yale University, CS/Econ Seminar	December 2019
City University of Hong Kong, Summer School on Game Theory and Social Choice	June 2022
<i>An Equivalence Between Wagering and Fair-Division Mechanisms</i> Harvard University, EconCS Seminar	September 2018
2019 INFORMS Annual Meeting	October 2019
2023 INFORMS Annual Meeting	October 2023

## TEACHING

---

### Classes Taught

Decision Analysis 1 & 2	2020-
-------------------------	-------

### Tutorial Presentations

<i>Recent Advances in Fair Resource Allocation</i> ACM Conference on Economics and Computation (EC)	June 2019
AAAI Conference on Artificial Intelligence	February 2020
International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)	May 2020

## Teaching Assistantships

Duke University: Crowdsourcing Societal Tradeoffs

Spring 2015

Duke University: Discrete Mathematics for Computer Science

Spring, Fall 2014

## SERVICE

---

**Program Chair:** 8th International Conference on Algorithmic Decision Theory (ADT 2024)

**Senior Program Committee:** IJCAI (2021), AAAI (2023), EC (2023), AAMAS (2024)

**Program Committee:** AAAI (2018, 2019, 2020), IJCAI (2018 [distinguished reviewer, among top 2%], 2019, 2020), EC (2019, 2021, 2022), WebConf (2022), AISTATS (2018), AIES (2023)

**Journal Reviewing:** Social Choice and Welfare, Journal of Artificial Intelligence Research, Artificial Intelligence Journal, Discrete Optimization, Journal of Autonomous Agents and Multi-Agent Systems, Optimization Letters, Naval Research Logistics, Operations Research, Management Science, Decision Analysis, Transactions on Economics and Computation, Economics Letters, Mathematics of Operations Research

**Other Conference Reviewing:** AAMAS (2022), AAAI (2021), SODA (2018, 2020), WINE (2017, 2019, 2020), AIES (2019), SAGT (2017), MFCS (2017), EC (2017)

Organizing Committee for Advances in Decision Analysis (ADA) 2022 Conference

Session Organizer, 2022 INFORMS Annual Meeting