

# DARRELL HOY

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## Experience

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**Carta**, New York NY

Director, Market Design & Data Science, Brokerage & Markets

2019-2022

- Designed Carta Cross auction for CartaX (coverage: [1](#) [2](#) [3](#) [4](#) )
- Advocate for rapid prototyping to accelerate auction development & ease of demos
- Collaborated across engineering, product, sales, marketing

**Tremor Technologies**, Greenwich CT

CTO

2017-2019

Market Design Engineer, Head of Product

2017

- Built market for \$100M's in reinsurance placement
- Built & led team of 8 developers, PhDs, remote contractors

**Cramton Associates**, Bethesda MD

2015 - 2017

Principal

- Advised participants in FCC Incentive Auction

**University of Maryland**, College Park MD

2015 - 2017

Post-doc, Economics Department

Advisor: Peter Cramton

- Developed batch auction matching engine for HFT research

**Harvard University**, Cambridge MA

2014 - 2015

Visiting Fellow at School of Engineering and Applied Sciences, EconCS Group

**SweetOpenRoads.com**, Hanover NH

2010

Founder

- Built site to help cyclists find awesome roads to ride, ran grassroots cycling team

**Bridgewater Associates**, Westport CT

2007 - 2010

Technology Associate

- Built net of fees pricing engine, learned markets & investing through market mechanics & investment associate courses

## Education

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**Northwestern University**, Evanston IL

2010 - 2015

Ph.D. in Electrical Engineering & Computer Science

Dissertation: "Strategic Computation via Non-Revelation Mechanism Design"

Advisor: Jason Hartline

**Dartmouth College**, Hanover NH

2003 - 2007

B.A. in Computer Science and Mathematics

## Publications

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### Journal publications

1. Umang Bhaskar, Lisa Fleischer, Darrell Hoy and Chien-Chung Huang. "On the Uniqueness of Equilibrium in Atomic Splittable Routing Games." *Mathematics of Operations Research* 2015, 40:3. A preliminary version appeared in SODA 2009 (below).

### Conference Publications (refereed)

2. Darrell Hoy, Sam Taggart, and Zihe Wang. "A Tighter Welfare Guarantee for First-Price Auctions." STOC 2018.
3. Darrell Hoy, Denis Nekipelov, and Vasilis Syrgkanis. "Efficiency Guarantees from Data." NIPS 2017.
4. Darrell Hoy, Nicole Immorlica, and Brendan Lucier. "On-demand or Spot? Selling the cloud to risk-averse customers." WINE 2016.
5. Darrell Hoy and Evdokia Nikolova. "Approximately Optimal Risk-averse Routing Policies via Adaptive Discretization." AAAI 2015.
6. Jason Hartline, Darrell Hoy and Sam Taggart. "Price of Anarchy for Auction Revenue." ACM EC 2014.
7. Hu Fu, Jason Hartline and Darrell Hoy. "Prior-independent auctions for risk-averse agents." ACM EC 2013.
8. Darrell Hoy, Kamal Jain and Chris Wilkens. "A dynamic axiomatic approach to first-price auctions." ACM EC 2013.
9. Umang Bhaskar, Lisa Fleischer, Darrell Hoy and Chien-Chung Huang. "Equilibria of atomic flow games are not unique." SODA 2009.

### Workshop papers

10. Darrell Hoy, Denis Nekipelov and Vasilis Syrgkanis. "Price of Anarchy from Data." Workshop on AGT and Data Science at ACM EC 2015.
11. Elizabeth Churchill, Darrell Hoy, Atish Das Sarma and Kamal Jain. "Shopping with Bonus Money: eBay, loyalty schemes and consumer spending." CHIMoney Workshop at ACM CHI 2014.
12. Darrell Hoy, Kamal Jain and Chris Wilkens. "Coopetitive Ad Auctions." ACM EC 2013 Workshop on Ad Auctions.
13. Darrell Hoy. "The concavity of atomic splittable congestion games with non-linear utility functions." ACM EC 2012 Workshop on Risk Aversion in Algorithmic Game Theory and Mechanism Design.

## Professional Service

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Journal reviewer: *Computers & Operations Research*, *OR Letters*, *Games and Economic Behavior*

Program Committee: EC 2015

Conference reviewer/sub-referee: WINE, ESA, ATMOS, ICML, NeurIPS