

# JUSTIN PAYAN

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WEBPAGE: <https://justinpayan.github.io>

## RESEARCH STATEMENT

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I solve problems of social importance using techniques from market design, data science, and combinatorial optimization. I am also interested in the interplay between data science and combinatorial optimization; I use data science to collect and satisfy preferences in large markets, and apply combinatorial optimization for inference over structured data.

## EDUCATION

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**University of Massachusetts Amherst**  
PhD Computer Science  
(advised by [Yair Zick](#))

Sept '18 - Present

**University of Georgia**  
M.S. Artificial Intelligence, B.S. Mathematics, A.B. Cognitive Science  
(advised by [Frederick Maier](#))

Sept '13 - May '18

## PUBLICATIONS

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$(\alpha - \beta)$  indicates alphabetical order; asterisks indicate equal contribution.

1. InstructExcel: A Benchmark for Natural Language Instruction in Excel  
*Justin Payan*, Swaroop Mishra, Mukul Singh, Carina Negreanu, Christian Poelitz, Chitta Baral, Subhro Roy, Rasika Chakravarthy, Benjamin Van Durme, and Elnaz Nouri  
**EMNLP 2023 (Findings)**
2. [Graphical House Allocation](#)  
Hadi Hosseini, *Justin Payan*, Rik Sengupta, Rohit Vaish, and Vignesh Viswanathan  $(\alpha - \beta)$   
**AAMAS 2023**
3. [Relaxations of Envy-Freeness over Graphs](#)  
*Justin Payan*, Rik Sengupta, and Vignesh Viswanathan  $(\alpha - \beta)$   
**AAMAS 2023 (Extended Abstract)**
4. [Into the Unknown: Assigning Reviewers to Papers with Uncertain Affinities](#)  
Cyrus Cousins, *Justin Payan*, and Yair Zick  $(\alpha - \beta)$   
**SAGT 2023**
5. [I Will Have Order! Optimizing Orders for Fair Reviewer Assignment](#)  
*Justin Payan* and Yair Zick  
**IJCAI 2022**
6. [Towards Realistic Single-Task Continuous Learning Research for NER](#)  
*Justin Payan*, Yuval Merhav, He Xie, Satyapriya Krishna, Anil Ramakrishna, Mukund Sridhar, and Rahul Gupta  
**EMNLP 2021 (Findings)**

7. [Online Post-Processing in Rankings for Fair Utility Maximization](#)  
Ananya Gupta\*, Eric Johnson\*, *Justin Payan*, Aditya Roy, Ari Kobren, Swetasudha Panda, Michael Wick, Jean-Baptiste Tristan  
**WSDM 2021**
8. [Document Representations using Fine-Grained Topics](#)  
*Justin Payan*, Nicholas Monath, Andrew McCallum  
**Sets & Partitions Workshop at NeurIPS 2019**

### Working Papers:

9. Predicting Bids to Improve Reviewer Assignment  
Cyrus Cousins, *Justin Payan*, and Yair Zick ( $\alpha - \beta$ )
10. Group Fair Resource Allocation under Uncertainty  
Cyrus Cousins, Elita Lobo, *Justin Payan*, and Yair Zick ( $\alpha - \beta$ )
11. Online Reviewer Assignment  
Cyrus Cousins, Amirmahdi Marfakhar, *Justin Payan*, and Yair Zick ( $\alpha - \beta$ )
12. Predicting Review Quality in Large Computer Science Conferences  
Cyrus Cousins, Sheshera Mysore, Neha Nayak Kennard, *Justin Payan*, and Yair Zick ( $\alpha - \beta$ )
13. Combinatorial Optimization Based Document Structure Recognition  
*Justin Payan*, Chris Tensmeyer, and Vlad Morariu

## CODE CONTRIBUTIONS

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**OpenReview Reviewer-Paper Matching** 2022  
*FairSequence matching algorithm*

## INTERNSHIPS & PROFESSIONAL EXPERIENCE

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<b>Adobe Research</b> <i>Research Intern under <a href="#">Chris Tensmeyer</a></i>	May - August '23 College Park, MD
<b>Microsoft</b> <i>Data Science Intern under <a href="#">Kartik Sridhar</a></i>	June - September '22 Redmond, WA
<b>Amazon Alexa</b> <i>Research Intern under <a href="#">Yuval Merhav</a></i>	June - September '21 Cambridge, MA (remote)
<b>Amazon Alexa</b> <i>Research Intern under <a href="#">Yuval Merhav</a></i>	May - August '20 Cambridge, MA (remote)
<b>Vertica</b> <i>Software Engineer under <a href="#">Vincent Xu</a></i>	June '17 - June '18 Cambridge, MA

## AWARDS & SCHOLARSHIPS

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- University of Georgia Foundation Fellowship (2013-2017)  
\$128,260 in tuition and stipend for housing, research, and travel

## INVITED TALKS

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- Brown University, March 2023  
Harvard EconCS Seminar, January 2023  
Carnegie Mellon University, November 2022  
(*Into the Unknown: Assigning Reviewers to Papers with Uncertain Affinities*)
- UMass Data Analytics and Computational Social Science Brownbag Series, April 2021  
(*Envy-Freeness in Paper Reviewer Assignment*)
- UMass Amherst Theory Seminar, April 2021  
(*Fair Reviewer Assignment*)

## ACADEMIC SERVICE

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- **Workflow Chair** for IJCAI 2023
- **Workshop Co-organizer** for Computational Fair Division at IJCAI 2023
- **Program Committee / Reviewer** for ACL 2023
- **Subreviewer** for AAMAS 2022, GAIW at AAMAS 2022
- **Student Volunteer** at AAMAS '23, IJCAI '22

## TEACHING / MENTORING / OTHER SERVICE

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- **Instructor of Record** at UMass Amherst for *Intro to Numerical Computing with Python* (Fall 2020 & 2021)
- **Graduate Teaching Assistant** at UMass Amherst for *Intro to AI* (Fall 2018), *Intro to Problem Solving with Computers* (Fall 2020), and *Advanced Algorithms* (Spring 2021)
- **Graduate Mentor** for UMass Undergraduate Sloan Scholar (2023-2024)
- **Co-mentored** MS student on Searching for Fair Allocations (2021-2022)
- **Graduate Mentor** for UMass Undergraduate Research Volunteer Program (January 2021, June - July 2021)