

Education

2018-	Ph.D.	University of Massachusetts Amherst Advisor: Yair Zick
2015-2018	M.S.	University of Georgia Advisor: Frederick Maier
2013-2017	B.S./B.A.	University of Georgia Foundation Fellowship (UGA's top academic scholarship, <2% acceptance)

Research

Conference Publications

1. Justin Payan and Yair Zick. I Will Have Order! Optimizing Orders for Fair Reviewer Assignment. In Proceedings of the 31st International Joint Conference on Artificial Intelligence (IJCAI), 2022.
2. Ananya Gupta*, Eric Johnson*, Justin Payan, Aditya Roy, Ari Kobren, Swetasudha Panda, Michael Wick, and Jean-Baptiste Tristan. Online Post-Processing In Rankings For Fair Utility Maximization. In Proceedings of the 14th International Conference on Web Search and Data Mining (WSDM), New York, NY, USA, Mar. 2021.
3. Justin Payan, Yuval Merhav, He Xie, Satyapriya Krishna, Anil Ramakrishna, Mukund Sridhar, and Rahul Gupta. Towards Realistic Single-Task Continuous Learning Research for NER. In Findings of the Association for Computational Linguistics: EMNLP 2021, Punta Cana, Dominican Republic, Nov. 2021.

Workshop Publications

1. Justin Payan, Rik Sengupta, and Vignesh Viswanathan. Locally EFX Allocations Over a Graph. In Games, Agents and Incentives at AAMAS, 2022.
2. Justin Payan and Andrew McCallum. Document Representations Using Fine-Grained Topics. In Sets & Partitions Workshop at NeurIPS, 2019.

M.S. Thesis

1. Justin Payan. *Keyphrase Extraction from Scientific Literature Using Joint Geometric Graph Embedding Matching*. 2018.
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Research Experience

University of Massachusetts Amherst

Advised by Yair Zick

Sept. 2018 – present
Amherst, MA

- Primary area of interest is in fair allocation and matching
- Developed first envy-free-up-to-one-item reviewer assignment algorithm, beating competitors in total welfare, speed, and simplicity

Institute for Artificial Intelligence

Advised by Frederick Maier

Sept. 2015 – Aug. 2018
University of Georgia, Athens, GA

- Designed and implemented a keyphrase extraction algorithm based on an inexact graph matching algorithm

Robert Bosch Centre for Cyber-Physical Systems

Advised by M.S. Mohan Kumar

June 2015 – Aug. 2015
Indian Institute of Science, Bangalore, India

- Predicted pressure in water distribution networks using artificial neural networks
- Investigated SVM, ANN, and random forest tool for locating leaks in water distribution networks

Industry Experience

Research Intern at Amazon Alexa

June 2021 – Sept. 2021

Managed by Yuval Merhav

Cambridge, MA

- Applied generative insertion transformers (GIT) to data augmentation for NER
- Investigated interaction of GIT augmentation with knowledge-based augmentation approaches

Research Intern at Amazon Alexa

May 2020 – Aug. 2020

Managed by Yuval Merhav

Cambridge, MA

- Explored the efficacy of generative replay for continual learning in a privacy-aware setting
- Created and released dataset for evaluating continual learning for single-task NER
- Demonstrated performance gap for replay-based continual learning in presence of distribution shift and class incrementality

Software Engineer at MicroFocus Vertica

May 2016 – July 2016, June 2017 – June 2018

- Implemented distributed machine learning algorithms in SQL and C++, including k-means++
- Designed, built, and maintained data preprocessing functions, such as one-hot encoding, normalization, and missing value imputation

Presentations

Data Analytics and Computational Social Science Brownbag Series

Envy-Freeness in Paper Reviewer Assignment

Apr. 2021

UMass Amherst Theory Seminar

Fair Reviewer Assignment

Apr. 2021

The Fair Division Problem for Indivisible Goods and its Applications, *with John Pomerat*

Nov. 2020

Teaching & Mentoring

Teaching Assistant

- CMPSCI 383, Intro to AI Sept. 2018 – Dec. 2018
- CMPSCI 121, Intro to Problem Solving with Computers Sept. 2020 – Dec. 2020
- CMPSCI 611, Advanced Algorithms Jan. 2021 – May 2021

Instructor of Record

- CMPSCI 590N, Intro to Numerical Computing with Python Sept. 2020 – Oct. 2020
- CICS 580, Intro to Numerical Computing with Python Sept. 2021 – Oct. 2021

Mentoring

- Undergraduate Research Volunteer Program Jan. 2021, Jun. 2021 – Jul. 2021
- Co-mentoring MS student on Searching for Fair Allocations Sept. 2021 – present

Reviewing: Subreviewer for AAMAS'22 and GAIW at AAMAS'22

Relevant Coursework: Advanced Algorithms, Machine Learning, NLP, Probabilistic Graphical Models

Programming: Python, C++, Java

Packages: PyTorch, Numpy, Gurobi, CPLEX

Research Interests: Fair Allocation, Combinatorial Optimization