JESSIE FINOCCHIARO

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Website ⋄ Google Scholar

APPOINTMENTS

Boston College *Starting September 2024*
Tenure Track Assistant Professor of Computer Science

Harvard University *September 2022- Present*
National Science Foundation Mathematical Sciences Postdoctoral Research Fellow
Center for Research on Computation and Society Research Fellow
Host: Dr. Yiling Chen

EDUCATION

University of Colorado Boulder *August 2017 - August 2022*
Ph.D., Department of Computer Science
M.S. Computer Science, May 2020
Advised by Dr. Rafael Frongillo

Florida Southern College (Honors College) *August 2013 - May 2017*
Bachelor of Science; Computer Science, Mathematics. Overall GPA: 4.0/4.0
Minor in Religion

KEYWORDS

Surrogate loss design, property elicitation, mechanism design, decision-focused learning

RESEARCH PUBLICATIONS

$(\alpha - \beta)$ *denotes alphabetical author ordering;* $*$ *denotes equal contribution*
$(x\%)$ *denotes the acceptance rate.*
Conference proceedings listed above are considered full archival publications in Computer Science.

Trading off consistency and dimensionality of convex surrogates for the mode
Enrique Nueve IV, Dhamma Kimpara, Bo Waggoner, **JF**
In submission to the Conference on Learning Theory

Social Voting (Usually) Improves Social Outcomes
Yiling Chen, **JF** $(\alpha - \beta)$
In submission to IJCAI

Using Property Elicitation to Understand Impacts of Fairness Constraints
JF
In submission to the ACM Conference on Fairness, Accountability, and Transparency (FAccT)

Ali Shirali, **JF**, Rediet Abebe
In submission to the ACM Conference on Fairness, Accountability, and Transparency (FAccT)

Improving the Robustness of Predict-then-Optimize algorithms

Sonja Johnson-Yu, **JF**, Kai Wang, Arunesh Sinha, Yevgeniy Vorobeychik, Aparna Taneja, Milind Tambe
GameSec Conference on Decision and Game Theory 2023 ($\sim$50%)

Online Platforms and the Fair Exposure Problem Under Homophily
Jakob Schoeffer*, Alexander Ritchie*, Keziah Naggita*, Faidra Monachou*, **JF***, Marc Juarez
AAAI Conference on Artificial Intelligence 2023 (19.6%)

An Embedding Framework for the Design and Analysis of Consistent Polyhedral Surrogates
JF, Rafael Frongillo, Bo Waggoner
Journal of Machine Learning Research
Supercedes NeurIPS 2019 paper

Lovász Hinge and The Structured Abstain Problem
JF, Rafael Frongillo, Enrique Nueve ($\alpha - \beta$)
Conference on Learning Theory (COLT) 2022

Consistent Polyhedral Surrogates for Top-k Classification and its Variants
JF, Rafael Frongillo, Emma Goodwill, Anish Thilagar ($\alpha - \beta$)
International Conference on Machine Learning (ICML) 2022 (21.5%)

Unifying Lower Bounds on Prediction Dimension of Consistent Convex Surrogates
JF, Rafael Frongillo, Bo Waggoner
Neural Information Processing Systems (NeurIPS) 2021 (26%)

A Decomposition of a Complete Graph with a Hole
Roxanne Back, Alejandra Brewer Castano, Rachel Galindo, **JF**
Open Journal of Discrete Mathematics Vol. 11 No. 1. (2021)

Bridging Machine Learning and Mechanism Design towards Algorithmic Fairness
JF, Roland Maio, Faidra Monachou, Gourab Patro, Manish Raghavan, Ana-Andreea Stoica, Stratis Tsirtis ($\alpha - \beta$)
Fairness, Accountability, and Transparency (FAccT) 2021 (25%)

Evolutionary Optimization of Cooperative Strategies for the Iterated Prisoner's Dilemma
JF, H. David Mathias
IEEE Transactions on Games 2020. Supersedes GECCO 2017 paper.

Embedding Dimension of Polyhedral Losses
JF, Rafael Frongillo, Bo Waggoner
Conference on Learning Theory (COLT) 2020 (30.9%)

An Embedding Framework for Consistent Polyhedral Surrogates
JF, Rafael Frongillo, Bo Waggoner
Neural Information Processing Systems (NeurIPS) 2019 (21.1%)

Convex Elicitation of Continuous Real Properties
JF, Rafael Frongillo
Neural Information Processing Systems (NeurIPS) 2018 (4% spotlight acceptance)

Social trends in the Iterated Prisoner's Dilemma

JF, H. David Mathias
Genetic and Evolutionary Computation Conference (GECCO) 2017 (30%)

Egocentric Height Estimation
JF, Aisha Urooj Khan, Ali Borji
Winter Conference on Applications in Computer Vision (WACV) 2017 (44%)

TEACHING EXPERIENCE

Graduate Algorithms (CSCI 5454)   January-May 2019
Teaching Assistant

Data Structures (CSCI 2270)   May-August 2018
Teaching Assistant

Guest Lectures
· CSCI 3104 (Undergraduate Analysis of Algorithms) April 2021: Introduction to Ethical Algorithms
· CSCI 5454 (Graduate Analysis of Algorithms) March 2019: Introduction to Algorithmic Game Theory
· CSCI 3104 (Undergraduate Analysis of Algorithms) August 2018: Sorting algorithms with assumptions on the list

AWARDS AND FUNDING

2022 National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship ($150,000)

2021-22 CU Boulder Outstanding Research Award ($600)

2021-22 CU Boulder Research Expo Poster Session Winner ($500)

2021 CU Boulder Women who makes a difference

2021 CU Boulder Endowed Founder's Fund Recipient ($500)

2021, 2020 CU Boulder Publication Award ($200)

2020 Rising Stars in EECS at University of California Berkeley

2019-2021 National Science Foundation Graduate Research Fellowship (16% grant rate; $102,000)

2018, 2019 Travel Grant for the ACM Economics and Computation Conference's Algorithmic Game Theory Mentoring Workshop ($500)

2018-19, 2019-20, 2021-22 University of Colorado Boulder Outstanding Student Service Award

2017 Student travel grant to attend the Joint Meetings in Mathematics from the Mathematical Association of America

2017 Florida Southern College Honor Walk Graduate (Most Outstanding Senior)

2017 Florida Southern College Senior Math Student of the Year

2016, 2017 Florida Southern College Female Resident Advisor of the Year

INVITED TALKS

"Visualizing our values: using property elicitation to understand the impacts of fairness constraints"

- Human Machine Decision-Making reading group, MIT, September 26, 2023
- EC Gender Inclusion Workshop, July 11, 2023

"Designing convex surrogates for discrete prediction tasks via embeddings"

- Peking University April 12, 2023
- Boston University CS Theory Seminar, April 10, 2023
- University of Massachusetts CS Theory Seminar March 28, 2023
- Colorado School of Mines, November 28, 2022
- Brown University, November 16, 2021
- CU Boulder Statistics, Optimization, and Machine Learning Seminar (StatOptML), Nov 2, 2021
- CU Boulder Algorithmic Economics Reading Group, May 10, 2021 Recording

"Introduction to Algorithms and Machine Learning" Morehouse College Workshop on Algorithms and Society, May 2022

"Fairness and Discrimination Through the Dual Lens of Mechanism Design and Machine Learning"

- Brown University Data Science Institute Fairness Fest, Feb 24, 2022
- Tutorial at ACM Conference on Economics and Computation (EC) 2021
- Princeton Technology for a Just Society (JuST) Speaker Series, October 14, 2020

"An Introduction to Property Elicitation and Connections to Machine Learning" Brown University, Nov 9, 2021

"Indirect Elicitation as a Necessary Condition for Consistency" RIKEN AIP Learning Theory Seminar, December 14, 2020

WORK EXPERIENCE

People, Technology & Processes, LLC   August 2015 – May 2016
Software Engineering Intern

· Developed a backend for visually analyzing ticket sales for various NFL, NBA, NHL, and MLB teams
· Worked in C#, R, and Tableau

LEADERSHIP

Mechanism Design for Social Good   March 2018-Present

Community Engagement Co-lead August 2021-Present
Co-Organizer for the working group on Discrimination and Equality in Algorithmic Decision-making January-June 2021
Co-Organizer for the working group on Bias and Fairness February- December 2020

CU Boulder Computer Science Graduate Student Association January 2018-December 2020
Vice-Chair 2018-19, Chair 2020

Co-founded the organization in January 2018 to advocate for student well-being in the department and facilitate communication between students and faculty
Worked with department to advocate for student needs and well-being on issues regarding course requirements, advising, and social events
Helped organize the PhD Open House recruitment event for ∼70 prospective PhD students in February 2019 and 2020

Worked with department to establish opportunities for students to share about their culture through both recurring and annual events
Student member of the 2022 faculty search committee

ACADEMIC SERVICE

Mentoring

· MD4SG Mentorship Program 2022
· LatinX in AI 2021
· Black in AI 2019-21
· CU Boulder United Government of Graduate Students Peer Mentoring 2019-20
· Organized and matched students for CU Boulder Computer Science Peer Mentoring 2020

Reviewing

· Web and Internet Economics (WINE) 2023
· Economics and Computation (EC) 2023
· IJCAI Workshop on Computational Fair Division 2023
· Symposium on Discrete Algorithms (SODA) 2023
· Uncertainty in Artificial Intelligence (UAI) 2023
· Electronic Journal of Statistics 2022
· Fairness, Accountability, and Transparency (FAccT) 2022, 2023
· Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO) 2021, 2022, 2023
· International Conference on Machine Learning (ICML) 2021, 2022
· Harvard Center for Research on Computation and Society Workshop on AI for Social Good 2020
· Mechanism Design for Social Good (MD4SG) Workshop 2020
· Neural Information Processing Systems (NeurIPS) 2020, 2021
· Women in Machine Learning (WiML) 2019

Workshop and Conference Organization

· Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO) 2023 Social co-chair
· Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO) 2022 Proceedings co-chair
· Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO) 2021 Posters co-chair
· Mechanism Design for Social Good (MD4SG) Workshop 2020 Poster Session co-chair

Conference Volunteering

· NeurIPS 2019, 2020
· Economics and Computation (EC) 2019, 2020
· WiML 2019

Neural Network

Conducted and published interviews of CU Boulder Computer Science students, faculty, and staff

(REGULAR) VOLUNTEERING

Alpha Chi Omega Nu Chapter   August 2020- June 2022

Worked with Vice President of Intellectual Development to support women in maintaining at least a 2.5 GPA at CU Boulder

Alpha Chi Omega Leadership Development Team   June 2018- August 2020

Serving on a team of ten women to provide leadership resources and consultation to collegiate chapters of Alpha Chi Omega

Cornerstone Church of Boulder   May 2018- June 2021

Volunteer in the Children's Ministry, primarily working with $2^{nd} - 3^{rd}$ grade students

TBA Church Homework Club   August 2015-May 2016

Tutored students in math and reading ages 6-12