Andrew Estornell

PhD Student · Computer Science

Washington University in Saint Louis

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Research Interests

My research interests fall broadly within the fields of Machine Learning, Algorithmic Fairness, Optimization, Game Theory, and Strategic Classification. I enjoy working on computational problems which involve competitive (or cooperative) behavior between strategic agents, particularly in cases where these agents interact with machine learning systems, e.g. Strategic Classification. Recently my work has focused on Algorithmic Fairness and Strategic Classification, with an emphasis on how these two fields relate to one another.

Education

Washington University in Saint Louis — *Saint Louis Missouri*

PhD in Computer Science — *Aug 2018 - [May-2023]*

- Advisor: Yevgeniy Vorobeychik
- Advisor: Sanmay Das

Temple University — *Philadelphia PA*

BS in Mathematics — *Aug 2015 - May 2018*

Research Experience

Washington University in St Louis - Dept of Computer Science — *St Louis, MO*

Advisors: Yevgeniy Vorobeychik, Sanmay Das — *Aug 2018 - Present*

- PhD dissertation (ongoing): "Consequences and incentives of group-fair learning."

Temple University - Dept of Computer Science — *Philadelphia, PA*

Advisor: Kai Zhang — *Jan 2018- Jun 2018*

- Undergraduate research: "Early diagnosis of neurological disorders via patient EEG data."

Temple University - Dept of Mathematics — *Philadelphia, PA*

Advisor: Chelsea Walton — *May 2017 - Jun 2018*

- Undergraduate research: "Explicit classification of PBW deformations of quadratic monomial algebras."

Publications

Published

[1] Andrew Estornell, Sanmay Das, Brendan Juba, Yevgeniy Vorobeychik. Popularizing Fairness: Group Fairness and Individual Welfare. [To appear] Conference on Artificial Intelligence (AAAI) 2023.

[2] Junlin Wu, Andrew Estornell, Lecheng Kong, Yevgeniy Vorobeychik. Manipulating Elections by Changing Voter Perceptions. International Joint Conference on Artificial Intelligence (IJCAI) 2022

[3] Andrew Estornell, Sanmay Das, Yevgeniy Vorobeychik. Incentivizing Truthfulness Through Audits in Strategic Classification. Conference on Artificial Intelligence (AAAI) 2021.

[4] Andrew Estornell, Sanmay Das, Edith Elkind, Yevgeniy Vorobeychik. Election Control by Manipulating Issue Significance. Conference on Uncertainty in Artificial Intelligence (UAI) 2020.

[5] Andrew Estornell, Sanmay Das, Yevgeniy Vorobeychik. Deception Through Half-Truths. Conference on Artificial Intelligence (AAAI) 2020.

[6] Andrew Estornell, Zachary Cline, Chelsea Walton, Matthew Wynne. PBW Deformations of Quadratic Monomial Algebras. Communications in Algebra 2019.

Under Review

[7] Andrew Estornell, Sanmay Das, Yang Liu, Yevgeniy Vorobeychik, 2022. Unfairness Despite Awareness: Group-Fair Classification with Strategic Agents. Appeared at Learning with Strategic Agents Workshop (LSA), and Strategic Machine Learning Workshop (StratML)

[8] Andrew Estornell, Sanmay Das, Patrick Fowler, Brendan Juba, Pauline Kim, Yevgeniy Vorobeychik 2022. Individual Impacts of Group Fairness in Machine Learning.

[9] Jinghan Yang, Andrew Estornell, Yevgeniy Vorobeychik, 2022. Location Spoofing Attacks on Autonomous Fleets.

Awards

2022 **Best paper (LSA):**, "Unfairness Despite Awareness: Group-Fair Classification with Strategic Agents."

Presentations

Contributed Presentations and Talks

[To Present] "Popularizing Fairness: Group Fairness and Individual Welfare" at AAAI 2023

Presented "Manipulating Elections by Changing Voter Perceptions" at IJCAI 2022

Presented "Unfairness Despite Awareness: Group-Fair Classification with Strategic Agents" at LSA (AAMAS workshop) 2022, and at StratML (NeurIPS workshop) 2021.

Presented "Incentivizing Truthfulness Through Audits in Strategic Classification" at AAAI, 2021.

Presented "Election Control by Manipulating Issue Significance" at UAI 2020.

Presented "Deception Through Half-Truths" at AAAI 2020.

Teaching Experience

Spring 2022 **Adversarial AI (CSE.555T)**, Teaching Assistant — *Washington University in Saint Louis*

Professional Development

Served as PC/Reviewer

AAMAS: 2023, 2022
AAAI: 2023, 2022, 2021, 2020
NeurIPS: 2022, 2021, 2020
ICML: 2022
FAccT: 2022
KAIS: 2022
LSA: 2022
AASG: 2021
UAI: 2020

Programming Languages

Languages: Python, Mathematica, C, Java
Libraries: Pytorch, Sklearn, BoTorch, Gym, Tensorflow