




# RYAN LIU

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## Education

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**Carnegie Mellon University** Aug. 2022 – May 2023  
*Fifth Year MS in Computer Science (Research-based)* Pittsburgh, PA

**Carnegie Mellon University** Aug. 2018 – May 2022  
*BS in Computer Science, 3.74 QPA* Pittsburgh, PA

## Publications

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**Cite-seeing and Reviewing: A Study on Citation Bias in Peer Review** Peer Review Congress 2022  
*Ivan Stelmakh, Charvi Rastogi, Ryan Liu, Shuchi Chawla, Federico Echenique, Nihar B. Shah* (abstract)

**Near-Optimal Reviewer Splitting in Two-Phase Paper Reviewing & Conference Experiment Design** AAAI HCOMP 2022  
*Steven Jecmen, Hanrui Zhang, Ryan Liu, Fei Fang, Vincent Conitzer, and Nihar B. Shah*

**Mitigating Manipulation in Peer Review via Randomized Reviewer Assignments** NeurIPS 2020  
*Steven Jecmen, Hanrui Zhang, Ryan Liu, Nihar B. Shah, Vincent Conitzer, and Fei Fang*

## Research Experience

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**CMU Research MS in Computer Science** (Advisor: Nihar B. Shah) Aug 2022 – present  
Pittsburgh, PA

- Leading project using human subjects to approximate reviewer behavior in conferences.

**CMU SCS Senior Honors Thesis** (Advisor: Nihar B. Shah) Aug 2021 – May 2022  
Pittsburgh, PA

- Thesis title: Identifying Human Biases in Peer Review via Real-Subject Experiments
- Used empirical simulations to design an alternative workflow for a top CS conference (EC 2021), incorporating an experiment on citation bias.
- Created an algorithm to extract cited authors for thousands of papers in two large conferences (ICML 2020, EC 2021).
- Used parametric and non-parametric models to perform statistical testing on reviewer citation bias.

**CMU Independent Study in CS** (Advisor: Nihar B. Shah) Jan 2020 – Aug 2021  
Pittsburgh, PA

- Investigated strategic manipulation in reviewer-paper matching and theoretical probabilistic bounds.
- Used simulations on synthetic and real conference data to investigate the near-optimality of randomly splitting reviewers in two-stage review systems.
- Implemented the main algorithms and applicational variants for Publications 2 & 3.
- Algorithms are part of the official matcher on OpenReview, which hosts top CS conferences like NeurIPS and ICLR.

## Work Experience

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**Facebook - AI/ML Software Engineering Intern** May – August 2021  
*Remote*

- Built LSTM for the Oculus VR headset to predict future eye gaze positions using eye image data.
- Built a new data storage, loading, and pre-processing pipeline to accommodate irregularly-spaced time series data.
- Performed distributed sequence reconstruction, segmentation, and caching on 200 GB of data using Manifold.

**CMU CS 15-112 Teaching Assistant** Jul – Dec 2019  
Pittsburgh, PA

- Mentored 10 students' individual term projects, with 2 mentees in the top 6 of 400+ submissions.

## Projects

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**An Ensemble of Emotion Detection Algorithms** | AWS, Pytorch, Python December 2020

- Developed an ensemble model with VGG16, VGG19, Attentional VGG16, and Facial Motion Prior Networks that achieves 67.999% accuracy on the Kaggle FER-2013 emotion detection dataset (15% increase from baseline).

**Attention-based Speech-to-Text Neural Network** | Pytorch December 2021

- Implemented a key-query attention model referencing "Listen, Attend and Spell" for speech-to-text transcription.

## Achievements

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- Presentation at CMU Meeting of the Minds 2022
- Posters at CMU Meeting of the Minds 2020, 2021
- NSF Research Experience for Undergraduates Grant
- CMU Summer Undergraduate Research Apprenticeship

## Involvement

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**CMU C# a cappella** Fall 2018 – Present  
Board Member, Musical Director, Choreographer

## Community Service

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- Yellow River poverty area clean water project 2017  
- Community Dance lessons: club outreach program 2018