# Ingrid(Siqi) Wu

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## Education

**Harvey Mudd College**, Claremont, CA 2019–2023

*B.S., Computer Science | Cumulative GPA: 3.752; Major GPA: 3.888*

- **Core Courses**: Data Structure; Computer System; Computability and Logic; Algorithms; Artificial Intelligence; Natural Language Processing; Reinforcement Learning; Linear Algebra; Discrete Mathematics; Differential Equations; Probability & Statistics; Fourier Series; Operations Research; Quantum Information; Quantum Mechanics; Statistical Mechanics; Quantum Theory; Computational Methods in Physics.
- **Award**: Dean's List: Fall 2020, Fall 2021, Spring 2022

## Research Interests

Human-Computer Interaction (HCI), Human-Robot Interaction (HRI), and Quantum Computation.

## Research Experience

**Researcher,** Computer Science Department, Claremont, CA 8/2022–Present

*Researching on robot ethics*

- Exploring contemporary literature in robot ethics from cognitive science, computer science, and philosophic perspectives to assist the lecturer in developing a forthcoming robot ethics course.

**Researcher,** Computer Science Department, Claremont, CA 8/2022–Present

*Categorizing challenges faced in facilitating text mining tools*

- Analyzing transcripts from user studies of text experts using in-browser topic modeling tools and working on a research paper for "The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW)".

**Researcher,** Computer Science Department, Claremont, CA 5/2022–Present

*Explored new techniques facilitating human robot improvisational teamwork* | Three-person team

- Captured the human uncertainty due to inherent irrationality in improvisational teamwork and modeled human behaviors with more realistic distributions that are less studied in PSTN.
- Proposed two techniques for boundless distributions to expand PSTNS algorithms' scope under dynamic controllability.
- Discovered a novel formalism that overlays the representation of uncontrollable agents in the Simple Temporal Network Improvisational Teamwork(STN-IT) that capture and unifies their unexpressed preferences, constraints, and tendencies.
- Developed methods to learn the human uncertainties iteratively, and process new information self-adaptively.
- A research paper in the pipeline for "The 33rd International Conference on Automated Planning and Scheduling(ICAPS)".

**Researcher,** Computer Science Department, Claremont, CA 5/2021–5/2022

*Developed a web-based topic modeling tool(tsLDA) to assist users with text analysis* | four-person team

- Redesigned website interface based on the text analysis workflows discovered in prior user interviews.
- Implemented user intuitive features including data visualization, interactive treeMap, and interactive metadata charts.
- Reformat the existing code from JavaScript to TypeScript to resolve a majority of server errors and build robustness.
- Designed and conducted user studies with one other researcher to investigate whether tsLDA is helpful for users not necessarily equipped with NLP backgrounds to leverage topic models to study texts they're interested in.
- Analyzed transcripts from user studies and improved tsLDA accordingly by implementing interactive tutorials.
- The in-browser tool can be found at https://www.cs.hmc.edu/~xanda/jsLDA/

## Work Experience

**Capstone Project,** Computer Science Department, Claremont, CA 8/2022–present

*Shielding NLP models from Adversarial Attacks for Proofpoint Inc.* | Five-person team

- Integrating code for detecting hostile attacks into a modularized open source library to defend NLP models.

**Software Developer,** Interactive Plus, Shanghai, China

*Student organization offered net services for web developments* | twelve-person team 7/2021-10/2021

- Designed and implemented the database for single sign-on and authentication.

**Software Developer,** Zhiyun Tech, Chengdu, China 6/2020-9/2020

*Student startup built a non-profit third party platform for respective international students connected to tutors| six-person team*

- Worked full-stack across teams and implemented communication between students and study abroad advisors, collection of information from students to review consultants, and providing other services on the website.
- Reformatted the back end and database to support data transmission for new features and data with Laravel.
- Led a team of three to develop a Wechat-built-in app to make the platform more accessible for mobile users.
- Implemented GitHub continuous integration test and local unit tests for the projects.

**Tutor and Grader,** Claremont, CA 8/2021–present

- Conducted tutorials and served as grader for courses on Natural Language Processing, Algorithms, and Introduction to Computer Science for the Computer Science Department.
- Conducted tutorials and served as grader for physics lab on experiments relevant to modern technology through hands-on experience, experimental design, and data analysis for the Physics Department.

## Publications

- R. Chen, E. Ma, **I. Wu**, and J. Boerkoel, "New Techniques Facilitating Human Robot Improvisational Teamwork" in Southern California Robotics Symposium, 2022.
- Two research papers in the pipeline.

## Skills

Proficient: Java, Python,TypeScript, HTML, CSS, Racket, Julia, Haskell, Git, MATLAB, R, AMPL

Familiar: C/C++, C#, PHP, MySql, Qiskit

## Extracurricular

**Founder**, Tech Ethic Organization, Claremont, CA 9/2022–present

- Founded an NGO under the mission of promoting technology ethics.

**Instructor**, Dance Society, Claremont, CA 9/2019–present

- Completed and performed choreography, and held classes for students interested in street dance and its culture.

**Analyst**, Social Science Project, Claremont, CA 2/2022–5/2022

- Completed an NLP project with an ACL-style paper utilizing the RoBERTa model on patronizing language detection to analyze the influence of the scripts ratio from different genders on audience's reviews from Rotten Tomatoes.

**Participant**, Correlation One Terminal AI Competition, Remote 2021, 2022

- Got selected and competed in teams to build AI algorithms for Terminal, an online coding game.

**Assistant,** Robot Programming**,** Claremont, CA 1/2020–4/2020

- Assisted the RaceCar group from MIT to formulate an introduction level of robot programming class for high school students.