

Ting-Han (Timmy) Lin

PhD Student at UChicago Computer Science

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RESEARCH OVERVIEW

My research focuses on designing **user-adaptive social robots**. As social robots become more prevalent, they will need to adapt to multiple users' preferences and avoid relying on scripted verbal responses and actions. I develop robots capable of managing group dynamics, supporting user-initiated interaction, and ensuring long-term user engagement. My work contributes to the future of companion robots with greater adaptivity and accessibility.

EDUCATION

University of Chicago

Chicago, IL

PhD in Computer Science

Sep 2023 – Jun 2028 (expected)

Advisor: Prof. Sarah Sebo

GPA: 4.00/4.00

University of Chicago

Chicago, IL

MS in Computer Science & BA in Economics (4-year Joint BA/MS in Computer Science)

Sep 2018 – Jun 2022

Advisor: Prof. Sarah Sebo, Prof. Ken Nakagaki

GPA: 3.77/4.00

Taipei Wego Senior High School

Taipei, Taiwan

High School Diploma

Sep 2015 – Jun 2018

GPA: 4.18/4.30

FULL PAPER PUBLICATIONS

Role-Playing with Robot Characters: Increasing User Engagement through Narrative and Gameplay Agency

Spencer Ng, *Ting-Han Lin*, You Li, Sarah Sebo

In Proc. ACM/IEEE **HRI 2024**. Boulder, USA. Acceptance rate: 24.9%

ThrowIO: Actuated TUIs that Facilitate “Throwing and Catching” Spatial Interaction with Overhanging Mobile Wheeled Robots

Ting-Han Lin, Willa Yunqi Yang, Ken Nakagaki

In Proc. ACM **CHI 2023**. Hamburg, Germany. Acceptance rate: 27.6%

Ice-Breaking Technology: Robots and Computers Can Foster Meaningful Connections between Strangers through In-Person Conversations

Alex Wuqi Zhang, *Ting-Han Lin*, Xuan Zhao, Sarah Sebo

In Proc. ACM **CHI 2023**. Hamburg, Germany. Acceptance rate: 27.6%

Benefits of an Interactive Robot Character in Immersive Puzzle Games

*Ting-Han Lin**, Spencer Ng*, Sarah Sebo (*equal contribution)

In Proc. IEEE **RO-MAN 2022**. Naples, Italy. Acceptance rate: 62%

DEMO

Joint Demonstration of ThrowIO and AeroRigUI

ThrowIO: *Ting-Han Lin*, Willa Yang, Ken Nakagaki

AeroRigUI: Lilith Yu*, Chenfeng Gao*, David Wu, Ken Nakagaki (*equal contribution)

In Proc. ACM CHI 2023 Interactivity Demo. Hamburg, Germany.

HONORS AND AWARDS

Daniels Fellowship, University of Chicago, 2023-2024

\$5,000 award for selected incoming doctoral students

Dean's List, University of Chicago, 2018-2019 & 2021-2022

Top 20% GPA for the academic year

Bridge Builder Award, University of Chicago, 2021

Recognized students who have worked to establish or support connections between student groups or individuals

Metcalf Fellowship Grant, University of Chicago, 2019 & 2020 & 2021

\$5,000 award for students to reach their career goals during their internship experience

Valedictorian, Taipei Wego Senior High School, 2018

Highest grades in the graduating class

RESEARCH EXPERIENCE

UChicago Department of Computer Science

Chicago, IL

Research Assistant at Actuated Experience Lab (AxLab) Advised by Prof. Ken Nakagaki Jan 2022 – Aug 2023

- Used Processing IDE to program Sony toio robots, perform color and IR object detection, run physics simulation, and implement projection mapping for research purposes
- Led Unity 3D activities for creative coding on topics such as designing underwater VR/AR user interfaces
- Honed electronic techniques in building Arduino and soldering wires, and practiced fabrication skills in designing 3D-printed objects with Fusion 360 and cutting different materials with waterjet and laser cutters

UChicago Department of Computer Science

Chicago, IL

Research Assistant at Human-Robot Interaction (HRI) Lab Advised by Prof. Sarah Sebo Sep 2020 – Aug 2023

- Programmed Nao robot, TurtleBot, Anki Vector robot, and Misty robot for research purposes
- Designed Qualtrics surveys and conducted user studies on campus, at UChicago Mindworks, and on Prolific
- Performed data analysis in R using linear mixed-effects models to analyze participant's data and using ANOVA tests to analyze group data

WORK EXPERIENCE

Upfront Healthcare Services

Chicago, IL

Data Science Fellow

Jun 2021 – Feb 2022

- Iteratively prototyped, developed, and automated data insights pipelines for anomaly detection through Microsoft Azure Synapse Analytics and Apache Spark Databricks
- Organized and structured large amounts of data into compelling reports and dashboards using SQL and Tableau
- Prototyped algorithms to promote interactive use cases including intelligent outreach and dynamic personalization

Actelligent Capital

Hong Kong

Data Scientist Intern

Jun 2020 – Sep 2020

- Extracted 20+ years of raw financial data from 100K+ companies to calculate the financial metrics in each factor of the Fama and French model using SQL and Python
- Identified and prioritized the most relevant metrics across 1000+ industries and sectors using XGBoost and Machine Learning models to ultimately predict stock price performance and risks
- Presented optimization recommendations to minimize the calculation time for financial metrics via Cython

Shanghai Commercial & Savings Bank (SCSB)

Taipei, Taiwan

Financial Services Intern

Jun 2019 – Aug 2019

- Analyzed and improved the marketing strategy of SCSB's credit card to increase its reach, engagement, and sales through Google Analytics and AdWords
- Researched on the performance of startups on OurCrowd (a SCSB-sponsored startup investing platform) to assist the investment team with adjusting the investment plans
- Extracted data from the database to analyze target audience's engagement with the online bank by Python

TEACHING & MENTORING

Teaching Assistant

- **Introduction to Robotics** (CMSC 20600/CMSC 30600), UChicago Spring 2024
Instructor: Prof. Sarah Sebo; Enrollment: 35
Lead lab sessions, lead office hours, organize course materials, and grade projects
- **Mathematical Methods for Data Science I** (DATA 21100), UChicago Winter 2024
Instructor: Prof. David Biron; Enrollment: 28
Led discussion sessions, led office hours, organized course materials, and graded exams
- **User Interface and User Experience Design** (MPCS 51230), UChicago Autumn 2023
Instructor: Prof. André Marques; Enrollment: 30
Organized course materials and graded assignments and projects
- **Mathematical Methods for Data Science II** (DATA 21200), UChicago Spring 2023
Instructor: Prof. David Biron; Enrollment: 49
Led discussion sessions, led office hours, organized course materials, and graded exams
- **Mathematical Methods for Data Science I** (DATA 21100), UChicago Winter 2023
Instructor: Prof. David Biron, Prof. Amy Nussbaum; Enrollment: 54
Led discussion sessions, led office hours, organized course materials, and graded exams
- **User Interface and User Experience Design** (MPCS 51230), UChicago Winter 2023
Instructor: Prof. André Marques; Enrollment: 37
Organized course materials and graded assignments and projects

- **Introduction to Human-Computer Interaction** (CMSC 20300/MAAD 25300), UChicago Autumn 2022
Instructor: Prof. Pedro Lopes, Prof. Ken Nakagaki; Enrollment: 93
Led office hours, designed course materials, and graded assignments and projects
- **Mathematical Methods for Data Science II** (DATA 21200), UChicago Spring 2022
Instructor: Prof. David Biron; Enrollment: 27
Led discussion sessions, led office hours, organized course materials, and graded exams
- **Introduction to Data Science I** (CMSC/STAT/DATA 11800), UChicago Winter 2022
Instructor: Prof. Will Trimble; Enrollment: 81
Led lab sessions, led office hours, organized course materials, and graded projects and exams
- **Introduction to Data Science I** (CMSC/STAT/DATA 11800), UChicago Autumn 2021
Instructor: Prof. Michael Franklin and Prof. Dan Nicolae; Enrollment: 90
Graded assignments, projects, and exams
- **Introduction to Data Science II** (CMSC/STAT 11900), UChicago Winter 2021
Instructor: Prof. Michael Franklin and Prof. Dan Nicolae; Enrollment: 67
Graded assignments, projects, and exams
- **Introduction to Data Science I** (CMSC/STAT 11800), UChicago Autumn 2020
Instructor: Prof. Michael Franklin and Prof. Dan Nicolae; Enrollment: 94
Graded assignments, projects, and exams

Mentoring

- Guan Chen, UChicago Undergrad Student Winter 2024 – Current
- Ike Peng, UChicago Undergrad Student Winter 2024 – Current
- Aarman Pannu, UChicago Undergrad Student Winter 2024 – Current
- Joy Chen, UChicago Masters Student Autumn 2023 – Current
- Clark Kovacs, UChicago Undergrad Student Autumn 2023 – Current
- Liberto de Pablo, UChicago Undergrad Student Autumn 2023 – Current
- Lucas Pardo, UChicago Undergrad Student Autumn 2023 – Current
- Madeline Busse, UChicago Undergrad Student Summer 2023 – Current
- You Li, UChicago Undergrad Student Summer 2023 – Current
- Esha Mujumdar, High School Summer Intern at UChicago Summer 2023

UChicago Peer Mentor & Peer Mentor Advisory Board

Spring 2019 – Autumn 2021

- Led trainings for 100+ UChicago Peer Mentors and informed them of their responsibilities
- Provided direct support and direction to the incoming first years and transfer students by responding to their questions, as they complete various tasks related to their transition to the College and the University of Chicago

SKILLS

Languages: Proficient in Mandarin and Taiwanese, Entry Level in Spanish

Programming: Python, MATLAB, R, Java, SQL, Golang, C, JavaScript, HTML/CSS, STATA, C#, OpenCV, Docker, Git

Certifications: Oracle Certified Associate Java Programmer, Microsoft Office Specialist 2010 Master, Adobe Certified Associate, Google Analytics and AdWords Certification, Certificate of Advanced Negotiation

SERVICE**ACM/IEEE Human-Robot Interaction (HRI) 2024**

Remote

Paper Reviewer

- Reviewed 2 papers in HRI 2024

ACM Conference on Human Factors in Computing Systems (CHI) 2024

Remote

Paper Reviewer

- Reviewed 1 paper in CHI 2024

Augmented Humans (AHs) 2024

Remote

Paper Reviewer

- Reviewed 1 paper in AHs 2024

VOLUNTEERING**UChicago Physical Sciences Division Social Committee**

Chicago, IL

Secretary

Feb 2024 – Current

- Organizes social, athletic, and cultural events for graduate students in the Physical Sciences Division, makes funding allocation decisions, and maintains communication with the graduate student body

FIRST LEGO League Robotics Tournament

Chicago, IL

Robot Design Judge & Table Referee

Oct 2021 – Dec 2022

- Judged students' robot performance and design in terms of how well their innovative designs and code solutions match their mission strategies and how well they repeatedly test their robot and explain their robot design process

Be The Match (National Marrow Donor Program)

Chicago, IL

Volunteer

Sep 2019 – Jun 2022

- Organized annual in-person donor registration events at UChicago student center and invited friends, family, and colleagues to join the registry to become life-saving blood stem cell donors

UChicago Admissions Office

Taipei, Taiwan

Information Session Speaker

Sep 2021

- Invited back to Taipei Wego High School to give a talk about UChicago College on behalf of UChicago Admissions Office

EXTRACURRICULARS**UChicago Juggling Club**

Chicago, IL

President

May 2019 – Jun 2022

- Directed multiple juggling performances on campus, which one of them was selected to be the finalists in 2019 UChicago Got Talent Show
- Led weekly juggling training sessions to help students learn how to juggle pins and balls

UChicago Taiwanese American Student Association (TASA)

Chicago, IL

Vice President

Oct 2018 – Jun 2022

- Hosted Taiwanese cultural festivals and organized speaker's events to promote Taiwanese culture on campus
- Cooperated with Intercollegiate Taiwanese American Students Association to offer students with opportunities for networking, leadership training, and identity-building

UChicago Intercollegiate Financial Journal Chicago (IFJ)

Chicago, IL

Senior Journal Writer

Oct 2018 – Jun 2020

- Published articles about new discovery of Artificial Intelligence to educate the undergraduate community
- Presented pitch ideas and shared writing guidance to help junior writers compose journals in weekly seminar

SELECTED PRESS

UChicago CS News. “New Prototypes AeroRigUI and ThrowIO Take Spatial Interaction to New Heights – Literally” April 18th, 2023

UChicago CS News. “UChicago Research Tests Whether Robots or Humans Are Better Game Partners” October 18th, 2022