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 must interact with people smoothly and meaningfully. I aim to understand how to effectively integrate social robots into newly formed human groups and sustain meaningful long-term interactions. I develop robots capable of managing group dynamics, building rapport with people, and adapting their behavior overtime to ensure 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

SKILLS

Programming: Python, R, Java, Kotlin, JavaScript, HTML/CSS, OpenCV, Docker, Git, SQL, Golang, C#, C
Certifications: Oracle Certified Associate Java Programmer, Microsoft Office Specialist 2010 Master, Adobe Certified Associate, Google Analytics and AdWords Certification, Certificate of Advanced Negotiation

FULL PAPER CONFERENCE PUBLICATIONS

(C5)   **Connection-Coordination Rapport (CCR) Scale: A Dual-Factor Scale to Measure Human-Robot Rapport.** *Ting-Han Lin*, Hannah Dinner, Tsz Long Leung, Bilge Mutlu, J. Gregory Trafton, Sarah Sebo
In Proc. ACM/IEEE **HRI 2025**. Melbourne, Australia. Acceptance rate: 25%

(C4)   **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%

(C3)   **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%

(C2)   **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%

(C1)   **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%

JOURNAL PUBLICATIONS

(J1) **The Impact of a Robot's Agreement (or Disagreement) on Human-Human Interpersonal Closeness in a Two-Person Decision-Making Task.** *Ting-Han Lin*, Yuval Rubin Kopelman, Madeline Busse, Sarah Sebo*, Hadas Erel* (*equal contribution)
Computers in Human Behavior (CHB) 2025.

DEMO

(D1) **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

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
- **Human-Robot Interaction: Research and Practice** (CMSC 20630/CMSC 30630), UChicago   Spring 2025
  Instructor: Prof. Sarah Sebo; Enrollment: 20
  Designed course materials, led lab sessions, led office hours, and graded projects
- **Introduction to Robotics** (CMSC 20600/CMSC 30600), UChicago   Spring 2024
  Instructor: Prof. Sarah Sebo; Enrollment: 27
  Designed course materials, led lab sessions, led office hours, and graded 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

- Jingyu Chen, UChicago Masters Student   Autumn 2025 – Current
- Ricky Bao, UChicago Undergrad Student   Autumn 2025 – Current
- Guan Chen, UChicago Undergrad Student   Winter 2024 – Current
- Sabrina Fajardo, UChicago Undergrad Student   Summer 2025 – Current
- Uma Malani, UChicago Undergrad Student   Summer 2025 – Current
- Rachel Liu, UChicago Undergrad Student   Spring 2024 – Spring 2025
- Tsz Long Leung (C5), UChicago Undergrad Student   Spring 2024 – Spring 2025
- Ike Peng, UChicago Undergrad Student   Winter 2024 – Spring 2025
- Madeline Busse (J1), UChicago Undergrad Student   Summer 2023 – Spring 2025
- Hannah Dinner (C5), High School Summer Intern at UChicago   Summer 2024 – Autumn 2024
- Frida Xuewei Li, UChicago Masters Student   Spring 2024 – Autumn 2024
- Aarman Pannu, UChicago Undergrad Student   Winter 2024 – Spring 2024
- Joy Chen, UChicago Masters Student   Autumn 2023 – Winter 2024
- Clark Kovacs, UChicago Undergrad Student   Autumn 2023 – Winter 2024
- Liberto de Pablo, UChicago Undergrad Student   Autumn 2023 – Winter 2024
- Lucas Pardo, UChicago Undergrad Student   Autumn 2023 – Winter 2024
- You Li (C4), UChicago Undergrad Student   Summer 2023 – Winter 2024
- Esha Mujumdar, High School Summer Intern at UChicago   Summer 2023

UChicago Physical Sciences Division Peer Mentor   Autumn 2024 – Current

- Guided mentees in achieving personal, academic, and professional growth through one-on-one mentorship
- Fostered an inclusive community by promoting interdisciplinary connections and a sense of belonging within the division

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

SERVICE

ACM/IEEE Human-Robot Interaction (HRI)   Remote
Paper Reviewer

- Reviewed 10 papers in HRI 2024, HRI 2025, and HRI 2026

ACM Conference on Human Factors in Computing Systems (CHI)   Remote
Paper Reviewer

- Reviewed 5 papers in CHI 2024, CHI 2025, and CHI 2026

Augmented Humans (AHs)   Remote
Paper Reviewer

- Reviewed 1 paper in AHs 2024

OUTREACH

Summer Robotics Course for South Side Chicago High School Students   Chicago, IL
Pre-Collegiate Non-Degree Program Assistant & Teaching Assistant   Jun 2024 – Aug 2024

- Teaches local South-Side Chicago high school students how to design and program robots using Blockly, a block-based programming tool

Robot Demos at Chicago's Museum of Science and Industry   Chicago, IL
Demonstrator   Apr 2022 – Apr 2025

- Demoed research and robots at MSI's National Robotics Week Block Party exhibit

VOLUNTEERING

UChicago Physical Sciences Division Social Committee   Chicago, IL
President   Feb 2025 – Current
Secretary   Feb 2024 – Feb 2025

- 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

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