

Nanxi Liu

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🌐 Nanxi Liu

🌐 Personal Website

Education

2020 – Expected 2024

- 📖 **B.A., Wellesley College, Wellesley, MA** Computer Science, GPA: 3.79.
Relevant Coursework: Fundamental Algorithms, Data Structures, Machine Learning, Theory of Computation, Linear Algebra, Multivariable Calculus, Graph Theory, Data Science, Invented Languages, Sociolinguistics, Intro to Women's and Gender Studies, Colonial Legacies in Paris

Research Interests

Computational Social Science, Cultural Analytics, Natural Language Processing, Digital Humanities

Research Experience

2023 – present

- 📖 **Computational Social Science Research Assistant**, MIT Center for Constructive Communication.

Supervisor: Hang Jiang, Jad Kabbara, Deb Roy

Lead qualitative analysis using pandas to examine 130 American Chinese restaurants (ACR) in Boston, investigating correlations between variations in Chinese and English names and contextual factors such as location and restaurant category. Conceptualized and crafted 7-dimensional Name Frames, systematically capturing nuanced meanings in ACR names. Dimensions include personal names, specialty, positivity, culture, location, ambiance, romanization, and creativity. Devised and implemented a scalable approach, based on Large Language Models (LLM), to quantify disparities between parallel names using both frame-based and embedding-based metrics. Unearthed systematic nuances within Chinese and English names of ACRs (discovering a 0.48 textual similarity in qualitative analysis), revealing compelling correlations between meaning nuances and socio-contextual factors. Currently working on paper to submit for NAACL 2024.

2022 – 2023

- 📖 **Natural Language Processing Research Assistant**, Personal Robots Group, MIT Media Lab.

Supervisor: Pedro Colon-Hernandez, Cynthia Breazeal

Designed a system for prompting a language model with synonyms for controllable commonsense inference. Normal “hinting” prompts give a model strict guidance on what it should generate commonsense assertions; the synonym hints I developed provide additional information based on a normal prompt to improve a model's performance by helping it form associations from synonyms. Trained large language models using different prompting techniques, and evaluated the model's performance through different scoring systems, such as BLEU and ROUGE.

Research Experience (continued)

2022 – 2022

■ **Human-Robot Interaction Research Assistant**, Personal Robots Group, MIT Media Lab.

Supervisor: Huili Chen, Cynthia Breazeal

Optimized a software framework for multi-person human-robot interaction utilizing object-oriented programming concepts. Implemented playmate and moderator roles for Jibo, a robot, using Python and PyQt5, to maximize the cognitive and affective benefits of parent-child interaction. Equipped Jibo with more accurate and relevant keywords when asking questions by extracting over 3000 keywords for Jibo's moderator role from a storybook corpus using spaCy. Brainstormed key ideas and solutions in a highly interdisciplinary team of engineers, researchers, and designers.

Conference Presentations and Papers under Review

Poster Presentation at Text as Data 2023

■ Hang Jiang, Nanxi Liu, Jad Kabbara, Deb Roy
Lost in Translation: Using Language Models to Investigate Cultural Adaptation of Chinese Immigrants from Parallel Chinese Restaurant Names in the United States

Under Review for ACL Rolling Review

■ Pedro Colon-Hernandez, Nanxi Liu, Chelsea Joe, Claire Yin, Yida Xin, Henry Lieberman, Peter Chin, Cynthia Breazeal
Can Language Models Take A Hint? Prompting for Controllable Contextualized Commonsense Inference

Work Experience

2021 – present

■ **Community Inclusion Facilitator (CIF)**, Office of Intercultural Education, Wellesley College.

Facilitated workshops on topics such as Race and Racism, Identity and Privilege, Gender and Sexuality, etc, for various student groups and classes at Wellesley College to enhance people's awareness on these social topics and contribute to better understanding and communication between different communities at Wellesley.

2021 – 2021

■ **Software Engineer Intern**, Apex Fencing Academy.

Manager: Mark Britt

Collaborated with two fellow students through Agile project management to construct the backend of a website for Apex fencing club. Learned — Flask, MySQL, and Jinja — from scratch to construct a record page where users can edit fencing tournament records, improving the website's usability. Helped in troubleshooting and debugging code on a daily basis

■ **Cofounder**, Abundant Gift Basket Start-up.

Accurately identified consumers' needs for customizable gift baskets by conducting over 200 user surveys and interviews. Analyzed data based on user surveys to brainstorm a minimum viable product. Designed UI using Figma and prepared for usability testing to confirm the functionality of the product. Organized meetings to break down weekly tasks and ensured that the team is making constant progress

Skills

Languages	📖	Mandarin Chinese (Native), French (Intermediate), and Japanese (Intermediate).
Coding	📖	Python, Java, ROS, SQL.
Databases	📖	MySQL.
Web Dev	📖	HTML, CSS, JavaScript.
Misc.	📖	Academic research, leadership.

Leadership/Service

2020-2022	📖	Second Soprano , Wellesley College Choir. Communicated concerns on Euro-centric repertoire with Choir director to incorporate more non-European language music into performances. Organized group learning on traditional Chinese folk songs for 50 people. Improved diversity in repertoire by increasing the number of non-European language songs from 0 in fall 2021 to 4 in spring 2022.
2022-2023	📖	Paulson International Study Fellow , Wellesley College. Served as an international study fellow for the Paulson Ecology of Place Initiative during study abroad semester in Paris. Posted weekly blogs of reflections on the human connections to the environment. Gave a talk on arts and nature in Paris at the Tanner Conference at Wellesley.