

# Lu Wang

PHD STUDENT AT DREXEL UNIVERSITY

✉ lw823@drexel.edu | 🌐 LuWang823 | in LuWang823

## Summary

I am a Human-Computer Interaction and Health Informatics researcher, applying social science knowledge and methods to inform design and development. My focus is applying Artificial Intelligence in healthcare, including users' needs investigation, unobtrusive design and development, and privacy and fairness issues.

## Education

### PhD of Computer Science

Hoboken, NJ, US

STEVENS INSTITUTE OF TECHNOLOGY

2024-2027

- Advisor: Dr. Jina Huh-Yoo
- Research Areas: Human-Computer Interaction, Health Informatics, Artificial Intelligence

### PhD of Information Science, College of Computing & Informatics

Philadelphia, PA, US

DREXEL UNIVERSITY

2020-2024

- GPA: 4.00/4.00
- Advisor: Dr. Jina Huh-Yoo
- Research Areas: Human-Computer Interaction, Health Informatics, Artificial Intelligence

### Master of Applied Psychology, User Experience

Beijing, CN

BEIJING NORMAL UNIVERSITY (BNU)

2016-2018

- GPA: 87/100, GPA Rank: 1/59
- Advisor: Dr. Jian Li
- Thesis: Using Multiple Source Information to Predict User's Emotion
- Keywords: User experience, Emotion prediction, Text mining, Machine learning, Chat-log

### Bachelor of Psychology

Beijing, CN

BEIJING NORMAL UNIVERSITY (BNU)

2012-2016

- GPA: 90/100
- Advisor: Dr. Jian Li
- Thesis: Recovery of Resources is for Better Learning: The Influence of College Students' Daily Learning on Their Self-control Resources
- Keywords: Self-depletion, Diary study, Hierarchical linear model, Dumbbell straight method

## Work Experience

### Research Assistant

Philadelphia, PA, US

DREXEL UNIVERSITY

May 2020-present

- Performed extensive literature reviews, meticulously analyzing over 200 papers across various topics such as conversational agents, AI support for caregivers of people living with dementia, and people's perceptions toward bias and related concepts in large language models.
- Conducted mixed methods (quantitative sentiment analysis and qualitative content analysis) to evaluate the GPT-2 and fine-tuned GPT-2 performances for Problem-Solving Therapy based on 306 therapy session transcripts between informal caregivers of people living with dementia and therapists. Coded and analyzed interviews of 12 informal caregivers of people living with dementia to understand when technology should or should not support the emotional work engaged in informal caregiving.
- Applied web crawl methods to investigate the representativeness of "People Also Ask" of Google Web search on the information needs concerning Alzheimer's Disease and related dementias and compare ChatGPT with users when responding to Reddit posts related to Alzheimer's Disease and related dementias.

### User Researcher

Hangzhou, China

NETEASE INC. (NASDAQ: NTES)

July 2018 - Dec. 2018

- Conducted user studies for the business line of NetEase Cloud Music
- Completed seven projects from the early planning stage of the product to the iteration of the NetEase Cloud Music App. Working methods included the interview method, questionnaire method, web crawler, persona, etc.

## Data Analyst Intern

GXHS TECHNOLOGY

Beijing, China

Nov. 2017 - Jan. 2018

- Assisted in paper reviewing, data analysis, data visualization, and report writing.
- Accomplished descriptive statistics analysis and text analysis of cases on National 12358 Price Supervision Platform.
- Applied R language to analyze Baidu Index, base station data, and other indicators to describe the flow of Xiong'an talents.
- Analyzed and compared the emotional index differences of people from different media sources with a data analysis platform.

## User Researcher Intern

LENOVO RESEARCH

Beijing, China

July 2017 - Oct. 2017

- Assisted in Artificial Intelligence research.
- Used R language and Python to analyze customer service dialogue data;
- Labeled the talking techniques used by customers and agents through chat logs to find the most appropriate responses to different user states and assisted in the design of the Chatbot interaction flow chart.

## Teaching Assistant

BEIJING NORMAL UNIVERSITY

Beijing, China

2018, 2017, 2016

- Educational Psychology, Sept. 2016 - Feb. 2017, Assisted instructor (Dr. Jian Li) in attendance checking, instructing, and performance rating.
- Issues in Research Methodology: Quantitative, Qualitative, and Action Research, Apr. 2018 - May 2018, Assisted instructor (Dr. Xianjun Zheng) in attendance checking, group forming and instructing, performance rating, and rewarding.

## User Researcher Intern

BAIDU.COM TIMES TECHNOLOGY (BEIJING) CO. LTD.

Beijing, China

Oct. 2015 - Mar. 2016

- Assisted in telephone interview invitation, interview recording, questionnaire inputting, data analyzing, and report writing.
- Developed a program to generate syntax of SPSS using C language, which improved the efficiency of data analysis by 200%.

## Skills

<b>Psychology Experiment</b>	E-Prime, Inquisit, Qualtrics
<b>Programming</b>	Python, MATLAB, C, Pascal
<b>Statistics</b>	R, SPSS Statistics, Mplus
<b>Design</b>	Adobe Photoshop, Adobe Illustrator, Flash
<b>Research Methods</b>	Quantitative Methods, Qualitative Methods, Participatory Design Methods, Statistical Visualization

## Honors & Awards

2023	<b>Grace Hopper Celebration (GHC) Student Scholarship from Drexel University</b>	Orlando, FL
2023	<b>CRA-WP Grad Cohort Conference Grant</b>	San Francisco, CA
2022	<b>Grace Hopper Celebration (GHC) Student Scholarship</b>	Virtual
2022	<b>NSF SCH PI Workshop Student Award</b>	Virtual
2021	<b>Grace Hopper Celebration (GHC) Student Scholarship</b>	Virtual
2021	<b>CRA-WP Grad Cohort Conference Grant</b>	Virtual
2021	<b>NSF SCH PI Workshop Student Award</b>	Virtual
2021	<b>GREPSEC Workshop Student Award</b>	Virtual
2021	<b>USENIX Diversity Grant</b>	Virtual
2018	<b>Outstanding Graduates (Top 5%)</b>	Beijing
2018	<b>University Houcan Scholarship</b>	School of Psychology, BNU
2017	<b>First Class Scholarship (Top 10%)</b>	Beijing Normal University
2017	<b>Huawei Scholarship</b>	Huawei Technologies Co., Ltd.
2016	<b>Outstanding Graduates (Top 5%)</b>	Beijing
2016	<b>Beisen Scholarship</b>	Beijing Beisen Cloud Computing Co., Ltd.
2015	<b>National Endeavor Fellowship</b>	China
2014	<b>National Endeavor Fellowship</b>	China
2014	<b>First Class Scholarship (Top 10%)</b>	Beijing Normal University
2014	<b>Second Prize of Mathematical Modeling Competition</b>	Beijing Normal University
2013	<b>National Endeavor Fellowship</b>	China
2013	<b>First Class Scholarship (Top 10%)</b>	Beijing Normal University
2013	<b>Third Prize of ACM Computer Programming Competition</b>	Beijing Normal University

## Conferences

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### ACM CHI Conference on Human Factors in Computing Systems

Honolulu, Hawai'i

LATE-BREAKING WORK

May 11-16, 2024

- Wang, L., Smriti, D., Yuan, H., & Huh-Yoo, J. (2024, May). Artificial Intelligence Systems for Supporting Informal Caregivers of People Living with Alzheimer's Disease or Related Dementias: A Systematic Review. In Extended Abstracts of the 2024 CHI Conference on Human Factors in Computing Systems (pp. 1-11).

### ACM CHI Conference on Human Factors in Computing Systems

Virtually

LATE-BREAKING WORK

April 23-28, 2023

- Wang, L., Chen, C., & Huh-Yoo, J. (2023, April). Investigating the Synonyms of Conversational Agents to Aid Cross-Disciplinary CA Research. In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (pp. 1-10).

### Computing Research Association Widening Participation Grad Cohort for Women

Francisco, CA

POSTER

April 20-22, 2023

- Lu Wang, Jina Huh-Yoo. "Validity Examinations of Social Bias Measurements and Mitigations in Word Embeddings."

### AMIA 2021 Annual Symposium

Hilton San Diego Bayfront

POSTER

Oct. 30 2021 - Nov. 3 2021

- Lu Wang, Jina Huh-Yoo. "The Representativeness of "People Also Ask" of Google Web Search on the Information Needs Concerning Alzheimer's Disease and Related Dementias."

### Computing Research Association Widening Participation Grad Cohort for Women

Virtual

TECH TALK

Apr. 2021

- Lu Wang, Munif Mujib, Jake Williams, George Demiris, Jina Huh-Yoo. "An Evaluation of Generative Pre-Training Model-based Chatbot in Therapist-Patient Dialogue Context."

### Annual Conference on Digital Media Studies (DMS'18)

Beijing, China

TALK

Nov. 2018

- Lu Wang, Jian Li. "Using Multiple Source Information to Predict User's Emotion."

### The International Association of Societies of Design Research (IASDR'17)

Cincinnati, US

TALK

Nov. 2017

- Zhiyong Fu, Jia Lin, Lu Wang. "The Research and Design Framework for Citizen Science."

### Industrial Design Research (UXPA China'17)

Nanjing, China

TALK

Oct. 2017

- Ying Fu, Han Xu, Lu Wang, Mengfan Li, Yu Dai. "ZANMA-Improve the Relationship between Mother-in-Law and Daughter-in-Law."

### 31st International Congress of Psychology

Yokohama, Japan

POSTER

July 24-29, 2016

- Lu Wang, Wen Wen, Jian Li, and Cheng Huang. "Cool the Warm: Stimulating Analytical Thinking to Make Rational Decisions."

## Projects

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### Co-Designing and Understanding the Roles of Conversational Artificial Intelligent Systems on Caregiving

Drexel University

GRADUATE RESEARCH ASSISTANT

Apr. 2022 — Now

- Conduct a review mapping study to understand the caregivers' needs and find opportunities for developing assistive tools
- Conduct a qualitative analysis of interviewing caregivers' needs in supporting people living with dementia

### Assistive Tool for Conversation of Patients, Caregivers, and Doctors project

Drexel University

GRADUATE RESEARCH ASSISTANT

Mar. 2022 — May. 2022

- Implementing Microsoft Azure to realize speech-to-text function
- Outcome: Python codes

### Fairness in Word Embeddings

Drexel University

GRADUATE RESEARCH ASSISTANT

Jan. 2022 — Now

- Investigate the gaps in fairness definitions, evaluations, and mitigations in word embeddings

## Privacy Agreement Settings of Chatbot Development Frameworks and Their Deployment Platforms

[Drexel University](#)

GRADUATE RESEARCH ASSISTANT

Apr. 2021 — Now

- Investigate how the privacy agreement is written and designed for different chatbot development frameworks and their deployment platforms for third-party entities.

## How Chatbot Concepts Evolve in Multi-disciplinary Context

[Drexel University](#)

GRADUATE RESEARCH ASSISTANT

Oct. 2020 — Now

- Use the CiteSpace software to track how chatbot concepts evolve in a multi-disciplinary context to understand how researchers from different backgrounds or disciplines understand/define these concepts.

## Internet Search Analytics of Dementia-Related Questions Project

[Drexel University](#)

GRADUATE RESEARCH ASSISTANT

Dec. 2020 — Sept. 2021

- Investigate what questions people ask about Alzheimer's disease and related dementias. Used Google's "People Also Ask" function to investigate the most frequently asked questions on the Web and their suggested answers.

## Evaluation of GPT-2 based Chatbot in Therapist-Patient Dialogue Context

[Drexel University](#)

GRADUATE RESEARCH ASSISTANT

July 2020 — Dec. 2020

- Evaluated the performance of the pre-trained model and the fine-tuned model of OpenAI GPT-2 from the perspective of conversational quality in the Therapist-Patient Dialogue Context. Evaluation methods included analyses of the proportion of non-word outputs, the length of response (number of words in a response), and sentiment components.

## CADENCE (a Conversational Agent [CA] based library for DEMENTIA Care) Project

[Drexel University](#)

GRADUATE RESEARCH ASSISTANT

May 2020 — July 2020

- Participated in the review work of automatic summarization and analysis of web searching results related to dementia.

## Assessment and Training of Metacognition Regulation Skills of Adolescents Project (The 12th Five Year Plan of Education Science)

[Beijing](#)

GRADUATE RESEARCH ASSISTANT

June 2015 — May 2018

- Participated in review work of metacognition and problem-solving, research conduction in high school, and data analysis of scales using SPSS, Mplus, and R Language.

## Learning Quality Scale Revision Project (Research and Development of the Evaluation Model of the Comprehensive Psychological Quality of Primary and Secondary School Students)

[Beijing](#)

GRADUATE RESEARCH ASSISTANT

Mar. 2016 — Dec. 2017

- Participated in review work of learning quality, research conduction in high school, and items analysis and scale revision of eight scales using SPSS, Mplus, and R Language.

## China Maker Education Blue Paper 2016 Project

[Tsinghua University & Intel](#)

GRADUATE RESEARCH ASSISTANT

Jan. 2017 — Aug. 2017

- Leader of the research group, mainly charged with desk research, research design, and report writing, accomplished questionnaire design and publishing, interview design, and conduction, as well as data analysis and presentation.

## Driving Gamification for Older People

[Swinburne University of Technology](#)

GRADUATE RESEARCH ASSISTANT

Mar. 2017 — May 2017

- Conducted scoping review through identifying 46632 records, screening of 41549 records, eligibility examination of 133 records, and paper review of 90 records.

## Cortana & Internet of Things (IoT) Project

[Microsoft Research Asia \(MSRA\)](#)

GRADUATE RESEARCH ASSISTANT

Feb. 2017 — June 2017

- Designed a smart kitchen assistant to help working women with the daily menu and fasten the relationships among families based on IoT and artificial intelligence technology (Cortana). Participated in desk research, questionnaire design, interview, persona making, journey map development, conceptual design, and presentation delivery. (Confidentiality Agreement Signed)

## Natural Voice Interaction in Chinese Context Project

[Land Rover](#)

GRADUATE RESEARCH ASSISTANT

Sept. 2016 — Dec. 2016

- Designed a tool to solve fatigue driving problems. Participated in desk research, collage making, mind map making, context research, user journey map making, affinity diagram making, logic map making, toolkit research, storyboard making, low-fidelity prototyping, and iterating. (Confidentiality Agreement Signed)

## Reducing Halo Effect using Cognitive Resources and Self-Regulation Resources (The Plan Project of Beijing College Students' Scientific Research and Entrepreneurial)

Beijing

ACTION UNDERGRADUATE RESEARCHER

Dec. 2013 — Sept. 2015

- Completed paper review of Halo Effect, dual-system theory, and ego-depletion and participated in research design, research conduction of ten pilot studies, and two formal studies using scales, E-prime experiments, dumbbells, and dictation task, etc., analyzed data using SPSS.

## Students Summer Social Practice Program

Beijing Normal University

UNDERGRADUATE RESEARCHER

Mar. 2017 — May 2017

- Conducted questionnaire survey related to the influence of parenting style on children's procrastination behavior in Chengdu City, Sichuan Province, China (Summer, 2014) and participated in the survey on sex education of eight high schools in Henan Province, China (Summer, 2015).

## Faculty Scientific Research Projects

Beijing Normal University

UNDERGRADUATE RESEARCHER ASSISTANT

Sept. 2012 - June 2018

- Transcribed sound records of interviewing parents in mainland and Taiwan, distributed and collected questionnaires and scales related to teachers' ethics and teaching evaluation system, acted as experimenter to study attention, decision making under risks and Electroencephalogram changes when subjects played games, acted as an interviewer to study the relationship between roommates in the dormitory and investors' thinking progress in illegal fund-raising projects, conducted data entry and analysis.

## Exchange Experience

### Swinburne University of Technology

Australia

VISITING SCHOLAR

Mar. 2017 - May 2017

- Projects on driving simulators for old drivers.

### University of Michigan

The United States

VISITOR

Feb. 2014 - Feb. 2014

- Culture exchange and research collaborations

## Volunteer Experience

Review	AMIA 2021 Annual Symposium, CHI 2021 Papers, CSCW 2023 Papers	Virtual
2020	IEEE BigData Conference	Virtual
2020	Research Data Alliance (RDA) US	Virtual
2018	Language Rehabilitation of Hearing and Impaired Children Program	Beijing, China
2016	Conference of Chinese Psychologists	Beijing, China
2016	Chinese Applied Psychology Conference	BNU, Beijing, China
2015	Slush International Conference	Beijing, China
2014	Asia-Pacific Economic Cooperation (APEC)	Beijing, China
2014	Voluntary support education in Sichuan Province	Jiayang, China
2013	China (Beijing) Garden Expo	Beijing, China
2013	China Tennis Cheerleading Service for China Open	Beijing, China
2012	United the Force for Good Program, China Foundation for Poverty Alleviation	Beijing, China