Yuwen Lu

PhD Student (Second Year), University of Notre Dame

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RESEARCH INTERESTS

Human-Computer Interaction (HCI), Human-AI Collaboration, User Experience (UX), Design, End-User Empowerment

EDUCATION

University of Notre Dame   Notre Dame, IN

Ph.D. student, Computer Science and Engineering   *Aug 2021 – May 2026 (expected)*

Current research focus: Incorporating Large Language Models and Text-to-Image Models into UI/UX design support

Advisor: Dr. Toby Jia-Jun Li

Carnegie Mellon University   Pittsburgh, PA

Master's, Human-Computer Interaction (MHCI)   *Aug 2020 – Aug 2021*

Human-Computer Interaction Institute, School of Computer Science

Capstone: Redesign of *ApplyGrad*, the graduate application portal for the School of Computer Science (website)

Collaborated with Dr. Geoff Kaufman, Dr. Nikolas Martelaro, Dr. Motahhare Eslami on research projects

Dalian University of Technology   Dalian, China

B.Eng in Software Engineering   *Sep 2016 – June 2020*

Study abroad: University of California, Irvine (advisors: Dr. Gloria Mark, Dr. Alex Williams), Technical Unviersity of Munich (advisors: Dr. Juan Haladjian, Dr. Bernd Brügge)

WORK EXPERIENCE

Google   Cambridge, MA

Student Researcher, Material Design Team   *July – Dec 2023*

Explored AI integration in designer tools, with a focus on design systems and large language models (LLMs)

Mentors: Tiffany Knearem, Clara Kliman-Silver, Frank Bentley

SELECTED PUBLICATIONS

[1]   **AI Is Not Enough: A Hybrid Technical Approach to AI Adoption in UI Linting With Heuristics**

Yuwen Lu, Tiffany Knearem, Shona Dutta, Jamie Blass, Clara Kliman-Silver, Frank Bentley

In submission to the 2024 CHI Conference on Human Factors in Computing Systems, Case Studies Track (CHI 2024, Case Studies)

[2]   **AI Assistance for UX: A Literature Review Through the Lens of Human-Centered AI**

Yuwen Lu, Yuewen Yang, Qinyi Zhao, Chengzhi Zhang, Toby Jia-Jun Li

In submission to the 2024 CHI Conference on Human Factors in Computing Systems (CHI 2024)

[2]   **Exploring Mobile UI Layout Generation using Large Language Models Guided by UI Grammar**

Yuwen Lu, Ziang Tong, Qinyi Zhao, Chengzhi Zhao, Toby Jia-Jun Li

ICML 2023 Workshop on Artificial Intelligence and Human-Computer Interaction

[3]   **From Design Transparency to Malleable Interfaces: Exploring End-User Personalization for Website Design Dark Patterns**

Yuwen Lu*, Chao Zhang*, Yuewen Yang, Yaxing Yao, Toby Jia-Jun Li (* equal contribution)

The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW 2024)

[4]   **A Bottom-Up End-User Intelligent Assistant Approach to Empower Gig Workers against AI Inequality**

Toby Jia-Jun Li, **Yuwen Lu**, Jaylexia Clark, Meng Chen, Victor Cox, Meng Jiang, Yang Yang, Tamara Kay, Danielle Wood, Jay Brockman

The Symposium on Human-Computer Interaction for Work (CHIWORK 2022)

[5]   **Bridging the Gap Between UX Practitioners' Work Practices and AI-Enabled Design Support Tools**

Yuwen Lu, Chengzhi Zhang, Iris Zhang, and Toby Jia-Jun Li

Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI EA 2022)

[6]   **Computational Approaches for Understanding, Generating, and Adapting User Interfaces**

Yue Jiang*, **Yuwen Lu***, Jeffrey Nichols, Wolfgang Stuerzlinger, Chun Yu, Christof Lutteroth, Yang Li, Ranjitha Kumar, Toby Jia-Jun Li (* equal contribution)

Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (CHI EA 2022)

Research Experience

Incorporating LLMs into UX Design Support   Aug 2021 – Present

Lead Researcher, team of 5   *Notre Dame, IN*

- Investigating the human-AI co-creation with generative models in the context of user experience (UX) design
- Building a pipeline using GPT-4 for conditional UI layout generation and completion (workshop paper [1])
- Developing a Transformer-based, grammar-based UI layout generation model with the *RICO* UI dataset
- Published a Late-Breaking Work paper on needfinding of AI design support tools, presented at CHI 2022 (paper [4])
- Co-organized a CHI 2022 workshop with around 50 participants on *computational methods for user interfaces* (paper [5])

End-User Empowerment Against Design Dark Patterns Through Malleable Interfaces   May 2022 – Present

Lead Researcher, team of 5   *Notre Dame, IN*

- Designed a technology probe that supports end users in changing design dark patterns on website interfaces with Figma
- Implemented the probe in the form of a browser extension using Vue.js, Tailwind CSS, and Google Firebase
- Organized 5 in-person co-design workshops to understand users' needs and expectations for dark pattern intervention
- Conducted a 2-week probe deployment study with 15 users to understand real-life, in-situ reaction to our approach
- Paper submitted to CSCW 2023 (paper [2])

Awards & Honors

Lucy Scholars Fellowship, *Lucy Family Insititute for Data & Society, University of Notre Dame*	2022–2024
Graduate School Professional Development Awards (GSPDA), *University of Notre Dame*	2022
Conference Presentation Grant, *University of Notre Dame*	2022
Academic Excellence Scholarship & Tech Innovation Scholarship, *Dalian University of Technology*	2017
National Scholarship (top merit-based scholarship for undergraduate students in China)	2017

Community Leadership & Service

Graduate Student Mentor   Spring 2022

Graduate Guidance Mentorship Program, for undergraduate students interested in academic research   *Notre Dame, IN*

Conference Reviewer

CSCW 2022 & 2024 (3 papers), CHI 2023 (2 papers & 1 poster), DIS 2023 (3 papers), SIGGRAPH 2023 (2 posters), CUI 2023 (1 paper)

Workshop Organizer & Reviewer   Feb 2022

Computational Approaches for Understanding, Generating, and Adapting User Interfaces at CHI 2022   *New Orleans, LA*

Student Volunteer

UIST 2021, IUI 2022, UIST 2023

Teaching Experience

Guest Lecture   Fall 2021, Fall 2023

Figma Tutorial for CSE 40424 - Human Computer Interaction   *University of Notre Dame*

Teaching Assistant   Spring 2022

CSE 44424 Human Computer Interaction, CSE 40655 Technical Concepts of Visual Effects   *University of Notre Dame*

Teaching Assistant   Fall 2021

CSE 30331/CSE 34331 Data Structures   *University of Notre Dame*