Yuwen Lu

PhD Student, University of Notre Dame

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Research Interests

Human-Computer Interaction (HCI), Human-Centered AI, Human-AI Collaboration, UI/UX Design Support

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 [2])
- 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 [5])
- Co-organized a CHI 2022 workshop with around 50 participants on *computational methods for user interfaces* (paper [6])

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 accepted to CSCW 2024 (paper [3])

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