

Yao Du

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Human-AI Interaction, Human Factors, Reinforcement Learning from Human Feedback



EDUCATION

Southeast University(SEU)

M.S. in Design, School of Mechanical Engineering

Nanjing, China

Sept.2023-present

- **Average Score: 89.4/100**

- Core Modules: Ergonomics, Neurodesign, Design of Experiments, Design Semiotics and Semantics

Chongqing University(CQU)

B.S. in Industrial Design, College of Mechanical and Vehicle Engineering

Chongqing, China

Sept.2019-Jun.2023

- **GPA: 3.57/4 (Average Score: 86.64/100)**

- Core Modules: Design Psychology, Interaction Design & UX, Product Innovation Management, CAD

ACADEMIC PAPER

- **Du Y.**, et al. (2025) “Research on the Multi-Chart Layout Design of Large-Screen Interface: A Perspective on Cognitive Load ” (HCII Conference 2025)
Quantitatively evaluated large-screen multi-chart layouts via a custom Unity platform and LMM analysis, determining impacts of chart quantity, border style, and layout on cognitive load and visual search efficiency. First-author
- **Du Y.**, et al. Shared Mental Models Improve Trust Repair and Reduce Workload in RLHF Interfaces: Evidence from Behavioral, Subjective, and Eye-Tracking Measures. (Under review)
Conducted a 2×3 factorial experiment combining behavioral, eye-tracking, and NASA-TLX data to model trust repair mechanisms in Human–AI collaboration. First-author

RESEARCH EXPERIENCE

Ergonomic Analysis and Optimization Design Research of "Leadership Cockpit" Human-Machine Interface

(Core team member | University-Enterprise Cooperation Project)

Oct.2023-Jan.2025

- **Objective:** Investigated and optimized the ergonomics and cognitive load design of the “Leadership Cockpit” interface to improve interaction safety and information delivery efficiency.
- **Tasks:** Designed prototype interfaces, conducted cognitive load experiments, and contributed to interaction process setup.
- **Achievements:** Conducted interface visualization tests for complex information systems; contributed to prototype design refinement. A related paper was accepted by a conference.

Confidential Application Platform Project

Feb.2024-present

(Core team member | Military Science and Technology Commission Cooperation Project)

- **Tasks:** Participated in system architecture and interaction logic design; responsible for visual interface design and interaction flow diagramming.
- **Achievements:** Completed multiple rounds of iterative design and delivered a software interface covering the full task workflow

Interface Design and Interaction Optimization for Reinforcement Learning from Human Feedback

(Master's Thesis)

Nov.2024- present

Objective: To design and validate an interaction optimization solution, guided by Shared Mental Model (SMM) theory, to enhance the quality and efficiency of Reinforcement Learning from Human Feedback (RLHF).

- **Tasks:** Developing a novel interaction framework guided by Shared Mental Model (SMM) theory to address core challenges in RLHF; defining and implementing a set of UI/UX design principles aimed at improving feedback quality and efficiency; fine-tuning models, conducting rigorous, multi-dimensional user experiments to validate the proposed framework and design.
- **Expected Outcomes:** A comprehensive theoretical framework for optimizing human feedback mechanisms in RLHF, an empirically validated set of UI/UX design principles and a high-fidelity interface solution, and a high-quality human preference dataset, along with an intelligent model fine-tuned on this data, to serve as a proof-of-concept for the framework's effectiveness.

Research on Static Comfort Evaluation System of Driver Seats

May.2022-Oct.2022

(Core team member | University-Enterprise Cooperation Project)

- **Objective:** Developed a static comfort evaluation system for driver seats to improve human factors standardization in design.
- **Tasks:** Collected point cloud data for multiple seat models, conducted 3D reverse modeling using CATIA, and developed modeling process documentation.

- **Achievements:** Standardized several seat models, which were integrated into the enterprise’s digital model library to support future product iterations and optimization.

INTERNSHIP EXPERIENCE

CISDI Group Co., Ltd.

Jul.2022-Aug.2023

(Modeling and Drafting Technician)

- **Tasks:** Carried out parametric modeling and mechanical drafting using SolidWorks, including part modeling, assembly modeling, and drive verification.
- **Achievements:** Independently drafted and reviewed ~300 A0 mechanical drawings involving structural components, assemblies, and product variations, supporting timely design delivery.

Langjian Yuli Technology Co., Ltd

Jun.2022-Jul.2022

(Interaction Designer)

- **Tasks:** Translated user needs into visual interface solutions; contributed to the design and implementation of high-fidelity interactive prototypes.
- **Achievements:** Coordinated with engineers and clients to deliver multiple interactive interface solutions, facilitating product prototyping and implementation.

RESEARCH SKILLS

Research Methods:

- Usability testing, experimental design, behavioral data collection, statistical analysis
- Familiar with reinforcement learning and large model fine-tuning

Research Tools:

- Programming & Control: Python, C#, Unity
- Modeling & Analysis: SPSS, SolidWorks
- Interface Design: Figma, Pixso, PS
- Physiological Data: Tobii eye tracker, EEG/fNIRS equipment

Language:

- IELTS 6.5(6)

HONORS & AWARDS

8 National Awards, 11 Provincial/Municipal Awards, 20 University Awards

- National Scholarship(Top 1%)
- National Endeavor Scholarship(Top 1%)
- Gold Award, 7th China International “Internet+” Innovation & Entrepreneurship Competition
- Bronze Award, 13th “Challenge Cup” Entrepreneurial Plan Competition
- Advanced Individual in Innovation Capability Improvement of Chongqing Municipality
- The first-class academic scholarship of Chongqing University(Top 5%)

EXTRACURRICULAR ACTIVITIES

Student Work:

- Head of Chongqing University Archives Explanation Group; Vice Captain, Mechanical & Vehicle Engineering Debate Team; Member, Graduate Union Practical Service Center; Grade Assistant.

Practical Activities:

- "Sunflower Blooming" National Innovation and Entrepreneurship Training Program

Volunteer Experience:

- Group Leader of Volunteers for the Chongqing Changjiahui Half Marathon, Group Leader of Volunteers for the 8th "Internet+" Innovation and Entrepreneurship Competition, etc.

SELF-ASSESSMENT

Detail-oriented, emotionally stable, and highly self-motivated. Well-organized with strong responsibility awareness and the ability to communicate and collaborate across interdisciplinary teams.