Bob Tianqi Wei

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Education

University of California at Berkeley, College of Engineering Aug 2023 – Dec 2024
Master of Design in Human-Computer Interaction Distinguished Scholar, 3.66/4

- Relevant Courses: COMPSCI 260B: Human-Computer Interaction Research(A-), EDUC 222C: Design-Based Research Forum(A), MUSIC 158B: Situated Instrument Design for Musical Expression(A), DESINV 210: Designing Emerging Technologies

Tsinghua University, Academy of Arts and Design, Beijing, China Aug 2019 – Jun 2023
B.A. in Industrial and Product Design 3.71/4

- Relevant Courses: Manufacturing Engineering Practice - Robot Development(A-), Design Engineering Application, Design Methodology(A-), Interface Design of Product Semantics(A-), Fundamental Industrial Design(A-), Multi-discipline Design Practice(A), Design Thinking(A), Basic Design Engineering - Functional Principle (Mechanical Design), Computer-Aided Design(A), Prototype Making(A), Formation Fundamentals(A), Creative Design in Mechanics, Human Factor Engineering in Industrial Design, Engineering Drawing

Music Course Series

- Relevant Courses: Classical Piano Pieces Performance(A), Romantic and 20th Century Piano Pieces Performance(A+), Basic Choral Conducting(A-), Music Phenomena in the Multi-Culture(A-), Basic Music Theory, Appreciation and Analysis of Western Classical Opera, Sound Design and Research(A), Musical Theater Performance, Theory and Production of music Arrangement(A)

Skills

Programming Languages: Python, JavaScript (TypeScript), C++, Java, HTML, CSS, MATLAB, Processing, Max MSP
Frameworks & Libraries: React 18, Node.js, Flask, Express, RESTful APIs, ReactFlow
AIML: LLM APIs, Prompt Engineering, CLIP, SentenceTransformers, ResNet50, UMAP
Databases & Infrastructure: Pinecone, SQLite (with vector extensions), Docker, Git
Design & Prototyping: Figma, Adobe Creative Suite (Photoshop, InDesign), Interaction Design, User Research, Raspberry Pi
CAD & Fabrication: Rhinoceros, Solidworks, AutoCAD, KeyShot, Fusion 360, Digital Fabrication, Embedded Systems
Creative Tools: Logic Pro, Final Cut Pro, Music Production, Photography, Watercolor
Other Interests: Badminton, Cooking, Palmistry, FengShui

Research Experience

UC Berkeley EECS, Berkeley Institute of Design Lab, Prof. Bjoern Hartmann, Researcher Nov 2023 – Present

- Conducted HCI research on generative AI systems for creative workflows, voice acting, and interactive learning environments, integrating qualitative studies with system development
- Developed ArtiFactor, an AI-powered creative platform that orchestrates multi-agent systems using multimodal ML models
- Designed a semantic knowledge base using vector embeddings; built full-stack architectures with React, Node.js, and Flask microservices, supporting real-time agent workflows and Dockerized ML backends
- Collaborated closely with designers, engineers, and researchers to bridge AI/ML capabilities with intuitive UX

UC Berkeley ME, Morphing Matter Lab, Prof. Lining Yao, Researcher Feb 2025 - Present

- Developed flexible electroosmotic pumps, using silicone to fabricate flexible materials. Assisted in the conceptualization of applications, produced video documentation, and conducted physical performance testing on materials and structures
- Co-authored a literature review on Ecological HCI, exploring materials design and fabrication's impact on sustainability and ecological integration

Association for Computing Machinery (ACM), Reviewer Sep 2024 - Present

- Reviewed papers for the ACM CHI conference, providing feedback on submissions related to HCI research

UC Berkeley, School of Education, Prof. Dor Abrahamson, Graduate Student Researcher Aug 2023 - Dec 2023

- Investigated cognitive processes in tacit knowledge acquisition through learning sciences and cognitive science research, focusing on embodied learning in interactive educational environments
- Developed educational tools with multimodal feedback to study how learners construct understanding through guided physical interaction

Tsinghua University, Department of Industrail Design, Prof. Lintao Tang, Student Researcher Nov 2022 - Jul 2023

- Developed an adaptive AI-driven lighting system that responds to user behavior to create personalized ambient environments

- Conducted comprehensive literature review on illumination design principles through analyzing 18 technical publications from German Lighting Association, synthesizing findings to inform adaptive lighting parameters
- Implemented a functional prototype using Raspberry Pi and machine learning, integrating sensor data processing and environmental control algorithms in Python and C++

Publications

Generating Visual Aids to Help Students Understand Graphic Design with EKPHRASIS Apr 2025

Bob Tianqi Wei, Shayne Shen, Shm Almeda, Bjoern Hartmann.

ACM Conference on Human Factors in Computing Systems (CHI) 2025, doi.org/10.1145/3706599.3719807

MorphingSkin: A skin-like platform that integrates multimodal hydraulic actuators based on flexible electroosmotic pumps Oct 2025

Tianyu Yu, Peisheng He, ***Bob Tianqi Wei***, Chenyuheng Wang, Xueqing Li, Xuezhu Wang, Yao Lu, Wei Yue, Megan Teng, Zihan Wang, Liwei Lin, Haipeng Mi, Qi Lu, Lining Yao.

ACM Symposium on User Interface Software and Technology (UIST) 2025, Accepted

Labor, Power, and Belonging: The Work of Voice in the Age of AI Reproduction Jun 2025

Shm Almeda, Robin Netzorg, Isabel Li, Ethan Tam, Skyla Ma, ***Bob Tianqi Wei***.

ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2025, doi.org/10.1145/3715275.3732082

Demonstration of Sympathetic Orchestra: An Interactive Conducting Education System for Responsive, Tacit Skill Development Oct 2024

Bob Tianqi Wei, Shm Almeda, Ethan Tam, and Dor Abrahamson.

ACM Symposium on User Interface Software and Technology (UIST) 2024, doi/10.1145/3672539.3686783

Shaping Ecological HCI through Materials Design and Fabrication: A Review and Future Design Considerations Expected 2025

Yaning Li, Ziqian Yu, Chengjun Li, Yuexi Chen, Yue Yang, Tingyu Cheng, Ziyao He, ***Bob Tianqi Wei***, Eldy S. Lazaro Vasquez, Zeyu Yan, Di Wu, Tianyu Yu, Yuecheng Peng, Dinesh K. Patel, Huaishu Peng, Nivedita Arora, Aditi Maheshwari, Guanyun Wang, Teng Han, Josiah Hester, Jean-Baptiste Labrune, Andreea Danielescu, Pedro Lopes, Vikram Iyer, Hiroshi Ishii, Lining Yao, Qiuyu Lu, Meng Li.

International Journal of Human–Computer Interaction (IJHCI), PAPER UNDER REVIEW

Projects

PartSelect Chat Agent - AI Agent for E-Commerce Customer Support (React, Node.js, Pinecone) Jun 2024

- Engineered a production-ready e-commerce AI agent using DeepSeek, React, and Node.js to support customer service
- Integrated Pinecone vector DB (1536-dim embeddings) enabling sub-500ms semantic search and compatibility checks
- Built intelligent query preprocessing and multi-modal response generation, handling part/model number recognition, troubleshooting, and step-by-step installation guidance
- Delivered a fully functional prototype with <3s response latency, <1% error rate, and full mobile optimization within 48 hrs

GAF Sales Intelligence Platform - AI Agent for B2B Sales Insights (Python, FastAPI, Streamlit) Jul 2024

- Designed and implemented a modular data pipeline to scrape, process, and enrich public contractor data
- Built a role-based web dashboard with interactive map visualizations and CSV export, enabling sales teams to prioritize leads and tailor outreach strategies
- Developed robust backend APIs and database models, ensuring scalable integration, efficient data retrieval

Illuminatio – Adaptive Smart Lighting with Biocentric AI (C++, Python, Raspberry Pi) Jan 2023 - May 2023

- Created a biologically-informed smart lamp that adjusts light based on user rhythm and behavior
- Prototyped with Raspberry Pi, camera sensing, and servo-controlled light modulation. Created Rhino and AutoCAD schematics, fabricated custom aluminum mounts, and implemented dynamic scene transitions
- Explored user-in-the-loop adaptive systems for well-being and smart environments

Teaching Experience

UC Berkeley, INFO 213: Introduction to User Experience Design, Reader Aug 2024 - Dec 2024

- Grades and provides feedback on assignments and coaches students practice in-depth interviews and UX research.

UC Berkeley, DESINV 22: Prototyping and Fabrication, Lead TA Jun 2024 - Aug 2024

- Teaches manufacturing techniques and basic electronics to help students build a Bluetooth-controlled vehicle.

UC Berkeley, INFO C262: Theory and Practice of Tangible User Interfaces, Lead TA Aug 2023 - Dec 2023

- Delivered introductory courses on open-source hardware development and programming.
- Developed a course website enabling students to submit assignments, access course materials, schedule office hours.

Tsinghua University, Romantic and 20th Century Piano Pieces Performance, Lead TA Sep 2021 - Jul 2022
- Assisted in planning the course schedules, tutored students to complete homework exercises, and participated in the design and marking of course assignments.

Xiaoze Art Studio and Wufang Design Studio, Graphic Design Courses, Instructor (Part Time) Aug 2019 - Feb 2021
- Analyzed outstanding design works, explained the art and design principles, and supervised the creation of design works.

Presentations and Speeches

ACM Conference on Human Factors in Computing Systems (CHI) 2025, Yokohama Apr 2025
Generating Visual Aids to Help Students Understand Graphic Design with EKPHRASIS, Poster and Paper
UC Berkeley Fall 2024 Master of Design Graduation Ceremony Dec 2024
The Transformative Power of Interdisciplinary Design, Speech
UC Berkeley MDes Graduate Exhibition "VEINS OF THE COSMOS" Dec 2024
EKPHRASIS: Learning Tacit Knowledge in Foundational Visual Design Through Human-AI Co-Practice, Demo and Paper
Jacobs Winter Design Showcase: HCI Research, UC Berkeley Dec 2024
Romantic Breakups as a Lens for Industrial Cybersecurity: Cross-Domain Insights for Access Control, Poster
ACM Symposium on User Interface Software and Technology (UIST) 2024, Pittsburgh Oct 2024
Demonstration of Sympathetic Orchestra: An Interactive Conducting Education System for Responsive, Tacit Skill Development
UC Berkeley Education Research Day Conference Apr 2024
Building Professional Hearing: Research on New Tools and Educational Methods for Enhancing the Understanding and Processing of Polyphonic Music, Paper
Jacobs Institute of Design Innovation Showcase, UC Berkeley Dec 2023
Poetry in Motion, Installation; Plano, Installation
International Symposium on Academic Makerspaces 2023, Carnegie Mellon University Oct 2023
Intelligent Illuminating Product Design Based on Machine Learning, Poster
2023 Undergraduate Exhibition of Academy of Arts and Design, Tsinghua University Jun 2023
Intelligent Illuminating Product Design Based on Machine Learning, Demonstration and Paper
The 41st Student Extra-curricular Academic and Scientific Works Exhibition, Tsinghua University Apr 2023
Sympathetic Orchestra, Demonstration and Poster

Awards

MDes Distinguished Scholar Award, University of California, Berkeley Mar 2023
Social Work Excellence Scholarship, Tsinghua University 2020, 2023
Scholarship for Excellence in Literature and Art, Tsinghua University 2020, 2021, 2022
Honorable Mention, 3rd China College Student Power Battery Innovation Competition Nov 2021
First Prize of Youth Group, The 7th Macau-Asia Pacific Youth Piano Competition Jul 2021
Second Prize of Tsinghua University, Beijing College Students Engineering Ability Competition Dec 2019

Music Performance

Bob Tianqi Wei: Stringed Harmony, Live at CNMAT, UC Berkeley May 2024
Tianqi Wei & Friends' Graduation Concert, Live at Tsinghua University Music Library May 2023
Rachmaninoff: Piano Concerto No.2, Conductor, Live at New Tsinghua School Concert Hall May 2022
Elisabeth (musical, Japanese), Rudolf, Live at Meng Minwei Hall, Tsinghua University Oct 2021
J.S.Bach: Concerto in D Minor BWV 974, Piano Solo, Live at Steinway Hall Beijing Jul 2021
J.S.Bach: Goldberg Variations BWV 988, Piano Solo, Live at Meng Minwei Concert Hall Dec 2020

Leadership

Tsinghua University Student Art Troupe Clavier Team, President Aug 2021 - Aug 2022
- Organized and held large-scale concert activities and art popularization lectures.
- Empowered the team to participate in international professional competitions.

Tsinghua University iOS Club, Leader of Publicity Group and Member of Product Manager Team Aug 2021 - Aug 2022
- Represented the club to Apple headquarters for an interaction and hardware theme exchange, allowing the club to receive support for development equipment, funding, and internship resources.
- Led team developed a cognitive training app for the elderly to help them practice mental exercises to prevent dementia.

Tsinghua University Student Union, Member of Sport and Recreation Department Aug 2019 - Aug 2020
- Organized basketball games and planned a promotional campaign for graduation music festivals.