Bob Tianqi Wei ("Tyan-Chi", he/they)

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Education

University of California at Berkeley, College of Engineering, CA, USA — Aug 2023 – Dec 2024
M.Des in Human-Computer Interaction — GPA: 3.662/4

- 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, Dept. of Industrial Design, Academy of Arts and Design, Beijing, China — Aug 2019 – Jun 2023
B.A. in Industrial and Product Design — GPA: 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)

Research & Professional 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 work, voice acting, and interactive learning environments, combining quantitative analysis with qualitative studies.
- Developed web-based interfaces and prototypes using JavaScript and HTML for human-AI interaction experiments.

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

- 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 human-computer interaction 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

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

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

ACM Conference on Fairness, Accountability, and Transparency (FAccT) 2025, PAPER UNDER REVIEW

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

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

Projects

EKPHRASIS Sep 2024 - Present

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

- Through a mixed-methods approach combining expert interviews, professional designer dataset collection, and machine learning, we developed an AI-enabled educational platform that facilitates students' acquisition of tacit design knowledge through structured, iterative chess-like practice.

Flexible Electroosmotic Pumps Sep 2024 - Present

Tianyu Yu, Bob Tianqi Wei, Lining Yao

- FlexEOP is a method to create flexible electroosmotic pumps that are fully composed of flexible materials, facilitating shape-changing actuators with high flexibility and self-containment. We demonstrated the design space of FlexEOP, including shapechanging display on flexible strips, panels, and curved surfaces, and a novel design of soft robotic fiber. We envision future applications including wearable tactile devices, curved shapechanging displays, and multi-degree-of-freedom self-contained soft robotics.

Investigating the Impact of Responsive Feedback on the Experience of Learning to Conduct with Sympathetic Orchestra Jan 2024 - Present

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

- Designed and implemented Sympathetic Orchestra, an interactive conducting education system using hand-tracking technology to provide real-time responsive musical feedback for conducting students
- Led empirical research comparing learning outcomes between traditional methods and the interactive system, analyzing performance parameters including phrasing, modulation, and interpretation.

Teaching Experience

UC Berkeley, INFO 213: Introduction to User Experience Design, Graduate Student Instructor (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, Graduate Student Instructor (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, Graduate Student Instructor (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 for High School Students, 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

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, Demonstration 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 Award, Tsinghua University Jan 2023

Social Work Excellence Award, Tsinghua University Dec 2020

Award for Excellence in Literature and Art, Tsinghua University Nov 2022

Award for Excellence in Literature and Art, Tsinghua University Dec 2021

Award for Excellence in Literature and Art, Tsinghua University Dec 2020

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.

Skills

Languages: Mandarin Chinese (Native), English (TOEFL 110), Japanese (Fluent)

Programming: C++, Java, Python, MATLAB, Processing, JavaScript, HTML, Max MSP

CAD: Rhinoceros, Grasshopper, Solidworks, AutoCAD, KeyShot, Autodesk Fusion 360

Software: Figma, Microsoft Office, Adobe Photoshop, Adobe InDesign, Logic Pro, Final Cut Pro

Skills: Mechanical Design, Digital Fabrication, Prototyping with Embedded Systems, Music Production

Hobbies: Photography, Musical, Watercolor, Badminton, Cooking, Palmistry, FengShui