Tianyu Yu

+8618801002198 | yty21@mails.tsinghua.edu.cn | Portfolio Website | Google Scholar

EDUCATION

Tsinghua University, Beijing, China

🏆 *Outstanding Undergraduate Awards (Top 1%), GPA: 3.9/4.0 (1/13).*

I was enrolled in a 5-year interdisciplinary undergraduate program of Creative Design and Intelligent Engineering, where we took courses from Electrical Engineering and Computer Science (main part), Mechanical Engineering, and Industrial Design, awarded with the following two bachelor degrees.

Bachelor of Engineering in Automation   08/2016 – 07/2021

- Core Courses: Foundation of Artificial Intelligence (A), Data Structures(A-), Signals and System Analysis (A), Digital Electronics (A), Operations Research (A), Fundamentals of Mechanical Design (A), Mechanical Materials (A)

Bachelor of Fine Arts in Product Design   08/2016 – 07/2021

- Core Courses: Product Design (A), Interaction Technology for Smart Device (A), User Experience Design (A)

Minor in Musical Engineering and Technology   08/2018 – 07/2021

Tsinghua University, Beijing, China

Master in Information and Art Design   08/2021 – Present

RESEARCH EXPERIENCES

Research interests: physical interface, computational design and fabrication, human-computer interaction

Future Lab, Tsinghua University   07/2021 – Present

Research assistant | Advisor: Prof. Haipeng Mi, Prof. Yingqing Xu

- Led the project of *Themotion* (CHI '23), which explored a novel color-changing interface, using thermofluidic composites to create animation effects on two and three-dimensional surfaces and everyday material surfaces.

HCI Engineering Group, CSAIL, MIT   07/2023 – 10/2023

Visiting Student | Advisor: Stefanie Mueller

- Proposed the ongoing project of *Thermaterial*, which focused on sustainable thermal interfaces using tunable thermal-conductive materials to design and leverage ambient heat transfer.

Morphing Matter Lab, Carnegie Mellon University   03/2022 – 05/2023

Research assistant | Advisor: Prof. Lining Yao, Dr. Qiuyu Lu

- Worked on the project of *Sustainflatable* (UIST'23 🥇), which focused on an energy-harvesting non-electrical pneumatic interface, with programmable inflating response to long-term environmental changes enabled by dynamic materials.

Pervasive HCI Group, Department of Computer Science, Tsinghua University   03/2020 – 10/2020

Research assistant | Advisor: Prof. Chun Yu, Prof. Yuanchun Shi

- Co-led the projects of *Tactile Compass* (CHI '21) and *LightGuide* (IMWUT '21), which focused on two novel tangible interfaces (a tactile and a luminous navigation device) for navigation tasks for visual-impaired people.

Tangible Media Group, Media Lab, MIT   07/2019 – 10/2019

Visiting student | Advisor: Prof. Hiroshi Ishii, Hila Mor

- Worked on the project of *Venous material* (CHI '20), which focused on a self-contained interactive microfluidic display, responsive to external pressure and deformation.

Selected Publication

[1] **Tianyu Yu,** Weiye Xu, Haiqing Xu, Guanhong Liu, Chang Liu, Guanyun Wang, and Haipeng Mi. 2023. Thermotion: Design and Fabrication of Thermofluidic Composites for Animation Effects on Object Surfaces. *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* **(CHI '23)**.

[2] Guanhong Liu*, **Tianyu Yu* (equally contribute)**, Chun Yu, Haiqing Xu, Shuchang Xu, Ciyuan Yang, Feng Wang, Haipeng Mi, and Yuanchun Shi. 2021. Tactile Compass: Enabling Visually Impaired People to Follow a Path with Continuous Directional Feedback. *In Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* **(CHI '21)**.

[3] Qiuyu Lu, **Tianyu Yu**, Semina Yi, Yuran Ding, Haipeng Mi, Lining Yao. Sustainflatable: Harvesting, Storing and Utilizing Ambient Energy for Pneumatic Shape-changing Interfaces. *Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology* **(UIST '23)**. 🥇Best Paper Honorable Mention

[4] Hila Mor, **Tianyu Yu**, Ken Nakagaki, Benjamin Harvey Miller, Yichen Jia, and Hiroshi Ishii. 2020. Venous Materials: Towards Interactive Fluidic Mechanisms. *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* **(CHI '20)**.

[5]   Ciyuan Yang*, Shuchang Xu* (equally contribute), **Tianyu Yu**, Guanhong Liu, Chun Yu, and Yuanchun Shi. 2021. LightGuide: Directing Visually Impaired People along a Path Using Light Cues. *Proc. ACM Interact. Mob. Wearable Ubiquitous Technol* **(IMWUT '21)**.

[6]   Guanhong Liu, Xianghua (Sharon) Ding, Jinghe Cai, Weiyun Wang, Xinyue Wang, Yuting Diao, Jin Chen, **Tianyu Yu**, Haiqing Xu, and Haipeng Mi. Digital Making for Inheritance and Enlivening Intangible Cultural Heritage: A Case of Hairy Monkey Handicrafts. *In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* **(CHI '23)**.

AWARDS

• UIST 2023 Best Paper Honorable Mention	11/2023
• Tsinghua University Outstanding Undergraduate Award (Top 1%)	06/2021
• Tsinghua University Outstanding Undergraduate Thesis Project	06/2021
• National Scholarship	10/2023, 10/2019
• Tsinghua University Overall Excellence Scholarship	10/2020, 10/2019, 10/2018, 10/2017
• Honorable Mention in 2019 Mathematical Contest in Modeling	02/2019
• First Prize in the 34th Parts of the National College Students Physics Competition	12/2017

SKILLS

- CS: basic AI methods, Python, C++, C#, Qt, MATLAB, HTML, JavaScript.
- EE: Arduino, circuit design, Verilog, hydraulic & pneumatic hardware.
- Design: Grasshopper, Rhino, AutoCAD, Solidworks, Keyshot, Adobe suit.
- Mechanical design and fabrication: 3D printing, laser cutting, CNC, silicone casting, heat sealing, block printing.
- Music performance: piano, saxophone, arrangement.

OTHER EXPERIENCES

Teaching, Leadership, and Service Experiences

UIST 2023 Student Volunteer   **11/2023**
- Student Volunteer Captain on Day 2. Organized work for paper session, poster session, and banquet in Exploratorium.

Guidance Counselor of Undergraduate Students   **09/2021 – Present**
- Served as the guidance counselor of the 2021 undergraduate students in Xinya College, Tsinghua. Give advice and assistance in academic and mental development.

Core Member of Xinya Chamber Orchestra   **10/2018 - 08/2020**
- Arranged two symphonic works for the chamber orchestra. Organized, rehearsed, and attended for shows in college celebration gala. Served as conductor and saxophone player.

Industrial and Design Experiences

Mercedes Benz, Beijing & Future Lab, Tsinghua   **11/2022 – Present**
Group leader | Project: Towards Sustainable Car Interior Design with Smart Interactive Material
- Design and fabricate the high-fidelity demo for interior design with interactive materials.
- Desk research on interactive materials in HCI, including textile sensor, smart materials, 4D materials, dynamic materials e.g., shape/color/texture-changing materials.

Tsinghua Undergraduate Graduation Project, Tsinghua   **02/2021 – 06/2021**
Project: A Tangible Music Instrument Design Based on Chinese Traditional Pentatonic Melody |
Advisor: Prof. Lei Zhang, Prof. Hong Wang, and Prof. Haipeng Mi
- 🏆 Tsinghua Outstanding Undergraduate Thesis Project, Finalists Award in 2021 Asia Digital Art Award FUKUOKA
- Developed the concept of composing Chinese traditional pentatonic melody by placing the pieces on a "scale-time" two-dimensional chessboard, where each piece presents a typical pentatonic phrase.
- Product design and demonstration, industrial design, mechanical design. High-fidelity functional prototype development, embedded hardware development, magnetic sensing array development.

Tencent Interactive Entertainment, Beijing   **08/2018**
Team Leader | Project: An AR Game Design for Dunhuang Murals Exploration
- Designed an online AR game based on gesture interaction, which lets users imitate a set of artistic gesture images captured from Dunhuang Murals. Conducted the concept design and UI frame programming with HTML5 and JavaScript.

REMO AI, Shenzhen   **06/2018 – 08/2018**
Research Intern
- Worked on the test and development of an intelligent camera which can track faces and adjust postures.