

Yuehang Lin

HCI/VR/Haptics Researcher | Interdisciplinary Research Engineer

Birmingham, UK | +44 7903105654 | inkofpluto@gmail.com | LinkedIn | GitHub

A highly effective Interdisciplinary (Maths, English, Computer Science) Research Engineer specializing in VR, Haptics, and Human-Computer Interaction (HCI). I possess a holistic, data-driven skill set spanning the entire research pipeline: from high-fidelity simulation (Unity, C#) and hardware prototyping (Fusion 360, sensors) to rigorous experimental evaluation. My core expertise lies in translating complex research problems into reliable, scalable, and cross-disciplinary interactive systems, and I am recognized as a fast learner who adapts quickly to new tools and domains.

EDUCATION

(MSc) Advanced Computer Science University of Birmingham (QS World Ranking: 76)	Sept 2024 - Dec 2025
(BSc) Information & Computing Science Taiyuan University of Technology (211 Project)	Sept 2017 - June 2021
(BA) English (Dual Degree) Taiyuan University of Technology (211 Project)	Sept 2019 - June 2021

RESEARCH EXPERIENCE

Research Project:

Haptic Slip Rendering for Improved Grasp Stability in VR Teleoperation (MSc Thesis) Supervised by Prof. Eyal Ofek

- Pioneered the Haptic Grasp VR teleoperation system, delivering localized, directional haptic slip feedback to address a critical gap in stable robotic manipulation cues.
- Engineered an end-to-end real-time VR-haptics closed-loop pipeline (Unity/C#, custom hardware) and conducted a rigorous controlled study (N=21), analyzing over 2 million frames of interaction data.
- Critically demonstrated performance gains: Participants achieved their first successful grasp ~30% faster ($p=0.001$) with haptic cues. The Haptic condition alone reduced angular error from a $\sim 45^\circ$ plateau to $\sim 18^\circ$ by the 5th attempt.
- Validated significant subjective benefits: Multimodal feedback enhanced user confidence and clarity, achieving mean subjective ratings >6 (vs. ~ 4.5 unimodal conditions), confirming the system's perceptual value.

Research Assistant:

University of Birmingham – VR Lab (RemoteHapticGrasp) Jun 2025 - Sep 2025, Birmingham, UK

- Served as a core contributor to the RemoteHapticGrasp project, focusing on enhancing robotic teleoperation through directional slip cues with the utmost scientific rigor (as confirmed by the certificate).
- Designed the system architecture and implemented real-time interaction code, successfully engineering the hardware-software link between the Unity VR simulation and external haptic devices.
- Co-designed user study protocols and data collection modules, collecting interaction frames data to quantitatively assess grasp stability and the perceptual benefits of the novel feedback.

Research Assistant:

OBI Robotics Limited | Research Assistant Dec 2024 - May 2025, Birmingham, UK

- Accelerated haptic research cycles by rapidly mastering Unity and Fusion 360 to develop high-fidelity simulation environments and sensor-based prototypes, reducing prototype iteration time by $\sim 40\%$.
- Led hardware engineering for the “Crystal MaNia” interactive art installation, bridging abstract artistic concepts with robust HCI design. Specifically, modeled and integrated multi-axis sensor prototypes to control sound processes through crystal manipulation.
- Contributed to remote robotic grasping and haptic rendering projects by providing cross-disciplinary support, implementing reliable software modules (C#/Python) and robust hardware interfaces essential for long-term experimental validation.

PUBLICATIONS, THESIS, AND MANUSCRIPTS IN PREPARATION

Master's Thesis

Haptic Slip Rendering for Improved Grasp Stability in VR Teleoperation

(Supervisor: Eyal Ofek, University of Birmingham, 2025)

Manuscripts in Preparation / Working Papers

Remote HapticGrasp: Remote Robot Grip Guidance using Haptic Rendering
Yuehang Lin, Daniele Giunchi, Diar Abdolkarim, Massimiliano Di Luca, Eyal Ofek.
Status: Working Paper. Initial version intended for submission to a top-tier HCI conference (e.g., CHI/UIST). Research is currently being extended to robotic hardware integration for future publication.

TECHNICAL SKILLS

- I. Immersive Prototyping & Software:** Unity (C#), Virtual Reality (VR), AR/VR SDKs (e.g., OpenXR), Real-Time Physics Simulation, Visual Studio, Git/GitHub/GitLab, Version Control.
- II. Haptics & Hardware Engineering:** Arduino IDE/Microcontrollers (e.g., Nano 33 BLE), Sensor & Actuator Integration, Fusion 360 (3D Modeling), 3D Printing (FDM), Circuit Soldering, Hardware-Software Integration, Serial/BLE Communication.
- III. Research & Data Analysis:** User Study Design (Controlled Experimentation), Quantitative Data Analysis, Statistical Testing, Colab, Python (Pandas, NumPy, Matplotlib), Edge Impulse (ML Model Deployment), LaTeX/Overleaf.
- IV. Core Programming & Web:** C#, Python, Java, HTML, Flutter (Mobile/IoT UI).

PROJECTS

Crystal Music Control Installation Interactive Art Project	Jan 2025 - Present
<ul style="list-style-type: none">Designed sensor-based interactive modules (joystick, rotation, pressure) for artistic installations.Collaborated with artist Cristiana Palandri to translate abstract artistic concepts into functional interactive prototypes.Ensured stable performance in public exhibitions with modular, reusable design.	
Fall8 IoT-based Fall Detection System	Feb 2025 - May 2025
<ul style="list-style-type: none">Developed a prototype IoT Fall Detection System using Arduino 33 Nano with BLE and a Flutter mobile app to provide immediate alerts for elderly patients.Employed the Edge Impulse platform to collect sensor data and deploy a machine learning model for robust fall detection, achieving an accuracy of 95%.	
VitaFit Health Management App Concept	Oct 2024 - Dec 2024
<ul style="list-style-type: none">Designed modules for health data collection, goal setting, and personalized recommendations.Delivered UI prototypes focused on simplicity and usability, supporting future AI-driven features.	
Interactive Learning Platform for Vocational Chinese	Jan 2024 - Aug 2024
<ul style="list-style-type: none">Built platform architecture and interactive modules for content browsing, learning, and file management.Implemented segmented learning mechanism, boosting course completion rate by 50%.Developed progress tracking and reminders, increasing task completion rate by 40%.	

LEADERSHIP & CAMPUS EXPERIENCE

President, TYUT Dream Wings Roller Skating Association	Sept 2018 - Sept 2019
<ul style="list-style-type: none">Led 300+ members, organized skating festivals and large-scale events, improving community influence and cohesion.	
President, Student Union, Xuzhou No.1 High School.	Sept 2015 - Sept 2016
Head of Discipline Department, Student Union, Xuzhou Xiexiu Junior High School.	Sept 2012 - Sept 2013