**Yuehang Lin**

**HCI/VR/Haptics Researcher | Interdisciplinary Research Engineer**

Birmingham, UK | +44 7903105654 | [inkofpluto@gmail.com](mailto: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 ~ 45∘plateau to ~18∘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 ~ 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 Abdlkarim, 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**

* 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**

* 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**

* 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**

* 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**

* 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**