# Qi-Long Liu

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Google Scholar ORCID GitHub Homepage

## Research interests

3D computer vision; 4D scene reconstruction; Dense motion tracking; Spectral learning w/ deep functional maps network (FMNet); Human-computer interaction; AI for healthcare.

## Education

**The Hong Kong Polytechnic University** Sep 2021 – Feb 2024
*Master of Philosophy, Laboratory for Artificial Intelligence in Design (AiDLab)* *Hong Kong, China*
*Supervised by Prof. Kit-lun Yick*
*Co-supervised by Prof. Joanne Yip and Dr. Yue Sun*

**Shenzhen University** Sep 2017 – Jul 2021
*Bachelor of Engineering, School of Biomedical Engineering* *Shenzhen, China*
*Supervised by Dr. Yongjin Zhou*

## Awards

**The Hong Kong Polytechnic University Research Studentship** 2021 – 2023
*The Hong Kong Polytechnic University*

**Star of Double Innovations (Group Award)** 2021
*Third Prize, Shenzhen University*

**National College Students Biomedical Engineering Innovation Design Competition** 2019
*Third Prize*

**National College Students Electronic Design Competition** 2019
*Third Prize in Guangdong Province*

## Publications

### Journal

**Qi-Long Liu**, Kit-Lun Yick, Yue Sun, and Joanne Yip. Ultra-dense motion capture: an exploratory full-automatic approach for dense tracking of breast motion in 4d. *PLoS One*, 19(2):e0299040, 2024 (*JCR Q1, IF 2.9*)

Li-Ying Zhang, Ze-Qi Ma, Kit-Lun Yick, Pui-Ling Li, Joanne Yip, Sun-Pui Ng, and **Qi-Long Liu**. Prediction of dynamic plantar pressure from insole intervention for diabetic patients based on patch-based multilayer perceptron with localization embedding. *IEEE Access*, 2024 (*JCR Q2, IF 3.4*)

Jia-Zhen Chen, Yue Sun, **Qi-Long Liu**, Joanne Yip, and Kit lun Yick. Construction of multi-component finite element model to predict biomechanical behaviour of breasts during running and quantification of the stiffness impact of internal structure. *Biomechanics and Modeling in Mechanobiology*, 2024 (*JCR Q2, IF 3.0*)

Xi Chen, **Qi-Long Liu**, Lei Dong, Hu Tang, Tian-Fu Wang, and Si-Ping Chen. Construction of experimental teaching system of biomedical engineering for demand of industry. 2020 (PKU Core, IF 1.7)

**Conference**

**Qi-Long Liu**, Kit-Lun Yick, Kam-Ching Chan, Sin-Tung Wong, and Sun-Pui Ng. Sports bra pressure: effect on core body temperature and comfort sensation. In *Ergonomics In Design*. AHFE International, 2022

**Thesis**

**Qi-Long Liu**. Ultra-dense motion capture algorithm for breast biomechanical modelling in design of sports bras. *MPhil thesis, The Hong Kong Polytechnic University*, 2024

## Work & research experience

**The Hong Kong Polytechnic University** Sep 2023 – Present
*Research Assistant (full-time)* *Hong Kong, China*
*Supervised by Prof. Kit-lun Yick*
*3D/4D scene reconstruction/understanding, dense motion tracking, and human pose analysis*

**Shenzhen Base of The Hong Kong Polytechnic University** Dec 2020 – Jun 2021
*Student Assistant (part-time) for Prof. Kit-lun Yick* *Shenzhen, Guangdong, China*
*Supervised by Prof. Kit-lun Yick*
*3D/4D scanning data cleansing, labelling, and processing*

**Shenzhen Zhishixinyun Educational Technology Ltd.** Nov 2019 – Mar 2020
*Cofounder and Python tutorial lecturer* *Shenzhen, Guangdong, China*
*A campus startup that aims at providing short-term STEM and arts tutorials for college students*

## Open-source projects *(selected)*

**mesh4d** 2023
*Toolkit for 4D (3D + T) data visualisation, operation, and dynamic estimation* *Link*

**PaperThread** 2023
*Visualize papers' relations as threads* *Link*

**FEcluster** 2023
*Distribute FE simulation tasks across multiple computers via SSH* *Link*

**qilong-liu.vercel.app** 2023
*Minimalist personal blog site based on Next.js and Tailwind* *Link*

**pedarProbe** 2022
*Data analysis framework for pedar plantar pressure sensor* *Link*

**Beamer-LaTeX-Themes** 2022
*Customized beamer templates for PolyU, SZU, and more* *Link*

## Skill set

**Languages**
English (fluent); Mandarin (native); Cantonese (native)

**Programming**
PyTorch & Python (seasoned); JavaScript (intermediate); Bash shell scripting (intermediate); C/C++ (basic); Matlab (intermediate)

**Others**
LaTeX (seasoned); TikZ (intermediate); Git (seasoned); Docker (basic); Next.js (seasoned); Sphinx (seasoned)