Qi-Long Liu

qilong-kirov.liu@connect.polyu.hk

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 (*QS #57*) 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 (*ARWU #151–200*) Sep 2017 – Jul 2021
Bachelor of Engineering, School of Biomedical Engineering (*ARWU #24*) *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 & Node.js & CSS & HTML (seasoned); LLM w/ OpenAI API (seasoned); Bash shell scripting (intermediate); C/C++ (basic); Matlab (intermediate)

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