



The University of Hong Kong
Technology Transfer Office



VERSITECH LTD.
The University Technology Transfer Company

Techxfer

TTO NEWSLETTER

2023
ISSUE 29

Success Story

- AI-powered movement detection technology can improve sports performance and boost security (Developed by HKUIT)

Event Highlights

- 2022 InnoTech Expo
- Webinar | MIT Sandbox for Student Start-ups
- Webinar | Effective IP Strategies for Protecting/Using Technical Innovations

Latest Patents Filings

Progress Updates

Technology Commercialisation



HKU Technology Transfer Office



HKU Technology Transfer Office

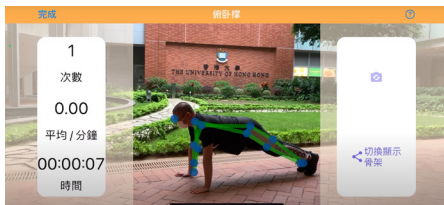


HKUTTO

SUCCESS STORY

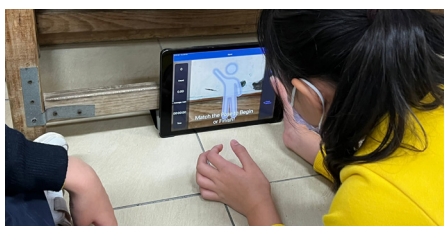
AI-powered movement detection technology can improve sports performance and boost security

New technology based on AI, deep learning and cameras can analyse movement to help professional and amateur athletes improve their performance and detect abnormal situations



RoboCoach sport exercise mode

A new AI-powered RoboCoach can help sports professionals and amateurs improve their performance by analysing their movements in detail. RoboCoach uses the Human Pose Estimation Technology embedded in the Drowning Detection System to identify 13 different skeletal nodes of the human body and monitor their movements in real time.



A student using RoboCoach App in PE Lesson

The technology can be used in swimming coaching, among other sports, where cameras positioned underwater can capture precise body movements in diving and swimming postures. Coach and swimmer can then watch the videos in slow motion to identify exactly how performance can be improved. The postures can also be compared with winning performances to identify the best positions for the swimmer to emulate to help them improve their performance and speed.

The system is being improved to enhance its outcomes. For example, sunlight reflection under the water

creates shadows and the AI is being fed more data to teach it to distinguish shadows from human bodies. Adding swimming posture data from a wider range of swimmers is also needed to improve the analysis programme for swimming training to allow the system to differentiate between good and bad swimming practices.



A visitor experiencing the RoboCoach App to analyze his performance at InnoCarnival 2022

The Human Pose Estimation Technology system proved its worth as a personal coach during the pandemic, when practitioners of yoga and golf could use it to hone their skills at home. In yoga, RoboCoach can assess how closely the learner's pose is aligned with the teacher's. In golf, RoboCoach has been developed as a mobile app that captures the golfer's movements through the camera on a mobile phone. The technology's body-mapping ability can measure and analyse a golfer's swing, and then provide personalised feedback to identify flaws and help the golfer improve their performance.

RoboCoach was awarded the Smart People Silver Award at the Hong Kong Information and Communication Awards and has also won several international awards and secured funding from sources including Cyberport and Science Park.



Dr. Wilton Fok and researchers in the Sport AI Laboratory awarded the HK Information and Communication Technology Award (HKICT Award) – Silver Award

Dr Fok and his team have developed other related products and technology in addition to RoboCoach. These include the AI posture analysis and anti-drowning system, a video technology that uses AI and deep learning to analyse abnormal situations. It has a wide range of applications including drowning detection, mass event security assurance and child and pedestrian safety. As well as enhancing safety and service quality, the AI abnormality detection technology can also be used to help ensure better use of manpower.

These technologies were invented by Dr Wilton Fok and his research team at the Department of Electrical and Electronic Engineering. They were commercialised by the Hong Kong Universal Intelligence Technology Company, a start-up founded by HKU EEE graduates and specialising in artificial intelligence.

The TTO helped with the company's intellectual property application, technology licencing, arranging media interviews for Dr Wilton and HKUIT, as well as selecting this invention to showcase as one of HKU's creative technologies at InnoCarnival 2022.

© The University of Hong Kong. All rights reserved.

IP00918 Methods of saving UAV's nergy consumption and improving its hovering accuracy | Dr ZHANG Fu CN-PCT filed on 1 Nov 2022

IP01111A 多层及高层混凝土模块化组合建筑的水平连接结构及建造方法 | Prof. PAN Wei CN filed on 3 Nov 2022

IP01286 Deep Learning Model for Diagnosis of Hepatocellular Carcinoma on Non-Contrast Computed Tomography |PENG Chengzhi USP 63/382,198 filed on 3 Nov 2022

IP01233 Cost-effective keratin-based surgical mask with high SARS-CoV-2 Omicron neutralisation ability | Prof. Huang Jian-Dong HK Short Term 32022063043.0 filed on 1 Nov 2022

IP00910 Dense 3d Modelling Method for Ifc BIM Object Production From Rgbd Videos | Mr YIN Mengtian MY P12022006129 filed on 1 Nov 2022

IP00910 Dense 3d Modelling Method for Ifc BIM Object Production From Rgbd Videos | Mr YIN Mengtian CN-PCT filed on 3 Nov 2022

IP01110 System and methods for ultrafast widefield quantum sensing using neuromorphic vision sensors | Dr. CHU Zhiqin PCT/CN2022/129840 filed on 4 Nov 2022

IP01262 GROUND SURFACE MULTI-MODAL INSPECTION ROBOT | Prof. XI Ning USP 63/423,226 filed on 7 Nov 2022

IP01273 Self-synchronization of reinjected droplets for high-efficiency droplet pairing and merging | Prof. SHUM Ho Cheung 63/423,640 filed on 8 Nov 2022

IP01107 Nano robotic system for high throughput single cell DNA sequencing | Prof. XI Ning CN filed on 8 Nov 2022

IP00962 Compositions and Methods for Broad Spectrum Anti-viral Therapy | Dr YUAN Shuofeng CN-PCT filed on 11 Nov 2022

IP01127 Evaporation Strategy Generated Antibacterial Enamel-Like Fluorapatite-Polyacrylic Acid Sheet for Functional Dental Restoration | Dr. WONG Hai Ming USR 18/053,856 filed on 9 Nov 2022

IP01293 Active enzyme-loaded digital droplet as the in vitro model for investigating the interactions between enzymatic reaction and Aqueous Two-phase System | CAO Yang USP 63/383,279 filed on 11 Nov 2022

IP00824 Luminescent Tetradentate Ligand-Containing Gold (III) Compounds for Organic Light-Emitting Devices and Their Preparation | Prof YAM Wing-Wah, Vivian US Divisional 18/054,239 filed on 10 Nov 2022

IP01124 AN 800 MPA GRADE STEEL BAR AND PRODUCTION METHOD THEREOF | Prof. HUANG Mingxin USR 17/980,888 filed on 4 Nov 2022

IP01128 Humanized Monoclonal Antibody for Restoring Dysfunctional Human T and B Cells Against Cancer and Viral Infection | Prof. CHEN Zhiwei (Microbiology) PCT/CN2022/132000 filed on 15 Nov 2022

IP01220 一种A-FABP 中和单克隆抗体及其制备方法和用途 | Dr. Ruby Hoo (Medicine) CN 202211439397.5 filed on 17 Nov 2022

IP00966 An Antibacterial and Antiviral Copper-Containing Stainless Steel and Preparation and Use Thereof | Prof. HUANG, Mingxin (ME) HKSTD 42022054306.0 filed on 17 Nov 2022

IP01123 D10 metal carbene complexes for OLED applications | Prof. CHE Chi-Ming (Chemistry) US 18/057,632 filed on 21 Nov 2022

IP01123 D10 metal carbene complexes for OLED applications | Prof. CHE Chi-Ming (Chemistry) PCT/CN2022/133671 filed on 23 Nov 2022

IP01123 D10 metal carbene complexes for OLED applications | Prof. CHE Chi-Ming (Chemistry) CN filed on 23 Nov 2022

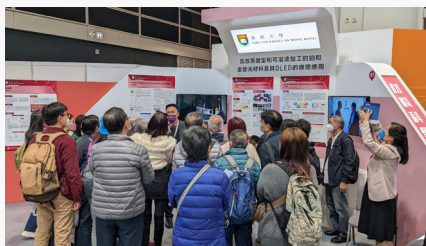
IP01130 Nucleic Acid Molecules of CoV and Compositions and Methods of Use Thereof |Prof YUEN Kwok Yung (Microbiology) CN filed on 23 Nov 2022

IP01230 一种具有保肝解酒作用的中药组合物及其制备方法与应用 | Prof. FENG Yibin (Chinese Med) CN 202211490666.0 filed on 25 Nov 2022

IP00992 Surgery Device with Patient-Specific Fibula Malleolus Cap | Dr. SU, Yuxiong (Dentistry) HK (CN) 42022064733.3 filed on 25 Nov 2022

EVENT HIGHLIGHTS

A total of 10 HKU projects were showcased at the **2022 InnoTech Expo**, a 10-day exhibition organised by the Our Hong Kong Foundation and held at the Hong Kong Convention and Exhibition Center from December 12-22.



A webinar entitled "Teaching Entrepreneurship by Doing: MIT Sandbox for Student Start-ups" was held on December 8 to give student innovators help and ideas for starting a new company.



The TTO hosted a Zoom webinar presented by Mr Victor Tse of Bird & Bird on December 1 on **Effective IP Strategies for Protecting/Using Technical Innovations**.



PROGRESS UPDATES

The Legal Team handled 121 cases in November and completed 58 cases.

The IP Team filed 37 USP/PCT national applications this month, up from 25 in the same month last year. They handled 79 other matters, a large increase on the 17 handled last year.

The BD Team had 126 cases in hand in November, up from 77 in November 2021. These include 39 Entrepreneurship and Start-up Company Support cases, a notable rise on the 8 such cases last year.

TECHNOLOGY COMMERCIALISATION

List of technologies Licensed in November 2022

Title	IP Types	PI	Faculty
Development and application of antibody and antigen-based ELISA assays for diagnosing Talaromyces marneffeii infection	Vietnam Application No. 1-2022-05613 PRC Application No. 202080098242.2 US Application No. 17/930,919	Prof. KY Yuen	Medicine

Top 3 revenue-booked IP in November 2022

Title	IP Types	PI	Faculty
Development and application of antibody and antigen-based ELISA assays for diagnosing Talaromyces marneffeii infection	Vietnam Application No. 1-2022-05613 PRC Application No. 202080098242.2 US Application No. 17/930,919	Prof. KY Yuen	Medicine
Kamei Chicken	Copyright/Know-how	N/A	Science
Study of Using AI for Social Media Analysis	Consultancy	Adela Lau	Statistics

TRANSFERRING YOUR NEW TECHNOLOGIES INTO BUSINESS OPPORTUNITIES

POLICY STIPULATION

The latest policy stipulates that the net receipts arising from the exploitation of an Invention are shared among the University, the relevant faculty/department and the inventor(s) in the ratio of 1/3 : 1/3 : 1/3. It aims to encourage the researchers at HKU not only to excel in academic performance but also to apply their technology for the benefits of mankind with an impressive reward.

HOW TO APPLY: 4 PHASES FOR RESEARCH PROJECTS

Phase 1: Initial project negotiation

1. PI will negotiate with their collaborator(s) and confirm a project proposal which includes the scope, budget and duration of the project.
2. PI will negotiate with their collaborator(s) and prepare a draft agreement (Agreement templates are available at the website of the Research Services (RS): <http://www.rss.hku.hk/contracts/contractresearch/templates>).

Phase 2: Endorsement from department/faculty

3. PI will submit the project proposal, the draft agreement, and the information form/grant application form to their department/faculty to seek an approval (The information form for research/consultancy agreements is available at: <http://intraweb.hku.hk/local/rss/tto/researchor-consultancy-agreements-form.doc>).
4. After obtaining the approval, PI will

submit the project proposal, the draft agreement, and the information form/grant application form to the Research Service (RS).

Phase 3: Financial legal/IP review

5. The RS will distribute the project proposal and the draft agreement to the Finance and Enterprises Office (FEO) for financial review and to the Technology Transfer Office (TTO) for legal review.
6. If there is any financial/legal issue, the FEO/TTO will inform PI through the RS. PI will negotiate with their collaborator(s) on the financial/legal issue until it is settled.

Phase 4: Signature and document archiving

7. After consolidating the settled project proposal and the agreement, the RS will proceed to the signature process.
8. After duly performing the signature process, the RS will assign the RCGAS number(s) for opening the project account(s)

ABOUT US

About HKUTTO

The Technology Transfer Office (TTO) is committed to maximising the impact of research through technology transfer at both the institutional and industrial levels. TTO works closely with researchers at HKU to commercialise their inventions through professional consultation on business development, legal advice and assistance, as well as patent application filings. Your inventions will not benefit society unless they are mass produced.

About Versitech

Versitech Limited is the commercial arm of HKU. Versitech negotiates, executes and manages commercial business contracts and agreements on behalf of the University.

CONTACT US

Acting Director

Prof. Max Shen
Email: vp-research@hku.hk

Deputy Director

Dr. Shawn Zhao
Email: xzhaogs@hku.hk

Senior Legal Counsel

Ms. Vivian Ng
Tel: 3917-3161
Email: vivian@tto.hku.hk

Manager, Business Development (Science & Engineering)

Ms. Laura Yu
Tel: 3917-3194
Email: laura@tto.hku.hk

Senior Manager, Business Development (Biotechnology)

Dr. Katherine Gan
Tel: 3917-3173
Email: katherine@tto.hku.hk

Intellectual Property Manager

Ms. Cindy Tung
Tel: 3917-3106
Email: cindytung@tto.hku.hk

Senior Manager, Finance and Administration

Ms. Joanne Cho
Tel: 3917-3177
Email: joanne@tto.hku.hk

Assistant Manager, Marketing & Event

Ms. Joy Ma
Tel: 3917-3105
Email: joy@tto.hku.hk

SHARE YOUR SUCCESS STORY

Feel free to send us your story at
ttto_marketing@tto.hku.hk