Techxfer

TTO NEWSLETTER

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WHAT'S IN THIS ISSUE

SUCCESS STORY

Using Technology to Monitor Movement and Save Lives

HONG KONG UNIVERSAL INTELLIGENT TECHNOLOGY LIMITED

ABSTRACT

New technology that combines machine learning with computer vision can now be used in swimming pools to save drowning victims. The technology can also be used to enhance training for swimmers, golfers and yoga practitioners.

When technology emerges from the laboratory that can be used to save lives, it's certainly worth celebrating. By combining machine learning with computer vision in a swimming pool setting, drowning victims can now be quickly spotted and saved. The technology can also be used to improve training for swimmers, golfers and yoga practitioners.

Hong Kong Universal Intelligent Technology Limited is the start-up company that is behind this and other AI-based solutions designed to improve sports safety and performance analysis. The start-up was founded by three graduates of the Department of Electrical and Electronic Engineering: MSc EEE graduates Carol Chen and Daniel Zhang and EE graduate Louis Chan. The trio based their offerings on AI technology licensed from HKU Versitech Ltd, one of their shareholders. The licensed technology was developed in a HKU project called "Artificial Intelligence for Drowning Detection and Swimmer Performance Analysis System", which was funded by the Innovation and Technology Fund for Better Living and led by Dr Wilton Fok.

Known as Smartswim drowning detection system, the technology can detect and help prevent drowning. The system alerts the lifeguard or others present to become aware of swimmers who are struggling below the water, often out of sight and whose plight might otherwise go undetected. The first step is to feed computers detailed data about body movements and positions. Swimmers are then monitored by cameras and when a combination of unusual movements indicates that the swimmer may be in difficulty, an alarm sounds to alert the lifeguard.

Drowning Detection System

The technology can also analyse movements to improve performance. In a sport where every millisecond counts, enhancing swimming performance often comes down to adjusting minute movements. Cameras located at intervals around the pool record the swimmer's dive, speed and movements and records movements of the swimmer's head, shoulders, hips, feet and other body parts as well as stroke frequency and arm span length. This data is fed into an onsite computer and once the swimmer emerges from the pool, he or she can track their performance on the computer. The coach can also evaluate the data, enabling them to track progress, monitor movements and decide where improvements can be made in a quick and efficient way.

Another application of the technology produced by the company is the Robocoach, which provides real time feedback on performance for yoga learners and golf players. Users can benefit by seeing how closely their poses and positions match those of the tutor, as well as how many calories they are using up.

IOS/Android Estimation Detection SDK

HKUTTO helped the company access the TSSSU@HKU funding scheme for successful HKU start-ups as well as helping them set up with iAXON, a new initiative supported by HK Science and Technology Park and HKU to strengthen the entrepreneurial eco-system in HKU. TTO also helped arrange media interviews, write press releases and social media posts to introduce the company and its technology to the public.

HKUTTO arrranged media interview for Hong Kong Universal Intelligent Technology Limited.

RECENT HIGHLIGHT

AWARDS NEWS

HKU won five gold and six silver medals at the Special Edition 2021 Inventions Geneva Evaluation Days Virtual Event. Held in March, the "Flu-based COVID-19 vaccine" won the prestigious Gold Medal with Congratulations of the Jury. The "Innovative Sewage Testing Tool for Sars-CoV-2" won a gold medal, with nine other inventions winning a total of three gold medals and six silver medals. About 600 inventions from 20 countries were evaluated in the competition, which is one of the most important global annual events exclusively for inventions.

LATEST PATENTS FILINGS
28 Feb 2021 – 14 Mar 2021

IP01035 Prof CHOY Chik Ho; EEE (US Provisional filed on 1 Mar 2021)
Flexible Transparent Electrodes of Silver Nanwires Sintered with Metal Oxide Nanoparticles

IP00937 Prof YUEN Kwok Yung; Microbiology (PCT filed on 2 Mar 2021)
Compositions of Anti-Viral Peptides and Methods of Use Thereof

IP00935 Prof CHEN Honglin; Microbiology (PCT filed on 2 Mar 2021)
Compositions Immunogenic Against SARS Coronavirus 2, Methods of Making, and Using Thereof

IP01001 Zhiqin Chu; EEE (US Provisional filed on 2 Mar 2021)
Methods and apparatus for on-chip quantum sensing using diamond integrated with monolithic LED

IP01022 Prof. WU Ed Xuekui; EEE (US Provisional filed on 3 Mar 2021)
Method for Enhanced Multi-slice Partial Fourier MRI Reconstruction Using Residual Network

IP00791 Prof YANG Dan; Chemistry (US regular filed on 5 Mar 2021)
Beta-Lactam Compounds And Methods of Use Thereof

IP01027 Prof HUANG Lixi; ME (CN utility model filed on 8 Mar 2021)
Mask designs with extra-ordinary breathability, speech intelligibility and transparency

SIRI00032 Prof CHE Chi Ming; Chemistry (Chinese invention application filed on 9 Mar 2021)
一種利用激基複合物和激基締合物的白光有機發光二極體

IP00830 Prof HUANG Mingxin; ME (HK Standard application filed on 9 Mar 2021)
In-situ decomposition assisted powder metallurgy to prepare antibacterial stainless steel

IP01013 Prof. HUI Shu Yuen; EEE (US Provisional filed on 10 Mar 2021)
A Bridgeless Single-Stage Single-Inductor Multiple-Octput (SIMO) AC-AC Converter Topology

IP00986 Dr. YU Leung Ho Philip; Statistics and Actuarial Science (US Provisional filed on 12 Mar 2021)
DenseNet-Based Model for Classification of Hepatocellular Carcinoma

WEBINARS

TTO held two Technology Transfer Primer webinars in March in partnership with Amazon Web Services to share basic knowledge about AWS services for researchers. More than 200 people signed up.

UPCOMING EVENTS

From April 19 to May 18, the TTO will host an online technology exhibition showcasing the most important technology patents owned by HKU.

scan to register

PROGRESS UPDATE

In February 2021, the total engagements and handling cases of 3 core teams - the business development (BD), intellectual property management (IPM) and the legal team - gained 14.4%, a year-on-year spurt that has won acclaim for TTO's supreme performance from our research community.

Total Engagement and Handling Cases

	2020	VS	2021
IPM	56		73
Legal	75		84
BD	78		82

TECHNOLOGY COMMERCIALIZATION

Technology licensed out in February

Technology licensed out in February	IP Type	Faculty
Sewage surveillance for COVID-19: testing methods, classification scheme, data interpretation and use	US Provisional Application No. 63/135,262 HK Application No. 32021024316.0 PCT Application No. PCT/CN2021/074675	Engineering

Technology Monetization

In February, HKUTTO has booked revenue from overall 11 licensed technologies. These technologies are mainly coming from the Faculty of Engineering and Faculty of Science.

Technology monetization highlights in Feburary	IP Type	Faculty
Sewage surveillance for COVID-19: testing methods, classification scheme, data interpretation and use	US Provisional Application No. 63/135,262 HK Application No. 32021024316.0 PCT Application No. PCT/CN2021/074675	Engineering
A DEPTH DISCONTINUITY-BASED METHOD FOR EFFICIENT INTRA CODING FOR DEPTH VIDEOS	US Patent No. 10,713,805 PRC Application No. 201680044839.2	Engineering
GLOBAL AND MAJOR OBJECT MOTION ESTIMATION, COMPENSATION AND EFFICIENT REALIZATION FOR DEPTH COMPRESSION	US Patent No. 10,453,207 PRC Application No. 201680044802.X	Engineering
A MULTI-OVERLAY VARIABLE SUPPORT AND ORDER KERNEL-BASED REPRESENTATION FOR IMAGE DEFORMATION AND VIEW SYNTHESIS	US Patent No. 10,742,954 PRC Application No. 201680044801.5	Engineering
AUXILIARY DATA FOR ARTIFACTS- AWARE VIEW SYNTHESIS	US Patent No. 10,404,961 Japan Application No. 2018-523453 PRC Application No. 201680078156.9	Engineering
SHAPE-ADAPTIVE MODEL-BASED CODEC FOR LOSSY AND LOSSLESS COMPRESSION OF BINARY IMAGES	US Patent No. 10,547,852 PRC Application No. 201780013263.8 Japan Application No. 2018-544483 EP Application No. 17755817.8 KOR Application No. 10-2018-7027805	Engineering

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) and archiving all the documents.

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 would not benefit the society until 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.

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SHARE YOUR SUCCESS STORY

Don't hesitate to share your succeed story with us, feel free to send us your story at **tto_marketing@tto.hku.hk**