



SUCCESS STORY

Robots for Disinfection

ABSTRACT

As robot technology advances, the tasks that robots can perform are expanding from heavy labour to more complex and intricate tasks that can help to assist, serve and protect humans.



(From left to right) Dr. Shawn Zhao (Deputy Director of HKU TTO) with Professor Xi Ning at the opening ceremony of InnoCarnival 2021

powerful way to disinfect contaminated surfaces such as stainless steel, plastic and paper. To make full use of its power, UV light needs to be directed within a few centimeters of the surface it is targeting, and the UV robot is able to do this quickly and efficiently using a level of UV power that is too strong for use by humans. The robot can also move unaided through crowded areas such as hotel lobbies and gyms to carry out its disinfection tasks without bumping into people or the need for supervision.

The robot is superior in many ways to previous UV based disinfection methods, which are typically either wall mounted or need to be positioned several meters away from the surfaces that need to be disinfected, which reduces the efficacy of the UV light.

The disinfection robot was developed by Professor Xi Ning, Chair Professor of Robotics and Automation and Director of the Advanced Technologies Institute, and his team. The robot is the result of years of work by the team in areas including automatic robot programming, autonomous navigation and obstacle avoidance, sensor-based robot control and novel electronic and mechanical designs for the robots.

The disinfection robot will be showcased that the forthcoming InnoCarnival 2021 to be held in the last week of October.

The TTO team was able to support Professor Xi's work by helping him with the patent application and arranging for the robot to be showcased at the InnoCarnival exhibition.

As well as being transmissible by air, COVID-19 can be passed on by touching contaminated surfaces. That has made cleaning and disinfection become regular tasks for everyone in the fight against the pandemic, but there are many large-scale cleaning tasks that are difficult for human hands to perform quickly, efficiently and repeatedly. A new disinfection robot can now help with that.

In public areas, the expanses that need to be disinfected are often very large, such as buses, libraries, and metro stations, and typically need to be cleaned regularly, an onerous and time-consuming task. The new robot works with ultraviolet light, which is a

Effective disinfection of public facilities 對公共設施進行有效消毒



LATEST PATENTS FILINGS

27 Aug 2021 - 25 Sep 2021

IP00828 Prof HUI Shu Yuen, Ron; EEE (CN application filed on 27 Aug 2021)

AC-to-DC and DC-to-AC Power Conversion

IP00828 Prof HUI Shu Yuen, Ron; EEE (US regular filed on 27 Aug 2021)

AC-to-DC and DC-to-AC Power Conversion

IP00825 Dr LIAN Qizhou; Medicine (US regular filed on 27 Aug 2021)

Recombinant Vectors Comprising Arylsulfatase A and Their Uses in Stem Cell Therapy for the Treatment of Metachromatic Leukodystrophy

IP01044 Prof YEH Anthony Garon; Urban Planning and Design (PCT filed on 30 Aug 2021)

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IP01105 Prof. YUEN Kwok Yung; Microbiology (US provisional filed on 31 Aug 2021)

Papain-like protease inhibitors for broad-spectrum coronaviruses inhibition

IP01092 Prof YUEN Kwok Yung; Microbiology (US provisional filed on 30 Aug 2021)

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IP00836 Prof LIU Pengtao; School of Biomedical Sciences (US regular filed on 2 Sep 2021)

In vitro production of expanded potential stem cells

IP00990 WOO Patrick Chiu Yat; Microbiology (US regular filed on 31 Aug 2021)

Development of competitive enzyme-linked immunosorbent assay (cELISA) for detection of Burkholderia mallei in various animals

IP01102 Dr. LUO Ping; CS (CN application filed on 8 Sep 2021)

一种端到端的视频时序动作提名生成算法

IP01103 Prof. YUE Zhong Qi, Quentin; Civil Engineering (HK short term filed on 10 Sep 2021)

Technology for turning public fill and in-situ weathered soils into construction and industrial

IP01106 Prof. YUEN Kwok Yung; Microbiology (US provisional filed on 10 Sep 2021)

Use of Xanthohumol for COVID-19 therapy

SIRI00041 Dr. Aleksandra DJURIŠIĆ; Physics (CN application filed on 14 Sep 2021)

原位环境箱和原位老化测试系统

IP01116 Prof. LI Victor O.K; EEE (US provisional filed on 17 Sep 2021)

Combination of repurposed Drug Candidates for Alzheimer's Disease

IP00865 Dr KWOK Ka Wai; ME (US regular filed on 16 Sep 2021)

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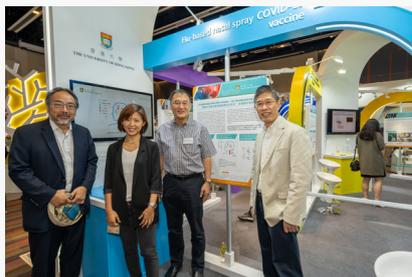
IP00833 Dr LI Xuechen; Chemistry (EP application filed on 24 Sep 2021)

Cyclic Compounds and Methods of Making and Using

EVENT HIGHLIGHTS

InnoCarnival 2021

InnoCarnival 2021 opened on October 23, launching a week of exhibitions and activities to showcase Hong Kong's most exciting innovations and inventions.



Dr Shawn Zhao, Deputy Director of the HKU Technology Transfer Office, attended the opening ceremony along with Financial Secretary Paul Chan, and introduced HKU's latest technologies and creative inventions.

With the theme of 'Innovate for a Bright Future', this year's carnival was a



combination of in-person and online events, including 145 workshops and 36 booths located at the Hong Kong Science Park, and 46 webinars. The carnival ended on October 31.

TSSSU@HKU 2022-2023

TSSSU@HKU 2022-2023
Total annual funding of **HK\$8M** for all the awardees. **HK\$100K - HK\$1.5M** for all the awardees.

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Eligibility
 ▶ Current faculty member of HKU
 ▶ Current student of HKU
 ▶ Graduate of HKU for no more than 5 years

Application Deadline:
26 NOV 2021 (FRI) | 5PM (HKT)

Webinars:
 30 SEP 17:30-18:00 (TUE) ZOOM
 29 OCT 17:30-18:00 (TUE) ZOOM
 8 OCT 17:30-18:00 (TUE) ZOOM

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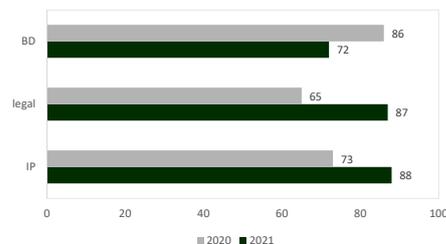
Closing date / Application deadline: **26 November 2021 (Friday) 5:00 pm (HKT)**

Call 2299 0111 or visit www.tto.hku.hk/public/tsssu/index.html for more details.

PROGRESS UPDATES

The BD team is now handling 86 cases, a substantial increase on the 72 it handled in September 2020, with increases in both internal and external engagements. Technology Commercialization and Industry Engagement rose to 62 this year compared with 49 a year ago, while Entrepreneurship and Start-up Company Support was 12, up from 7 a year ago. The Legal team opened 87 new cases this month and the IP team took on 21 new IDFs, 7 times the number handled in September 2020.

Total Engagements and Handling Cases



TECHNOLOGY COMMERCIALISATION

Top 3 revenue-booked IPs in September 2021

Item	IP Type	PI	Faculty
Land Use	Contract Research/Consultancy	Prof K W Chau	Architecture
Cadherin-17 as Diagnostic Marker and Therapeutic Target for Liver Cancer	US Patent No. 9,207,242; CN Patent No. ZL200980150076.X; EP Patent No. 2342568	Dr. John Luk	Medicine
Kamei Chicken	Copyright/Know-how		Science

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.

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