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SUCCESS STORY

MindPalace 3D Instant Reconstruction Device

A new real-time 3D mapping system is set to transform the real estate industry.

Dr Aaron Qin, CEO of Manifold Tech Limited
Dr Qin is PhD of HKU MaRS LAB and was the winner of the 2018 DJI ICRA AI Challenge and has over 5 years of experience in R&D and management field of robotics and drones.

MindPalace 3D Instant Reconstruction Device is a new invention that can generate building scans with real-time feedback quickly, accurately and cheaply. Built using real-time 3D mapping algorithms combined with advanced robotics technology, MindPalace is expected to drive huge changes in the real estate sector.

Construction is a complex process involving vast amounts of data, detailed planning and lengthy building processes with inputs from a multitude of parties. Switching to digitalized planning using this new technology leads to shorter work processes, streamlined planning and faster and more efficient inspection and approval processes. Using 3D technology and augmented reality to overlay plans on a site, for example, allows architects and engineers to quickly and almost effortlessly identify problems or errors, streamlining the building process.

The smart reconstruction technology takes just a few minutes to scan an entire building, including pipes and electric wires, eliminating the need for time-consuming manual measurements. In addition, the results achieved with the device are more accurate and efficient than those of its competitors. The technology's GPS works indoors as well as outdoors, and the easy to use software is cost-efficient and convenient to carry.

The technology is loaded on to a space camera, the MindPalace-360. MindPalace-360 can be used to host a wide range of apps that work with professional 3D modelling and can be used in a variety of fields including the entertainment industry, AEC (architecture, engineering and construction) industries, and for ESG (environmental, social and governance) purposes.

MindPalace-360
Coming soon and is available to pre-order

- State-of-the-art real-time 3D mapping algorithms and advanced robotics technology.
- Fast and accurate 3D reconstruction.
- Market-ready product.
- Real-time 3D model generation for entertainment, AEC, ESG, etc.

Adapting AR and other technologies has been possible for some time, but the cost has been prohibitive. MindPalace offers a solution that is effective, efficient and cheap. The technology is now packaged as a market-ready product and is available to pre-order.

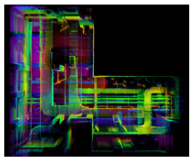
While its attributes are clearly useful for B2B users, the company intend to make it accessible for B2C use as well.

The invention was made by Manifold Tech Limited, a high-technology 3D photogrammetry and robotics company and a Hong Kong Science Park Incubation Programme start-up. The company founders are from the HKU MaRS Lab, which has a mission to make general mechatronic systems and robotics for practical, real-life use.

The invention won first place in algorithm framework at the Hilti SLAM Challenge for two consecutive years.

Applications

Metaverse



Industrial Digitalization

The TTO helped the research team file patents and copyright applications. TTO discussed commercialisation opportunities with the team when they launched the start-up, and encouraged them to join the TSSSU program to get seed funding support. At TTO's invitation, the team showcased their company and prototypes at InnoCarnival and InnoEx, and the TTO introduced investment and collaboration opportunities to the PI. Conversations with several major VC are ongoing.

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LATEST PATENTS FILINGS
1 Feb 2023 – 28 Feb 2023

IP01265 A deep learning based method to generate dental prothesis, Dr. TSOI James (Dentistry) USR 63/442,688, filed on 1 Feb 2023

IP00958 Methods for Automated Cloud-based Quantitative Assessment of Retinal Microvasculature Using Optical Coherence Tomography Angiography Images, Dr. CHIU, Kin CN filed on 3 Feb 2023

IP00963 Spiro-cyclometalated iridium emitters for OLED applications, Prof. CHE, Chi Ming CN-PCT filed on 6 Feb 2023

IP01283 Electroconductive hydrogel and devices with conducting polymers assembled around 3D nanofiber framework, Prof. Xu LIZHI (ME) USP 63/443,628 filed on 6 Feb 2023

IP01241 一种铝硅镀层热冲压成形构件及其制备方法和应用，Prof. Mingxin HUANG (ME) CN 202310085341. 2 filed on 9 Feb 2023

IP01159 Temperature-Insensitive MRI Permanent Magnet Designs, Prof WU Ed Xuekui CN filed on 10 Feb 2023

IP01287 A Composite System of Self-Healing Hydrogels and Methods Thereof,Prof. Kenneth Cheung USP 63/484,360 filed on 10 Feb 2023

IP00927 PD-1-Based Vaccines Against Coronavirus Infection, Prof. Zhiwei CHEN HK (CN) 62023068325.7 filed on 13 Feb 2023

IP01282 Engineered guide RNA scaffolds and methods thereof for enhanced genome editing, Dr. Alan WONG USP 63/484,902 filed on 14 Feb 2023

IP01271 Ultrastrong Aerogels Based on Aramid Nanofiber Composites and Membrane Devices Made therefrom, Dr. Xu LIZHI (ME) USR 18/169,722 filed on 15 Feb 2023

IP01310 Parallel Laser Line Scanning Device and Parallel Laser Line Scanning Method, Dr. SU Kai Leung (Civil Eng) HKST 32023068516.8 filed on 16 Feb 2023

IP01295 Compositions and Methods for Treatment of Spinal Muscular Atrophy, Dr. Martin CHEUNG (Biomedical Sciences) USR 18/170,296 filed on 16 Feb 2023

IP00963 Spiro-cyclometalated iridium emitters for OLED applications, Prof. CHE, Chi Ming US-PCT 18/021,886 filed on 17 Feb 2023

IP01323 Compositions and Methods of Gamma-Delta T Cell Extracellular Vesicle-Based Tumor Vaccines, Prof. TU Wenwei (Paediatrics & Adolescent Medicine) USP 63/485,734 filed on 17 Feb 2023

IP01232 Protocol and apparatus for consecutive microfluidic loading and unloading into microchannels to perform Enzyme-linked Immunosorbent Assay, Prof. Anderson SHUM (ME) USP 63/485,743 filed on 17 Feb 2023

IP01133 Methods of Synthesis and Uses of Agrimol Compounds, Prof. CHE Chi Ming PCT PCT/CN2023/077416 filed on 21 Feb 2023

IP01182 Synergistic Control and Dynamic Assembly of Viscoelastic Networks and Biomolecular Condensates by Aqueous Liquid-liquid Phase Separation and Liquid-solid Phase Separation (Aqll-Ls Ps2), Prof. Anderson SHUM PCT PCT/CN2023/077616 filed on 22 Feb 2023

IP01309 A copper foil with nanocrystalline copper coating for die-attachment in high power electronics, Prof Mingxin Huang (ME) USP 63/486,345 filed on 22 Feb 2023

IP01176 System and Methods for Quantifying and Calculating Window View Openness Indexes, Prof. YEH Anthony Gar on PCT PCT/CN2023/077947 filed on 23 Feb 2023

IP01330 A holographic near-eye display device with simultaneous multi-angle illumination and an eyebox expansion method, Dr PENG Yifan (EEE) CN 202310156967.8 filed on 23 Feb 2023

IP01298 Building Blocks for Difficult Peptide Synthesis and Method of Making Thereof, Prof. LI Xuechen (Chem) USP 63/486,748 filed on 24 Feb 2023

IP01284 A facile method for preparation of thin film composite (TFC) membrane with both high selectivity and water permeance, Prof. TANG Chuyang (Civil Eng) USP 63/487,290 filed on 28 Feb 2023

IP01315 Systems and Methods for Robust Multi-channel Image Reconstruction in Magnetic Resonance Imaging, Prof. Ed Wu, USP 63/449,021 filed on 28 Feb 2023

IP01138 防治肿瘤骨转移和减少化疗毒副作用的中药组合物及其制备方法和应用，Dr. CHEN Jianping, CN 202310174381.4 filed on 28 Feb 2023

EVENT HIGHLIGHTS

Congratulations, Llewellyn & Partners!

Our warmest congratulations to Llewellyn & Partners Co. Ltd—a #TSSSU @HKU company—for gaining recognition from the AECO industry for its AutoCDE solution. This is the first BIM software in the world to win the BSI Kitemark certification.

Webinar 1: MIT Insights: Strong Patent Filing

Our March 2 webinar featured Ms Lita Nelson, former Director of MIT's Technology Licensing Office. Ms Nelson gave an overview of what is needed to get a patent, followed by a discussion of other patent-related topics.

Webinar 2: China Pharmaceutical IP Strategy

Our March 17 webinar with Jennifer Che of Eagle IP Limited explored issues relating to patenting pharma and biotech inventions in China including a summary of recent patent-related developments in China such as new IP courts, the new patent law, litigation reform, patent term extension and more.

PROGRESS UPDATES

The Legal Team completed 145 cases in February, almost seven times the 21 cases completed in the same month in 2022. Collaboration Agreements accounted for the biggest growth. The team also handled 104 new cases, up from 61 a year ago.

The IPM Team handled a total of 77 cases in February compared to 93 in the same month last year. The number of USP/PCT/national applications filed rose to 15 last month, up from 12 a year earlier .

The BD team handled a total of 136 cases in February up from 83 cases handled in 2022. Entrepreneurship and start-up company support marked the biggest rise at 42, up from 6 last year.

TECHNOLOGY COMMERCIALISATION

Top 3 revenue-booked IP in Feb 2023

Title	IP Types	PI	Faculty
A System for The Simulation and Prediction of Bone Implant Performance	EP Patent No. EP3679494 US Application No. 16/645,424	Prof. Alfonso NGAN; Prof. William Lu; Prof. Frankie Leung	Medicine and Engineering
Surgical Instrument with Flexible Steerable Segment	PCT Application No. PCT/CN2022/073108	Dr. Ka Wai Kwok	Mechanical Engineering
e-form: Food and Environmental Hygiene Department	Copyright	Versitech	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)

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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