CONSTRUCTION INDUSTRY COUNCIL 建造業議會

CIC CONSTRUCTION INNOVATION AWARD 建造業議會創新獎

AWARDED PROJECT OVERVIEW

CIC INNOAWARD 2025

International Grand Prize

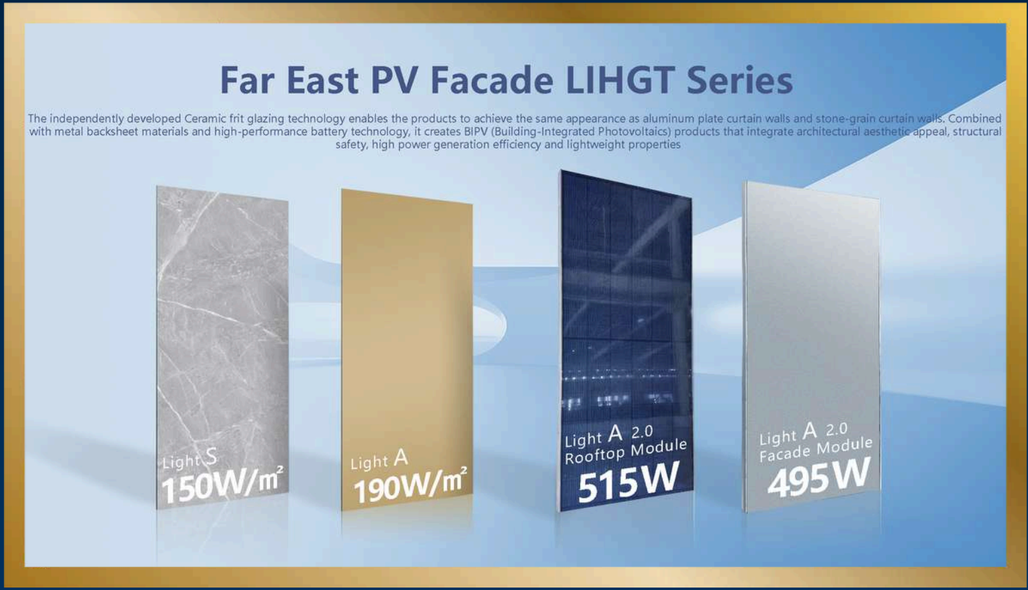
Technological Innovation and Application of the Negative Pressure Adhesion Wall-Climbing Robot

Zhejiang University

Developed by a research team at Zhejiang University, the negative pressure adsorption wall-climbing robot demonstrates exceptional adaptability to rough surfaces while maintaining stable adsorption and a lightweight, flexible structure. Capable of integrating multiple modules—including high-resolution cameras, ground-penetrating radar, grinding, spraying, and cleaning units—it provides comprehensive support for the entire building inspection and maintenance workflow.

International 1st Prize

Far East Photovoltaic Facade LIGHT Series Products



Far East Green Energy Technology (Guang Dong) Company Limited

Far East Photovoltaic Facade LIGHT Series. These solar energy generating facades utilize Building Integrated Photovoltaic (BIPV) technology to provide structures with power generation capabilities, reduce electricity costs, and explore new pathways for renewable energy development.

International 2nd Prize

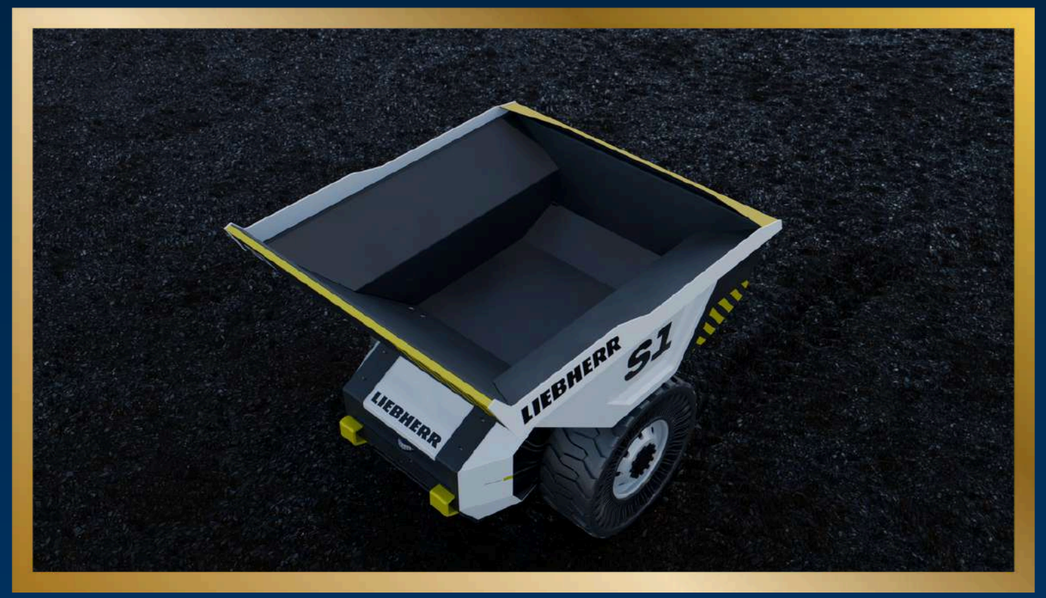
Tendfine Smart Tower Crane Control System

Guangdong Tendfine Information Technology Development Co., Ltd.

Tendfine Smart Tower Crane Control System. An intelligent tower crane operating system control via mobile devices, delivering key features including automated 3D modeling, autonomous path planning, auto-pilot operation, and intelligent obstacle avoidance.

Merit Award - International

Liebherr S1 Vision – A New Geometry of Movement

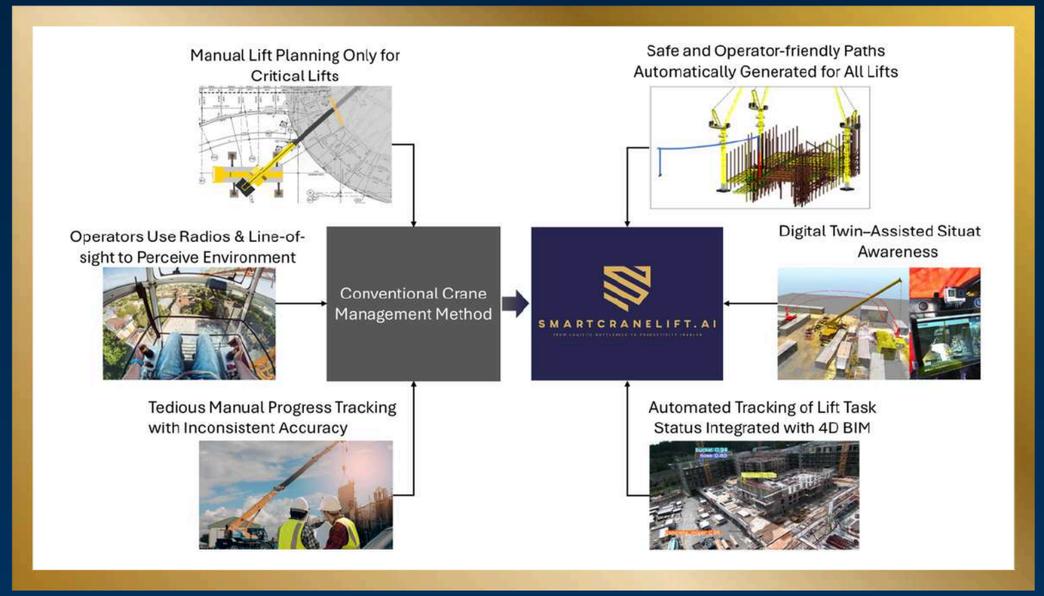


Liebherr (HKG) Limited

Liebherr S1 is a specialized vehicle engineered for diverse heavy-duty applications. Featuring a robust single-axle design, it enhances operational mobility and adaptability across multiple scenarios—including construction sites, mining operations, and other demanding environments.

Merit Award – International

SmartCraneLift.AI – An Intelligent Crane Management System to Enhance Construction Productivity and Quality



Monash University, Technical University of Munich, University of New South Wales

SmartCraneLift.AI, an intelligent crane management system that transforms lifting from a bottleneck into a productivity driver. The system includes three interconnected modules that cover the full lifecycle of lifting including planning phrase, operation phase and lifting productivity supervision.

Local Grand Prize

Groundbreaking Application of Ultra-high Strength S960 Steel in Civil Infrastructure: Paving the Way for Hong Kong's Green Construction

Civil Engineering and Development Department, AECOM Asia Company Limited, DCK JV (Joint Venture of Daewoo E&C, Chun Wo C&E, Kwan Lee Holding)

The world's first application of S960 steel to two pedestrian bridges in the northern metropolitan area to reduce the number of piles and the amount of prestressed concrete required, thereby reducing carbon emissions.

Local Construction Productivity 1st Prize

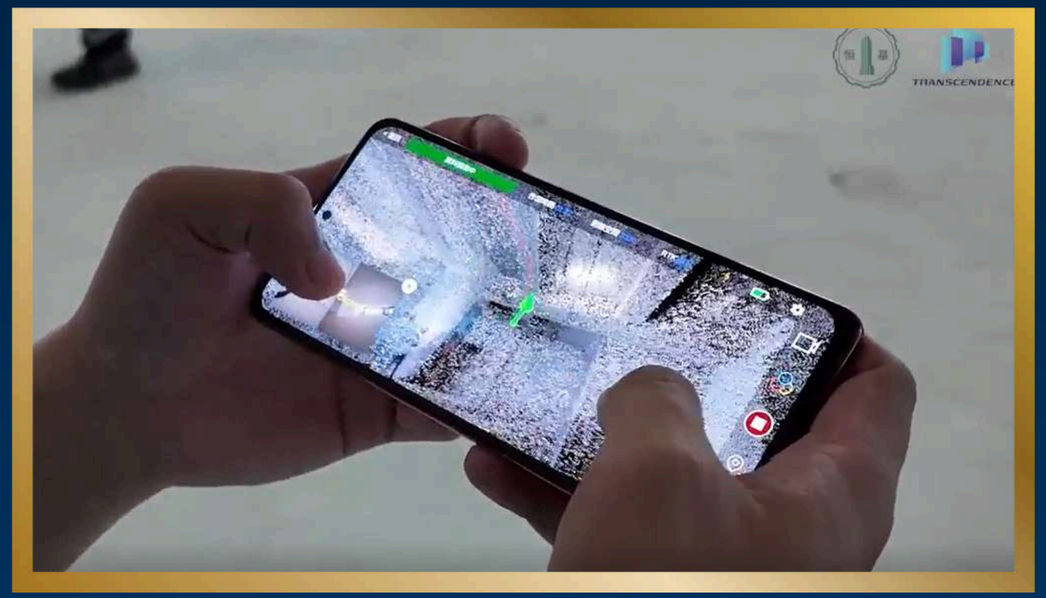
Development of the Loop – Pioneering Bridge Construction with Innovative Full-span Bridge Deck Erection Method and Special Lifting Frame Erection Method

Civil Engineering and Development Department, AECOM, CHINA ROAD & BRIDGE CORPORATION, Hewson Consulting

The world's first ST01 viaduct was constructed using a special 360-degree rotating gantry. Only one lane needed to be closed during construction, and the entire span of the bridge deck was installed in just 5 hours.

Local Construction Productivity 2nd Prize

Smart Fire Services Inspection with AI



Transcendence Company Limited,
Henderson Land Development Company Limited

The handheld 360-degree scanner uses AI intelligent image recognition combined with 3D point cloud scanning technology to analyze the differences between on-site fire protection facilities and 2D design drawings in order to conduct fire protection inspections and automatically generate fire protection inspection reports.

Merit Award – Construction Productivity

Construction Innovation in Trunk Road T2 and Cha Kwo Ling Tunnel

Civil Engineering and Development Department East Development Office (CEDD),
Asia Infrastructure Solutions Limited,
Meinhardt Infrastructure and Environment Limited, Bouygues Travaux Publics

The T2 main road and Cha Kwo Ling Tunnel project features innovative construction solutions. This project is the first in Hong Kong to use drill bit replacement technology (at atmospheric pressure) and the first tunnel project to utilize 95% prefabricated components (DfMA and MiMEP) as the tunnel structure. The project also incorporates innovative technologies such as robotic arm connections and drone inspection.

Merit Award - Construction Productivity

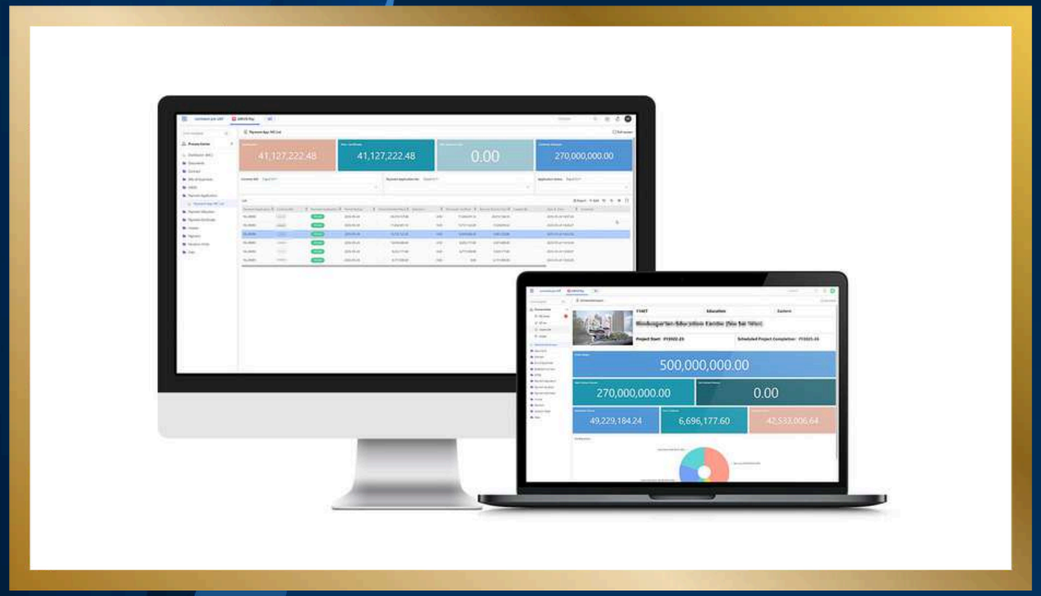
U-shaped Tunnel Boring Machine (UTBM)

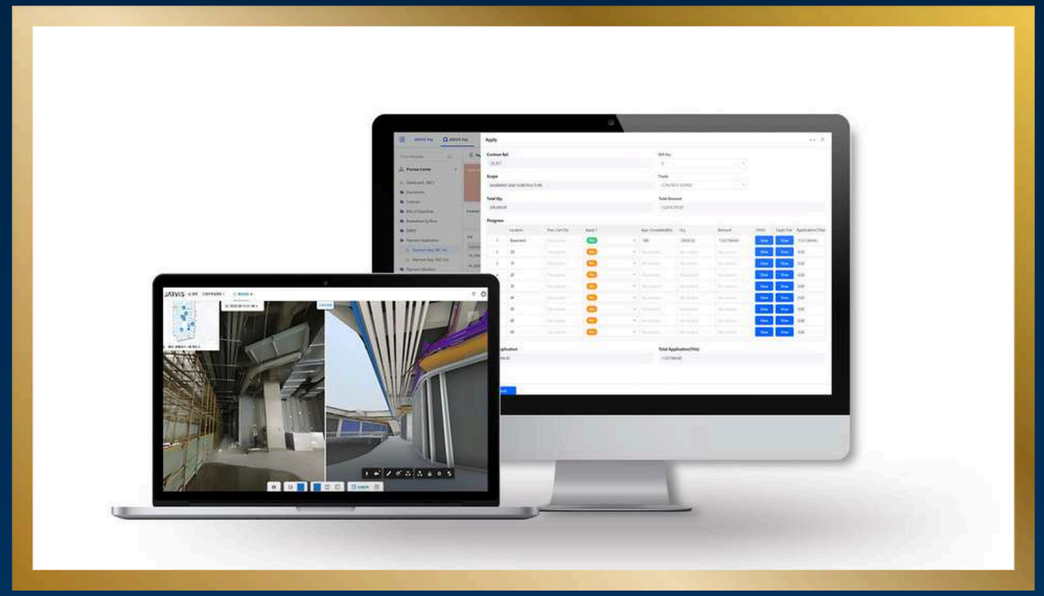
Civil Engineering and Development Department (CEDD), AECOM, China Railway Group Limited and China Railway Guangzhou Engineering Group Co. Limited Join Venture (CRECJV)

This new UTBM named as “Bauhinia” is the World-First UTBM for unilateral excavation and is first time adopted in Hong Kong. This technology integrates multiple construction processes into a single machine, combining shield advancing with precast segment installation to streamline operations.

Merit Award - Construction Productivity

JarvisPay



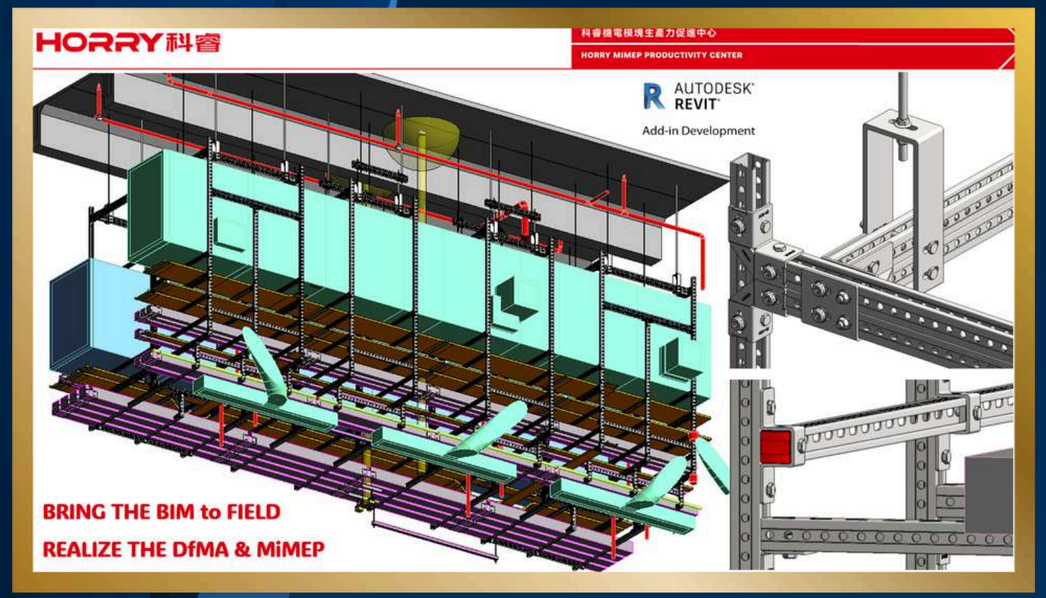


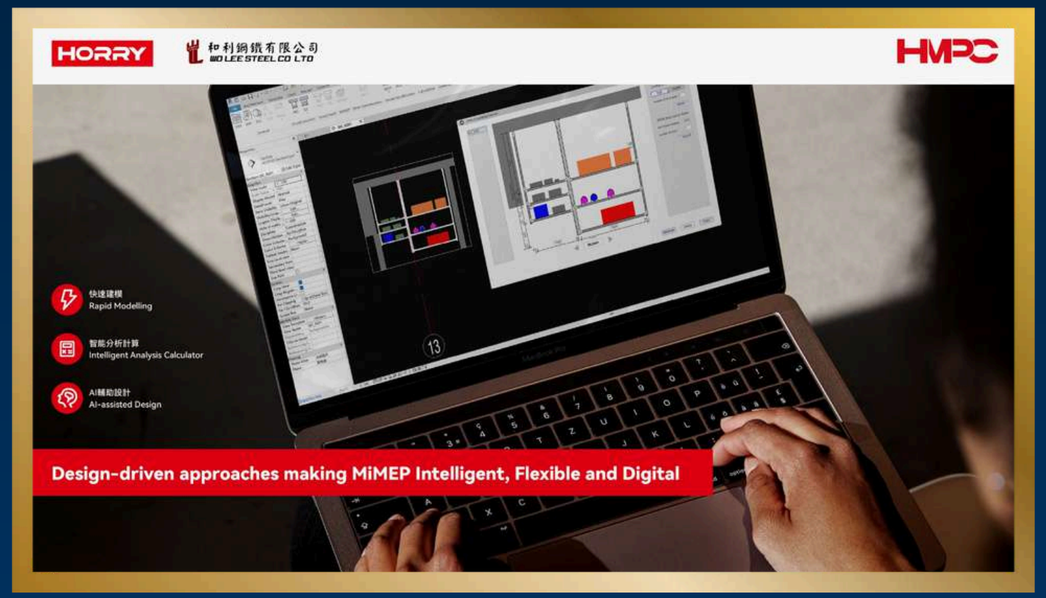
isBIM Limited

JarvisPay is a payment tool directly addresses Hong Kong's construction payment crisis through SOPL (Security of Payment Legislation) compliance. It integrated technologies like Hyper-Realistic Digital Twins, LLM Intelligence, Automated SOPL Engine and Unified Fintech Platform to perform as a Transparency Benchmark and Real-time dashboards for construction payment.

Merit Award - Construction Productivity

HORRY MiMEP System: Revolutionizing Hong Kong MEP Construction with AI-Driven CSD BIM





Horry (Hong Kong) Industrial Limited, BYME Engineering (Hong Kong) Limited

HORRY's solution deploys a four-stage AI methodology that transforms chaotic 3D coordination into fabrication-ready models governed by codified engineering logic. The workflow initiates with AI-powered Critical Zone Identification, where algorithms scan BIM models using geometric heuristics.

Local Construction Safety 1st Prize

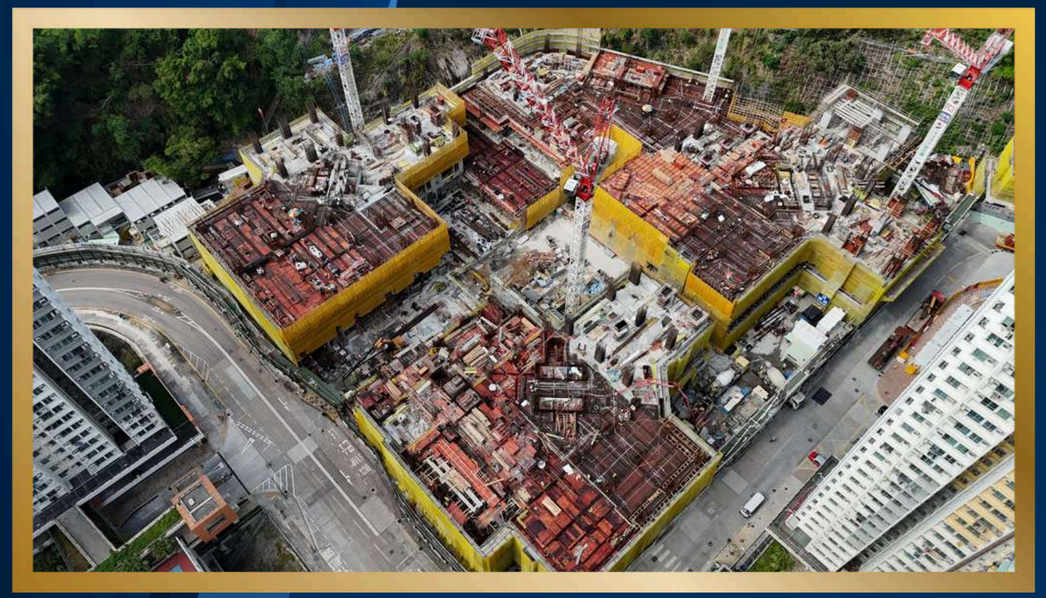
TIE-Ai Intelligent Scaffolding Monitoring System

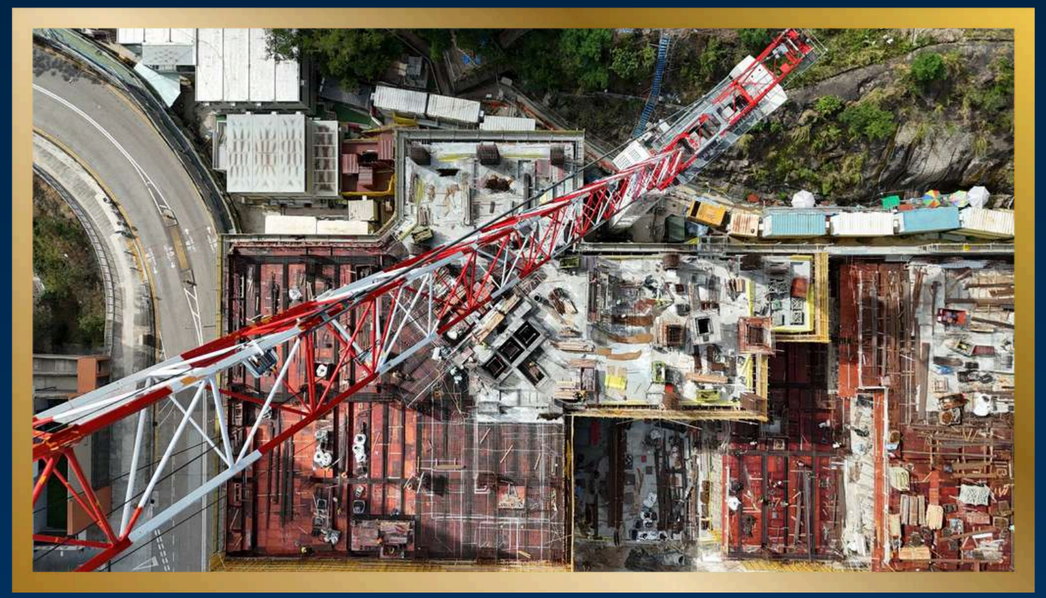
Sanfield Construction Innovations Limited

The TIE-Ai intelligent scaffolding monitoring system can monitor the real-time status of scaffolding, identify situations such as broken wires, scaffolding displacement, unusual vibrations, and overheating (fire alarm), and immediately send alarms to on-site supervisors.

Local Construction Safety 2nd Prize

The AI Tower Crane System



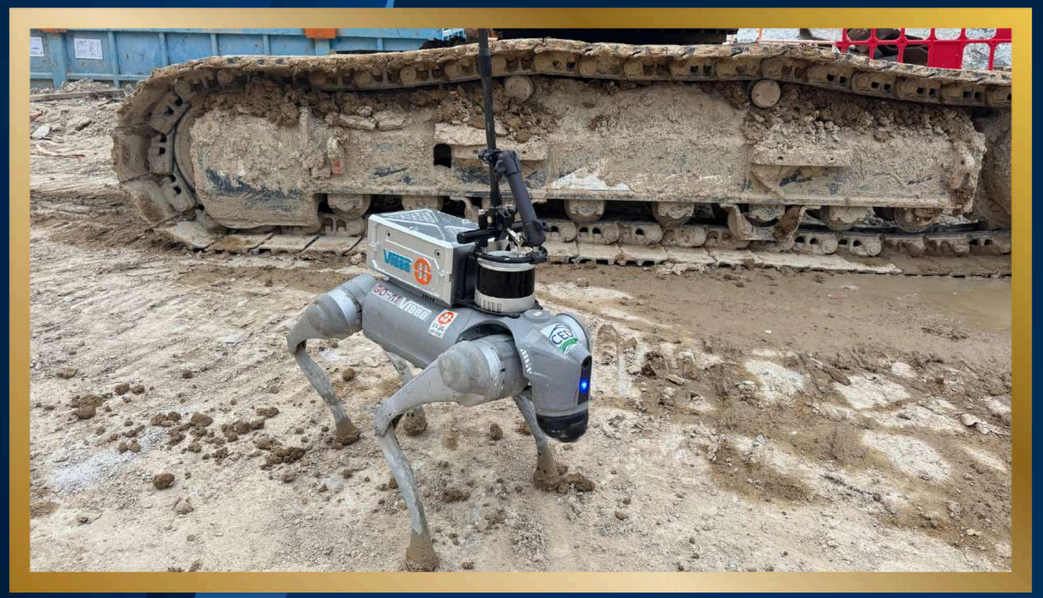


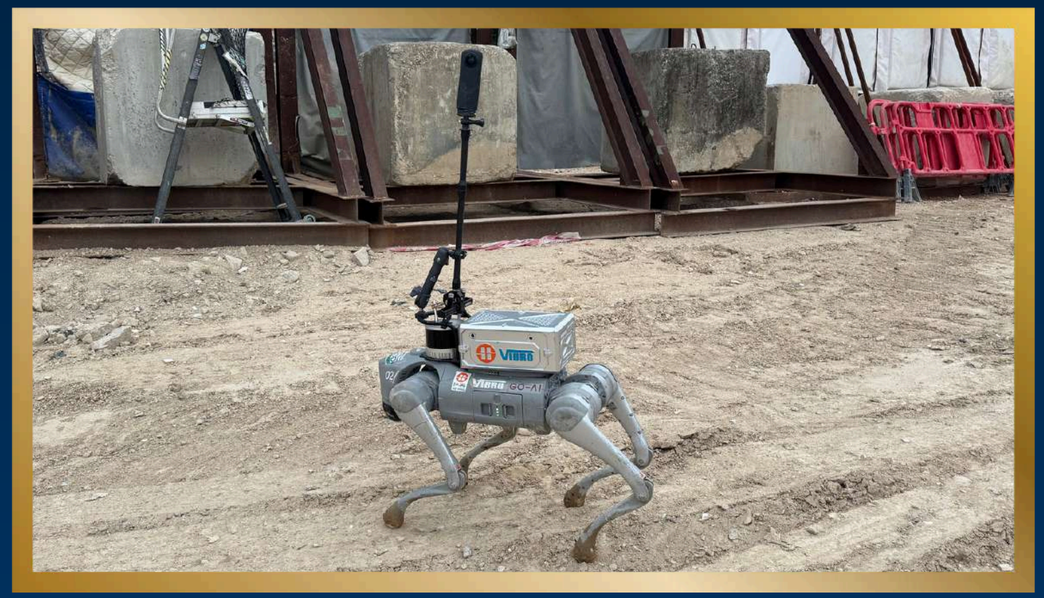
Hong Kong Housing Authority (HKHA), CR Construction Company Limited, Hong Kong Center for Construction Robotics Limited (HKCRC)

The intelligent weighing system can be remotely operated from a remote control cab. It uses multiple cameras and AI to monitor and provide warnings and operating instructions to ensure the safety of ground operators.

Merit Award - Construction Safety

Revolutionizing Construction Safety: A Multimodal LLM-Powered Robotic Dog for Proactive Hazard Prevention





Vibro (H.K.) Ltd.

Hong Kong's first multimodal LLM construction safety robot can autonomously patrol construction sites and capture 360-degree immersive panoramic views of high-risk areas. Equipped with a multimodal LLM, this robot can detect various hazards, from misplaced tools to structural defects. It also uses DeepSeek's AI framework to cross-reference real-time detection results with global safety protocols and uploads the results to the company's 4S platform to issue alerts.

Merit Award - Construction Safety

AI-Enabled “Design for Safety 2.0” – Project-specific Agentic AI Safety System for the Development of the Loop

Civil Engineering and Development Department, AECOM, Chain Technology Development

This ground-breaking "Design for Safety 2.0" system, developed through cross-border collaboration with the Shenzhen Institute of Advanced Technology (SIAT), combines sovereign AI architecture with construction-optimized large language models to enable autonomous risk assessment and real-time hazard prevention.

Merit Award - Construction Safety

Mega MiMEP3.0 Packaging Approach

Gammon E&M Limited

Gammon E&M's "Mega MiMEP3.0 Packaging Approach" represents a transformative leap in modular construction, particularly in the realm of Mechanical, Electrical, and Plumbing (MEP) systems. Developed and implemented in the Lyric Theatre Complex project at West Kowloon, Hong Kong, this innovation redefines how large-scale, high-risk construction tasks can be executed with enhanced safety, efficiency, and sustainability.

Local Construction Sustainability 1st Prize

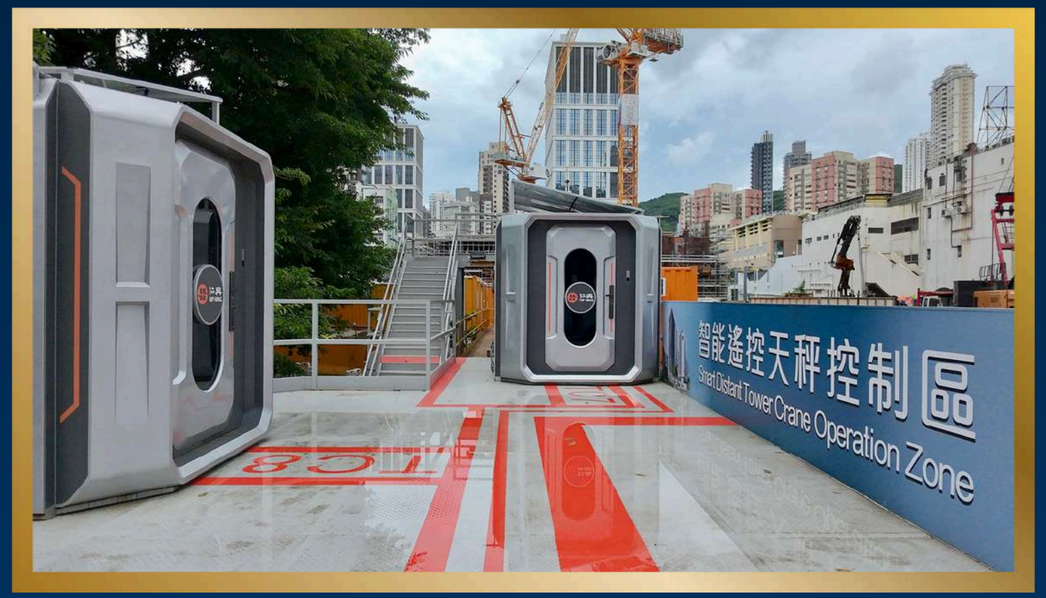
Innovation in Precast Steel Fibre Reinforced Concrete (SFRC) Permanent Tunnel Segmental Lining to Enhance Construction Sustainability and Productivity in Hong Kong

Bouygues-Dragages (1201) Joint Venture, AECOM

This marks the first time in Hong Kong that precast steel-fiber reinforced concrete (SFRC) has been used as a permanent structure for tunnel segment lining. Compared to traditional steel reinforcement, the use of steel fibers allows for thinner segment linings, reducing carbon emissions and waste generation by approximately 70%, while also improving productivity and quality.

Local Construction Sustainability 2nd Prize

Transforming Tower Crane Operation - The Distant Tower Crane Command System



Hip Hing Construction Co., Ltd.

Hip Hing's remote-controlled balance system combines modular integrated construction technology (MiC), artificial intelligence (AI), the Internet of Things (IoT), and high-precision remote control balance system technology to train a new generation of balance operators (under 40 years old) to achieve the industry's sustainable development goals.

Merit Award - Construction Sustainability

Carbon-neutral Biochar Concrete for Sustainable Green Building

Nano and Advanced Materials Institute Limited (NAMI)

NAMI's Carbon-neutral Biochar Concrete not only achieves negative embodied carbon but also offers superior mechanical properties, thermal insulation, and fire resistance—making it suitable for a wide range of construction applications.

Merit Award - Construction Sustainability

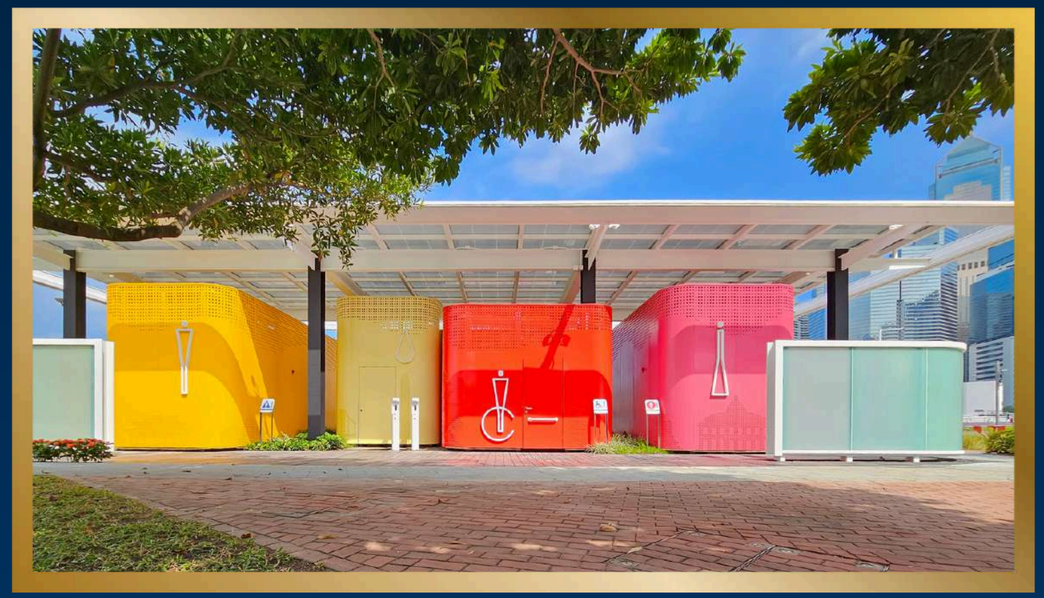
Tung Chung Eco-shoreline: Hong Kong's Nature-based Solution for Coastal Resilience

AECOM Asia Company Limited,
Civil Engineering and Development Department

The Tung Chung Eco-shoreline integrates sustainable green coastal protection with biodiversity enhancement, demonstrating how modern construction can work in harmony with natural ecosystems while addressing urban development needs.

Young Innovator Prize (Open)

Advancing Net Zero Urban Hub

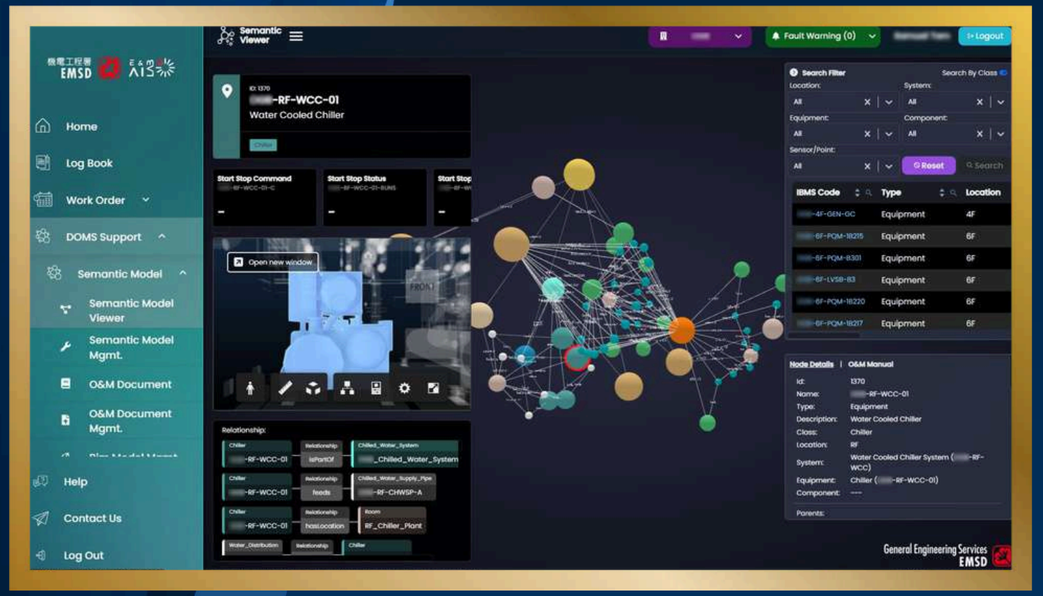


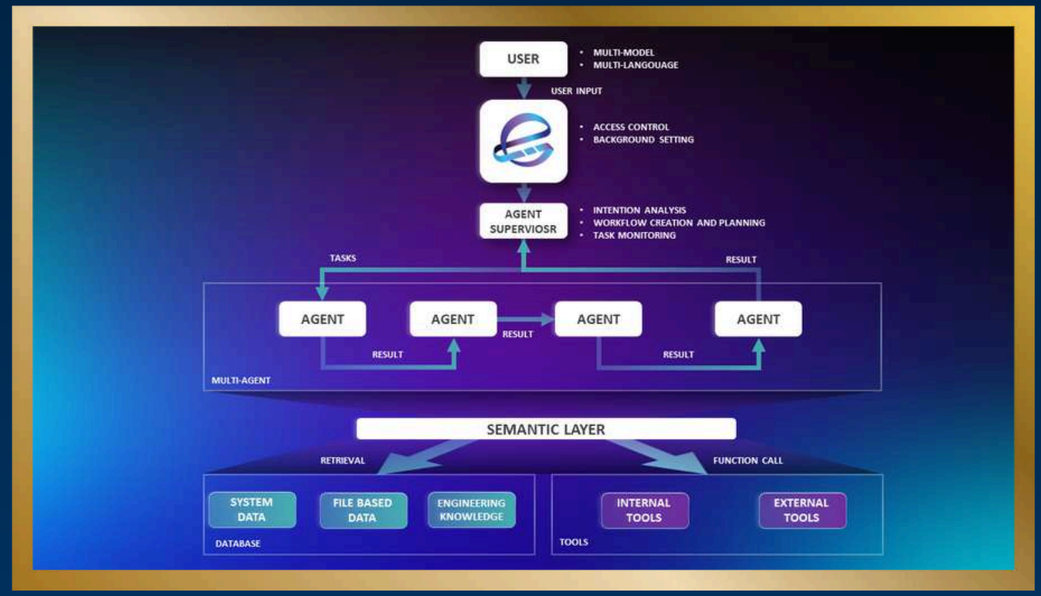
Architectural Services Department (ASD), Ho & Partner Architects Engineers & Development Consultants Limited (HPA)

The eco-friendly public restroom located in Central features palm fiber and mineral building materials for its wall panels, which are then polished using 3D printing technology. The restroom incorporates wind and solar power generation features to reduce carbon emissions by 70%.

Merit Award - Young Innovator (Open)

Engentica: A Dynamic Multi-Agent System for the Transformation of Construction and Engineering



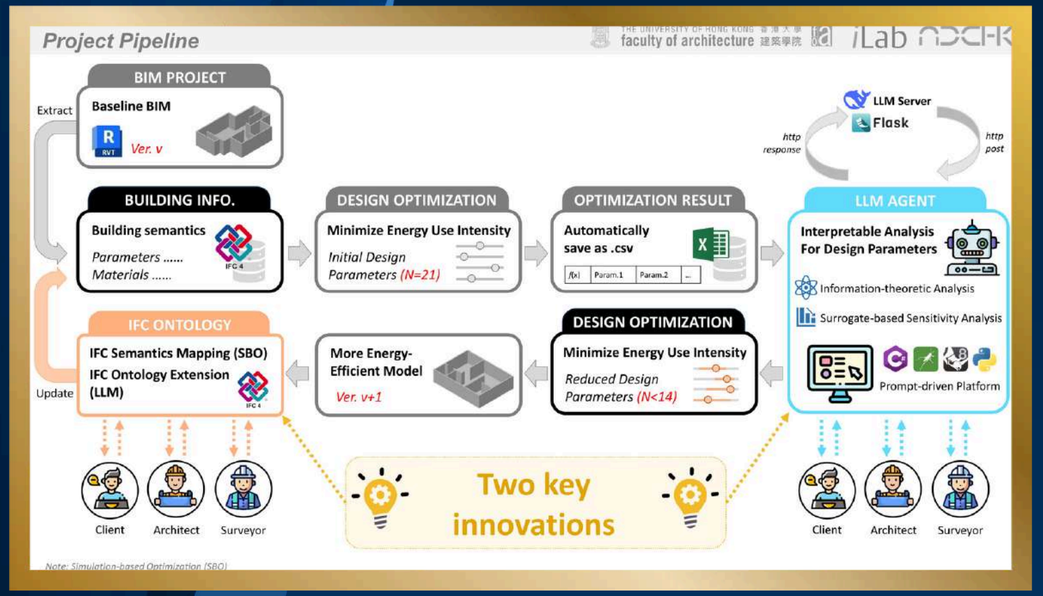


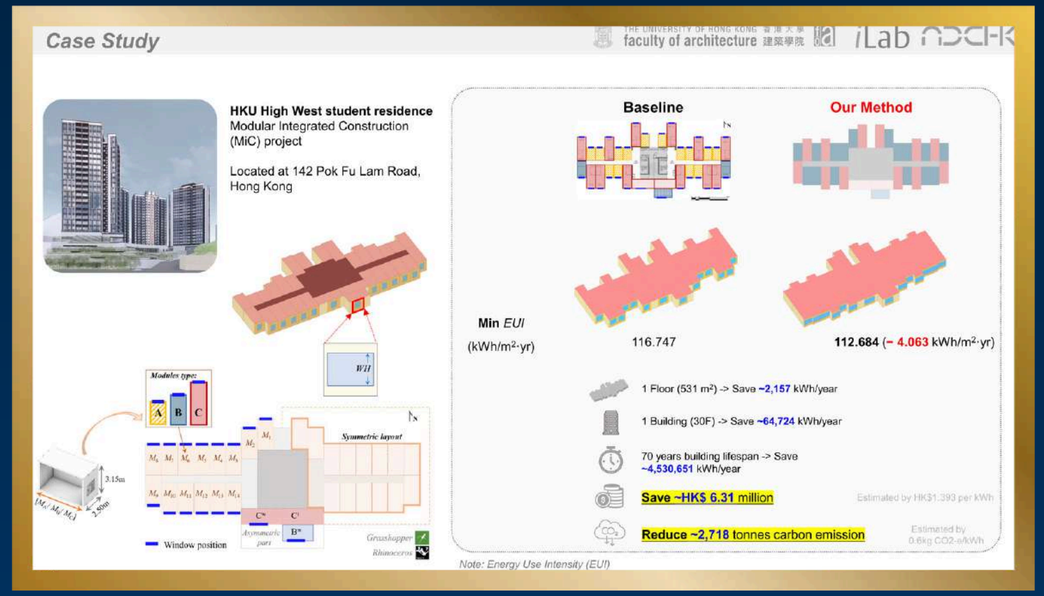
Electrical & Mechanical Services Department

Engentica addressing the industry's critical challenges of material waste, project inefficiencies, and operational energy consumption, Engentica’s core innovation is Semantic AI and DWO, a central brain that intelligently assembles and deploys teams of specialized AI agents.

Young Innovator Prize (Student)

Bridging LLM Agent and OpenBIM for Energy-Efficient Building



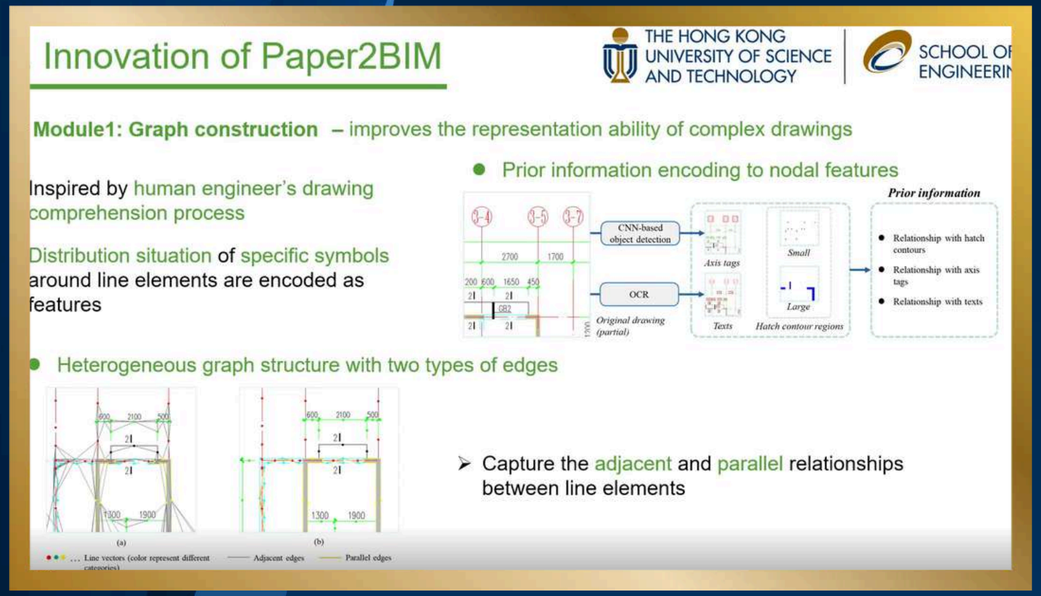


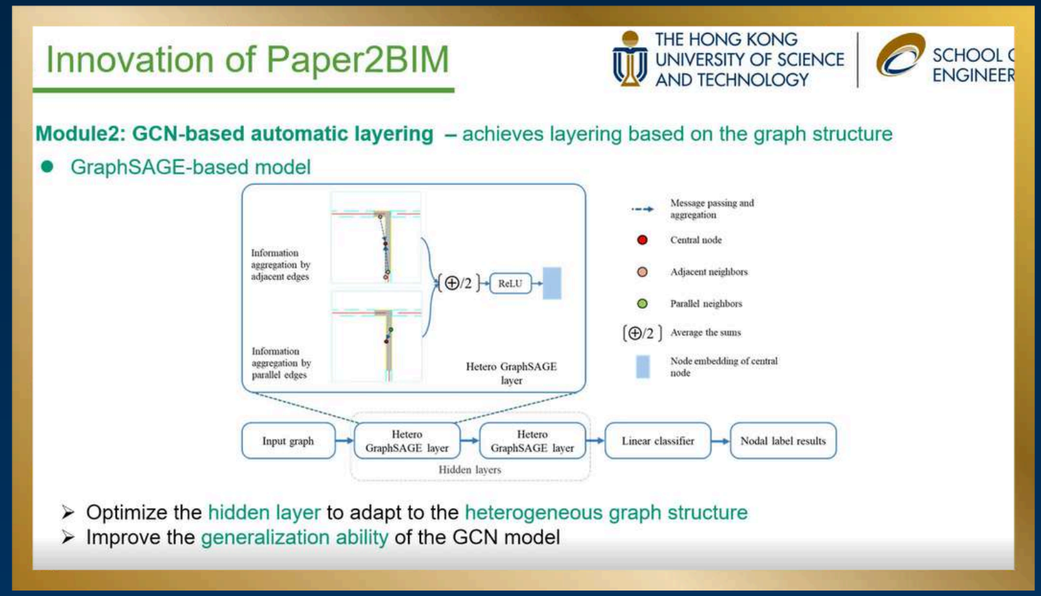
The University of Hong Kong

Large language modal agents are used in conjunction with OpenBIM BIM modal to reduce design complexity and enhance interoperability between BIM, simulation tools, and optimization algorithms.

Merit Award - Young Innovator (Student)

Paper2BIM: 2D drawings automatic layering and recognition system for BIM reconstruction of ageing buildings





The Hong Kong University of Science and Technology

This method changes the traditional Scan-to-BIM approach, automatically generating BIM modals based solely on design drawings, saving time and money.