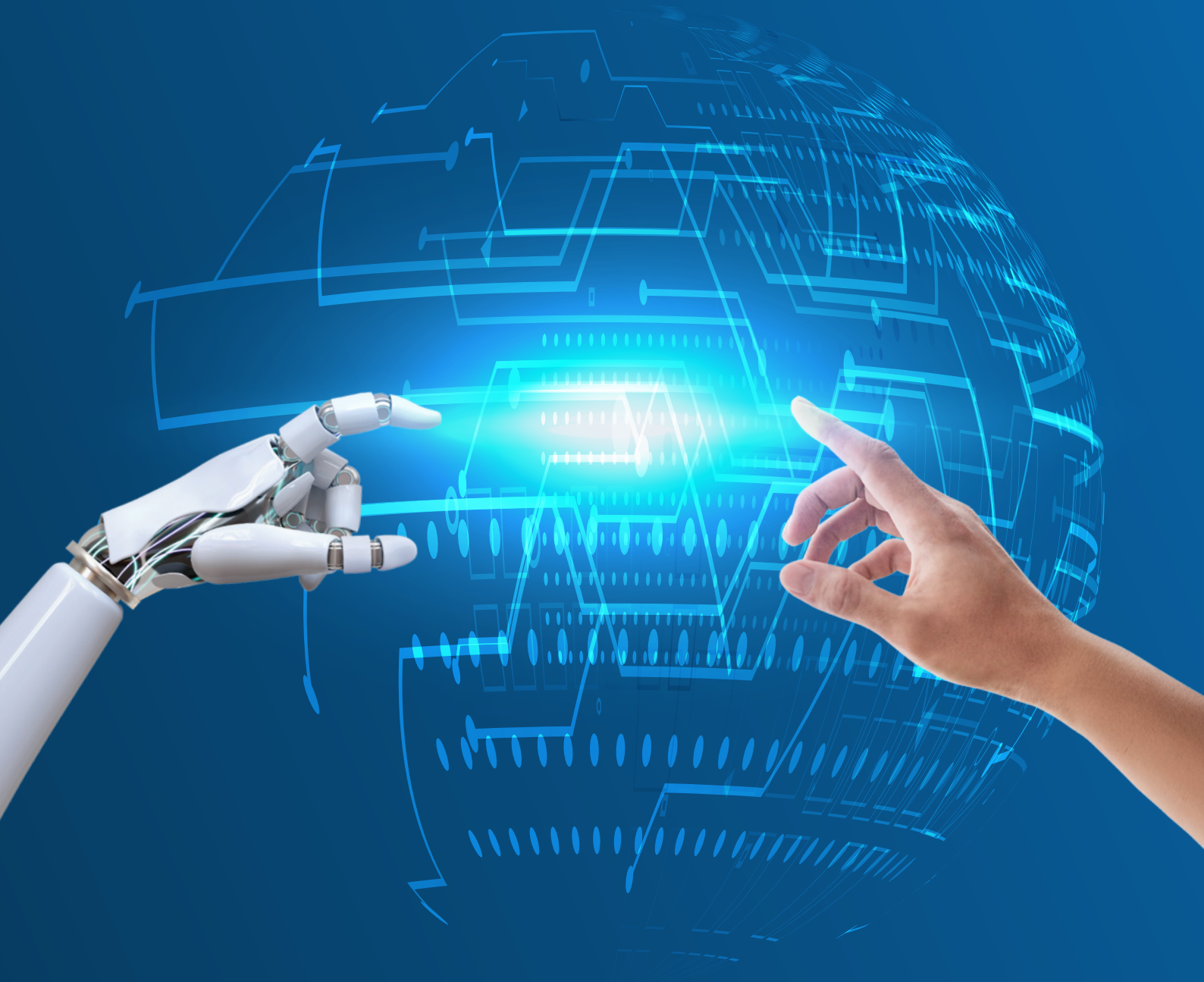
CONFERENCE ON ROBOTS FOR SCIENCE - How Robots Will Facilitate Scientific Discovery

15 - 17 January 2025



E-PROGRAMME

ORGANIZERS

Science Robotics
AAAS

香港中文大學
The Chinese University of Hong Kong

CU Medicine HONG KONG
香港中文大學醫學院
Faculty of Medicine
The Chinese University of Hong Kong

MULTI-SCALE
MEDICAL ROBOTICS CENTER
醫療機械人創新技術中心

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TABLE OF CONTENTS

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Co-chair
Beihang University, China

Prof. Li ZHANG
Co-chair
The Chinese University of Hong Kong
Hong Kong SAR

Prof. Philip Wai Yan CHIU
Co-chair
The Chinese University of Hong Kong
Hong Kong SAR

Prof. Tony Kai Fung CHAN
Member
The Chinese University of Hong Kong
Hong Kong SAR

SPEAKERS

Prof. Fumihito ARAI
The University of Tokyo, Japan

Prof. Samuel Kwok Wai AU
Multi-scale Medical Robotics Center, Hong Kong SAR

Prof. Jeremy BOUYER
CIRAD, France

Prof. Jason Ying Kuen CHAN
The Chinese University of Hong Kong, Hong Kong SAR

Prof. Kevin CHEN
Massachusetts Institute of Technology, USA

Prof. Pakpong CHIRARATTANANON
City University of Hong Kong, Hong Kong SAR

Prof. Kyu-Jin CHO
Seoul National University, South Korea

Prof. Kelvin Kam Lung CHONG
The Chinese University of Hong Kong, Hong Kong SAR

Prof. Han DING
Huazhong University of Science and Technology, China

Prof. Auke IJSPEERT
École Polytechnique Fédérale de Lausanne, Switzerland

Prof. Bonaventure Yiu Ming IP
The Chinese University of Hong Kong, Hong Kong SAR

Prof. Tomas KRAJNIK
Czech Technical University, Czech

SPEAKERS

Prof. Yunhui LIU
The Chinese University of Hong Kong,
Hong Kong SAR

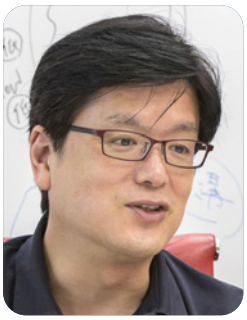
Prof. Bradley NELSON
ETH Zürich, Switzerland

Prof. Jamie PAIK
École Polytechnique Fédérale de
Lausanne, Switzerland

Prof. Cosimo DELLA SANTINA
Delft University of Technology
(TU Delft), The Netherlands

Prof. Yu SUN
University of Toronto, Canada

Prof. Joseph Jao-Yiu SUNG
Nanyang Technological University
Singapore



Prof. Shoji TAKEUCHI
The University of Tokyo, Japan

Prof. Liu WANG
University of Science and Technology
of China, China

Prof. Shelley WICKHAM
The University of Sydney, Australia

Prof. Tiantian XU
Shenzhen Institutes of Advanced
Technology
Chinese Academy of Sciences, China

Prof. Rong ZHU
Tsinghua University, China

PROGRAMME

Venue: LT2, Yasumoto International Academic Park (YIA)

15 January 2025 (Wed)

Theme: Medical Robotics

Session Chair: TBC

09:30 – 10:00	Opening Ceremony
10:00 – 10:10	**Session Introduction** TBC
10:10 – 10:50	**Microrobots and their Coming Impact on Healthcare** Prof. Bradley NELSON ETH Zurich, Switzerland
10:50 – 11:05	**Tea Break & Poster Session** Market Cafe & Multi-function Room, 1/F
11:05 – 11:45	**Future Role of Doctors in the Era of AI and Robotics** Prof. Joseph Jao-yiu SUNG Nanyang Technological University, Singapore
11:45 – 12:25	**Micro/Nanoscale Robotics for Biomedical Applications** Prof. Fumihito ARAI The University of Tokyo, Japan
12:25 – 13:50	**Lunch** CC Tang & MW Ho Lounge
13:50 – 14:30	**Traversing the 'Valley of Death' in Medical Robotics Translation: Challenges, Opportunities, Innovations, and Entrepreneurships** Prof. Samuel Kwok Wai AU Multi-scale Medical Robotics Center, Hong Kong SAR
14:30 – 15:10	**Medical Robotics for Cell Surgery – Science and Applications** Prof. Yu SUN University of Toronto, Canada
15:10 – 15:50	**MAGNUS: Magnet Array-Guided Neurovascular Steering** Prof. Liu WANG University of Science and Technology of China, China
15:50 – 16:10	**Tea Break & Poster Session** Market Cafe & Multi-function Room, 1/F
16:10 – 17:10	**Local Clinician Talks** (Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong SAR) **The Emerging Roles of Micro-robots in Lacrimal Operations** Prof. Kelvin Kam Long CHONG Department of Ophthalmology and Visual Sciences **Advancing Care with Robotics in the Management of Patients with Head and Neck Cancers** Prof. Jason Ying Kuen CHAN Department of Otorhinolaryngology, Head and Neck Surgery **Can Robotics Enhance Treatment Precision and Recovery of Stroke Patients?** Prof. Bonaventure Yiu Ming IP Department of Medicine and Therapeutics
17:10 – 18:00	**Round Table Discussion**
18:30 – 20:30	**Cocktail Reception** MRC R&D Lab, 20E, Hong Kong Science Park

PROGRAMME

Venue: LT2, Yasumoto International Academic Park (YIA)

16 January 2025 (Thu)

Theme: Bioinspired Robotics

Session Chair: Prof. Li WEN

09:30 – 09:40	**Session Introduction** Prof. Li WEN Beihang University, China	
09:40 – 10:20	**Using Robots as Scientific Tools to Decipher Animal Locomotion** Prof. Auke IJSPEERT École Polytechnique Fédérale de Lausanne (EPFL), Switzerland	
10:20 – 11:00	**Biohybrid Robotics** Prof. Shoji TAKEUCHI The University of Tokyo, Japan	
11:00 – 11:30	**Tea Break & Poster Session**	Market Cafe & Multi-function Room, 1/F
11:30 – 12:10	**Bioinspired Robot Designs with Embodied Intelligence** Prof. Kyu-jin CHO Seoul National University, South Korea	
12:10 – 14:00	**Lunch**	CC Tang & Connexion, S. H. College
14:00 – 14:40	**TBC** Prof. Tiantian XU Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China	
14:40 – 15:20	**Agile and Robust Micro-Aerial-Robots Powered by Soft Artificial Muscles** Prof. Kevin CHEN Massachusetts Institute of Technology, USA	
15:20 – 15:50	**Tea Break & Poster Session**	Market Cafe & Multi-function Room, 1/F
15:50 – 16:30	**Advancing Miniature Aerial Robotics: Bio-Inspired Design and Mechanical Intelligence** Prof. Pakpong CHIRARATTANANON City University of Hong Kong, Hong Kong SAR	
16:30 – 17:10	**Motor Intelligence for Soft Robots** Prof. Cosimo DELLA SANTINA Delft University of Technology (TU Delft), The Netherlands	
17:10 – 18:00	**Round Table Discussion**	
19:00 – 22:00	**Welcome Dinner**	Happiness Cuisine, Hong Kong Science Park

PROGRAMME

Venue: LT2, Yasumoto International Academic Park (YIA)

17 January 2025 (Fri)

Theme: Robots in the Real World

Session Chair: Dr. Amos MATSIKO

09:30 – 09:40	**Session Introduction** Dr. Amos MATSIKO Science Robotics, AAAS, USA
09:40 – 10:20	**Robotized Intelligent Manufacturing: from Tri-co Robots to AI-powered Humanoids** Prof. Han DING Huazhong University of Science and Technology, China
10:20 – 11:00	**Robot Perception and Manipulation Using Vision** Prof. Yunhui LIU The Chinese University of Hong Kong, Hong Kong SAR
11:00 – 11:20	**Tea Break & Poster Session** Market Cafe & Multi-function Room, 1/F
11:20 – 12:00	**Robots to Upscale the Sterile Insect Technique against Mosquitoes** Prof. Jeremy BOUYER CIRAD, France
12:00 – 12:40	**Robotic Systems for Honeybee Behavioural Analysis** Prof. Tomas KRAJNIK Czech Technical University, Czech
12:40 – 14:00	**Lunch** CC Tang & MW Ho Lounge
14:00 – 14:40	**Dynamic DNA Nanorobots as Tools for Biophysics and Material Science** Prof. Shelley WICKHAM The University of Sydney, Australia
14:40 – 15:20	**Sensing Science and Technology for Smart Robots** Prof. Rong ZHU Tsinghua University, China
15:20 – 16:00	**Reconfigurable Robots for Real Intuitive Interactions** Prof. Jamie PAIK École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
16:00 – 16:30	**Tea Break & Poster Session** Market Cafe & Multi-function Room, 1/F
16:30 – 17:30	**Editor Panel Discussion** Dr. Amos MATSIKO Science Robotics, AAAS, USA followed by panel discussion with Prof. Bradley NELSON and Prof. Li WEN
17:30 – 18:00	**Closing Remarks & Award Presentation**

INVITED TALKS

Prof. Bradley NELSON

15 January 2025 | 10:10-10:50

Professor
Mechanical and Process Engineering
ETH Zurich, Switzerland

Brad Nelson is the Professor of Robotics and Intelligent Systems at ETH Zürich and the Chief Scientific Advisor of Science Robotics. He has forty years of experience in the field and has received several awards in robotics, nanotechnology, and biomedicine. He serves on the advisory boards of academic departments and research institutes across North America, Europe, and Asia. Prof. Nelson has been the Department Head of Mechanical and Process Engineering at ETH twice, the Chairman of the ETH Electron Microscopy Center, a member of the Research Council of the Swiss National Science Foundation, and a member of the IEEE Robotics & Automation Society Administrative Committee (Adcom) from 2011-2016. He was a member of the founding editorial boards of Science Robotics and the Annual Review of Controls, Robotics, and Autonomous Systems and an editor of IEEE Transactions on Robotics from 2010-2015. He serves on the boards of three Swiss companies, is a member of the Swiss Academy of Engineering Sciences (SATW), and a fellow of IEEE and ASME. Before moving to Europe, Nelson worked as an engineer at Honeywell and Motorola and served as a United States Peace Corps Volunteer in Botswana, Africa. He has also been a professor at the University of Minnesota and the University of Illinois at Chicago.

Microrobots and their Coming Impact on Healthcare

Micro and nano robots have made great strides since becoming a focused research topic over two decades ago. Much of the progress has been in material selection, processing, and fabrication, and paths forward in developing clinically relevant biocompatible and biodegradable micro and nano robots are becoming clear. Our group, as well as others, maintain that using biocompatible magnetic composites with externally generated magnetic fields and field gradients is perhaps closest to clinical application. One of the most challenging aspects in this regard is in the development of the magnetic navigation system (MNS) that generates the fields and field gradients needed for microrobot locomotion. In this talk, I will present an overview of MNSs and show how these systems are fundamentally robotic in the way they must be designed and controlled. Decades of work in robotic manipulation can be brought to bear on this problem as we move forward in bringing MNS technology to the clinic and its potential use as a medical robot for remote telestroke medicine. I will also look at recent efforts in creating clinical scale microrobot systems, including recent in vivo results. The field appears to be on the cusp of realizing the fantastic voyage.

INVITED TALKS

Prof. Joseph Jao-Yiu SUNG

15 January 2025 | 11:05-11:45

Dean
Nanyang Technological University, Singapore

Professor Sung is currently a Distinguished University Professor, Senior Vice President (Health & Life Sciences), and Dean of the Lee Kong Chian School of Medicine at Nanyang Technological University, Singapore. He obtained his medical degree (MBBS) from The University of Hong Kong and was awarded a PhD in Biomedical Sciences by the University of Calgary and an MD by The Chinese University of Hong Kong. From 2010 to 2017, he served as the Vice-Chancellor and President of The Chinese University of Hong Kong. Professor Sung's research interests include intestinal bleeding, Helicobacter pylori, peptic ulcers, hepatitis B, colorectal cancer, and other cancers of the digestive system. In recent years, his work has expanded to studies on the gut microbiome, digestive diseases, and the application of artificial intelligence in clinical medicine. He has authored over 1,000 scientific articles published in leading medical and scientific journals. His most recent book, "Artificial Intelligence in Medicine: From Ethical, Social, and Legal Perspectives", was published in 2024. Professor Sung has been recognized as a "Highly Cited Researcher" by Clarivate Analytics for the consecutive years from 2018 to 2024.

Future Role of Doctors in the Era of AI and Robotics

While AI and Robotics are expanding their power and penetrates every aspects of healthcare service, this is a critical moment for healthcare providers to rethink their role in future. Human brain and Artificial Intelligence work quite differently and therefore each of them have different strengths and weaknesses. Their capability should compensate for each other, instead of competing and crowding out each other. As Amara's Law said "We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run." Like every powerful technology, AI is a two-edged sword. Therefore, this is critical time for doctors and nurses to rethink their role in the care of patient… how to maintain the humanity of medicine and gain the trust of patients; how to co-pilot medical care and make human and machine co-evolve for the better outcome of patients. This lecture is exploring into some of these issues and meant to stimulate our thinking in this moment of truth.

INVITED TALKS

Prof. Fumihito ARAI

Professor
Department of Bioengineering, Department of Mechanical Engineering
The University of Tokyo, Japan

15 January 2025 | 11:45-12:25

Fumihito Arai is a full Professor of the Department of Bioengineering, Department of Mechanical Engineering, at the University of Tokyo, Japan. He is mainly engaging in the research fields of bio-robotics, micro- and nano-robotics, micro- and nano-mechatoronics, MEMS, and Biomedical applications. He received a Doctor of Engineering degree from Nagoya University in 1993. Since 1998, he has been an Associate Professor at Nagoya University. Since 2005, he has been a Professor at Tohoku University. Since 2010, he has been a Professor at Nagoya University. Since 2020, he has been a Professor at the Department of Mechanical Engineering at The University of Tokyo.

Micro/Nanoscale Robotics for Biomedical Applications

In scientific research, there is a growing need for manipulation and automation of micro- and nano-scale objects. Particularly in the biomedical field, genetic analysis technology is advancing rapidly, and the objects to be analyzed are now at the single-cell level. For analytical purposes, this scale is often used for scientific exploration, such as the investigation of unknown properties of living cells and tissues, and requires precise manipulation techniques that take into account the interaction with the fluid environment under analysis. We are working on on-chip robotic systems integrating sensors and actuators on microfluidic chips. We investigated new capabilities of integrating robotic and microfluidic technologies and applied them to several scientific experimental tasks. For automation of scientific experiments purposes, micro-objects such as cells must be individually managed from the first three-dimensional space. Multi-scale operations on the order of the sixth power of 10 (micrometer to meter) should be realized. Automation through such micro/nanoscale operations is difficult and many challenges remain. We have realized the individual management and wide-area movement of each object by integrating a microfluidic chip into the end-effector of a robotic manipulator. We developed the associated technologies required for the automation of micro and nano works. Furthermore, microscopic manipulation is also important in tissue sampling within the body. For example, tissue sampling within the digestive system. This talk will introduce the current status of Micro/Nanoscale Robotics, especially manipulation and automation at small scales in the biomedical field, and discuss future prospects.

INVITED TALKS

Prof. Samuel Kwok Wai AU

Director

Multi-Scale Medical Robotics Center, Hong Kong SAR

15 January 2025 | 13:50-14:30

Prof. Au is currently a Professor of the Department of Mechanical and Automation Engineering and Department of Surgery (by courtesy) at CUHK, and the Founding Director of Multiscale Medical Robotics Center, InnoHK. In Sept 2019, Dr. Au found Cornerstone Robotics and has been serving as the CEO of the company, aiming to improve the accessibility in robotic surgery. Over five years, the company has grown from a few people team to a 400-people organization with three R&D centers, established in Hong Kong, Shenzhen, and Boston (USA).

Traversing the 'Valley of Death' in Medical Robotics Translation: Challenges, Opportunities, Innovations, and Entrepreneurships

The goal of medical robotics research is to deliver more effective treatments and diagnostic solutions that directly benefit patients. However, many promising innovations become trapped in a "Valley of Death"—failing to reach clinical trials or the market, and even when they do, patient access often remains limited. Successfully crossing this valley requires reimagining research organizations and fostering a connected ecosystem that includes academia, industry, funding agencies, and regulatory bodies. The Multiscale Medical Robotics Center (MRC) was established with this mission, working closely with innovative start-ups like Cornerstone Robotics Ltd (CSR) to build a robust medical robotics translation model for traversing the valley.

Supported by the InnoHK initiative of the HKSAR Government, MRC was established in April 2020, forging strategic collaborations with ETH Zürich, Imperial College London, and Johns Hopkins University to tackle global healthcare challenges. With a vision of becoming a hub for clinical translational research in medical robotics, MRC focuses on technological innovation with a strong emphasis on clinical application and serves as an incubator for medical technology start-ups. Over the past few years, the center has developed various medical robotic technologies poised to transform clinical practice, enabling start-ups to conduct preclinical evaluations of their surgical innovations. Particularly, the MRC partnered with the Hong Kong-based start-up CSR in developing the Sentire Surgical Robotic System, providing crucial preclinical animal and cadaveric research support. This collaboration facilitated CSR's achievement of a "first-in-human" clinical study in Hong Kong, contributing to the company's growth from a few people team to a 400-people organization.

This talk will identify the unique challenges of translating research concepts and prototypes into medical products within a highly regulated healthcare industry. We will discuss how the MRC translation model is critical in bridging the gap between academic institutions, funding agencies, hospitals, and companies, serving as an innovative and effective platform for market development and the adoption of new solutions, starting from the early stages of product development. Additionally, we will highlight our research efforts to push the boundaries of medical intervention through advanced sensing, robotic technology, control algorithms, and AI within this collaborative framework. Finally, Dr. Au will share his journey from a robotics researcher to an academic entrepreneur (i.e., founding CSR), building an interdisciplinary technology team and organization to address a highly challenging engineering problem in the regulated healthcare sector.

INVITED TALKS

Prof. Yu SUN

Professor
Mechanical and Industrial Engineering
University of Toronto, Canada

15 January 2025 | 14:30-15:10

Yu Sun is a Professor in the Department of Mechanical and Industrial Engineering, with joint appointments in the Institute of Biomedical Engineering, Department of Electrical and Computer Engineering, and Department of Computer Science at the University of Toronto (UofT). He is a Tier I Canada Research Chair and the founding Director of the UofT Robotics Institute. His lab specializes in developing innovative technologies and instruments for manipulating and characterizing cells, molecules, and nanomaterials. Yu Sun is one of few people elected to all three of the national academies in Canada – the Canadian Academy of Engineering, the Royal Society of Canada, and the Canadian Academy of Health Sciences. He is also an International Member of the Chinese Academy of Engineering and a Fellow of IEEE, ASME, AAAS, NAI, AIMBE, CSME and EIC. He is the Editor-in-Chief of IEEE Trans. Automation Science and Engineering and is on the editorial board of the AAAS journal, Science Robotics. Among the awards he received were an NSERC E.W.R. Steacie Fellowship, NSERC Synergy Award of Innovation, IEEE McNaughton Gold Medal, President's Impact Award, and IEEE EMBS Technical Achievement Award.

Medical Robotics for Cell Surgery – Science and Applications

The capability of manipulating micro and nanometer-sized objects, such as cells and nanomaterials opens new frontiers in robotic surgery, disease diagnostics, industrial applications and enables new discoveries in many disciplines such as biology, medicine, and materials science. The past two decades have witnessed spurred development of micro-nanorobotic systems and technologies with common hallmarks of precision instrumentation, sensing, actuation, and control. This talk will begin with a brief review of the evolution of the robotic micromanipulation field, followed by an overview of challenges, opportunities, and representative advances recently made in this field. Examples of robotic cell manipulation systems for clinical surgery and drug screen will be given; sub-micrometer position control and sub-nanoNewton force control for realizing 3D intracellular and intra-tissue manipulation and measurement will be introduced; and mechanical nanosurgery of chemoresistant tumors will be discussed.

INVITED TALKS

Prof. Liu WANG

Professor

Modern Mechanics

University of Science and Technology of China, China

15 January 2025 | 15:10-15:50

Prof. Wang is the Executive Chair of Department of Modern Mechanics, University of Science and Technology of China (USTC). He received a bachelor's degree from USTC in 2014 and a doctoral degree from University of Texas at Austin in 2019. After that, he worked as a postdoc with Prof. Xuanhe Zhao at Massachusetts Institute of Technology (MIT). His research focuses on the mechanics of soft materials and soft robotics for healthcare and biomedical applications, such as magnetic soft robots and bioelectronics. He has published over 60 papers such as Science Robotics, Science Advances, Nature Machine Intelligence, Nature Biomedical Engineering, Nature Communications. He is an awardee of Forbes Asia 30 under 30 (Science & Healthcare).

MAGNUS: Magnet Array-Guided Neurovascular Steering

Preshaped mechanical guidewires have traditionally been used for neurovascular interventions. However, their steerability in highly tortuous cerebral vessels remains limited. Magnetic guidewires offer a promising alternative by enabling remote steering under magnetic fields. Yet, existing magnetic navigation systems commonly rely on power-intensive electromagnetic coils that make them bulky. Here, we propose MAGNUS: a Magnet Array-Guided Neurovascular Steering system leveraging a compact configuration of 18 spherical permanent magnets to establish a controllable magnetic field. We present the design of this system along with preliminary results demonstrating its capability. In particular, we achieve a minimal magnetic field strength of 53 mT over a 25×15 cm workspace, sufficient for guiding instruments in the brain. We further show that both the strength and direction of the magnetic field can be precisely controlled. Demonstrations include steering a magnetic guidewire in planar petal channels, planar vascular phantoms, and a 3D vascular phantom, illustrating the potential of MAGNUS for advanced neurovascular interventions.

INVITED TALKS

Prof. Kelvin Kam Lung CHONG

Local Clinician Talks | **15 January 2025 | 16:10-17:10**

Associate Professor
Department of Ophthalmology and Visual Sciences
The Chinese University of Hong Kong, Hong Kong SAR

Dr Kelvin KL CHONG's clinical and research interest focus on oculofacial plastic conditions including thyroid eye disease, orbital tumors, trauma, tearing disorders and minimally invasive eyelid, lacrimal and orbital surgeries. He graduated at the top of his class in the CUHK Faculty of Medicine (MBChB) program. He was awarded the Li Po Chun Charitable Trust Fund Overseas Postgraduate Scholarship to the University of California at Los Angeles (UCLA) and LA Biomedical Institute where he returned later for a 2-year surgical and translational research fellowship. His awards included the City Lion Club Gold Medal, Action for Vision Eye Foundation Young Researcher of the Year, Achievement Awards from American Academy of Ophthalmology (AAO) and Asia Pacific Academy of Ophthalmology (APAO), best surgical video awards in AAO (2012, 2014) and World Ophthalmology Congress (2018). He has over 40 SCI indexed peer-reviewed articles and 5 book chapters. Dr Chong currently serves as the Head of the Orbital and Oculoplastic Division at the Department of Ophthalmology and Visual Science (DOVS) and Prince of Wales Hospital (PWH) and the Associate Director of the CUHK Eye Center. He is the current President of Hong Kong Society of Ophthalmic Plastic and Reconstructive Surgery (HKSOPRS), President-Elect of the Asia Pacific Society of Ophthalmic Plastic and Reconstructive Surgery (APSOPRS) and education officer of the International Thyroid Eye Disease Society (ITEDS). He is recently inducted into the American Society of Ophthalmic Plastic & Reconstructive Surgery (ASOPRS).

Local Clinician Talks

The Emerging Roles of Micro-robots in Lacrimal Operations

Pending

INVITED TALKS

Prof. Jason Ying Kuen CHAN

Local Clinician Talks | **15 January 2025 | 16:10-17:10**

Professor and Chairman
Department of Otorhinolaryngology, Head and Neck Surgery
The Chinese University of Hong Kong, Hong Kong SAR

Professor Chan is currently Clinical Professor and Chairman of the Department of Otorhinolaryngology, Head and Neck Surgery. He also is the Assistant Dean (Student Development) for the Faculty of Medicine. With a global perspective following graduating from Guy's, King's and St Thomas' School of Medicine in London, specialist training in Otolaryngology, Head and Neck surgery at the Johns Hopkins Medical Institutions with advanced training in Head and Neck surgery, microvascular reconstruction and robotics. Professor Chan's clinical expertise covers the full breadth of head and neck surgery, including a focus on minimally invasive approaches, in particular, transoral robotic approaches for head and neck tumours. His current area of research is focused on the role of the microbiome in head and neck cancers and the development of endoluminal robotics in surgery for which he has received numerous grants and Co-Founded a robotics startup - Agilis Robotics Ltd. In addition, he serves on the editorial board of the Journal of Otolaryngology -Head and Neck Surgery, the official journal of the Canadian Society of Otolaryngology - Head and Neck Surgery, and has over 100 peer reviewed published journal articles.

Local Clinician Talks

Advancing Care with Robotics in the Management of Patients with Head and Neck Cancers

Robotics and artificial intelligence (AI) have been advancing at a rapid pace globally. There has been an explosion of robotic companies in the general surgery arena with newer platforms targeting endoluminal surgery. Through this talk we explore the areas in head and neck surgery that traditionally involve natural orifice surgery in a very confined space containing significant anatomical real estate. From the traditional approaches with transoral robotic surgery (TORS), we will then explore the different areas from preoperative planning, intraoperative care to postoperative care that are ripe for evaluation and management involving robotic systems with the potential application of AI.

INVITED TALKS

Prof. Bonaventure Yiu Ming IP

Local Clinician Talks | **15 January 2025 | 16:10-17:10**

Assistant Professor
Department of Medicine and Therapeutics
The Chinese University of Hong Kong, Hong Kong SAR

Dr. Bonaventure Ip is a vascular and interventional neurologist currently serving as a Clinical Assistant Professor at the Chinese University of Hong Kong. Actively involved in various professional organizations and committees, Dr. Ip serves as a co-opt member of the Hong Kong Neurological Society, a young council member of the Chinese Association of Integrative Medicine and Interventional Treatment, and a regional committee member of the Society of Vascular Interventional Neurology (SVIN). Furthermore, he works as an assistant editor for the International Journal of Stroke and contributes as a reviewer for esteemed journals such as The Lancet, Journal of Neurology, Neurosurgery and Psychiatry, Alzheimer's & Dementia, and International Journal of Stroke. Driven by his passion for improving the lives of stroke patients and their families, Dr. Ip focuses on both clinical care and research. His research interests encompass various areas, including anticoagulation, stroke-related big data analytics, advanced neuroimaging, and endovascular thrombectomy. Through collaborative efforts with experts from different disciplines and across the globe, Dr. Ip has obtained multiple external competitive grants and published multiple peer-reviewed articles as a Principal Investigator. His research has been published in first-tier peer-reviewed journals such as Science Robotics, JAMA Network Open, Neurology, Stroke, and the International Journal of Stroke. Dr. Ip's contributions to the field of medicine have been recognized through several awards. He was honored with the Hong Kong College of Physicians Distinguished Research Paper Award in 2023 and received the Best Free Paper Award and Best Dissertation Award at the Hong Kong Neurological Society Annual Scientific Meeting in 2021 and 2019, and Hospital Authority Outstanding Team Award (Stroke Team) in 2019. Additionally, he is deeply committed to medical education and has been awarded as an exemplary and outstanding teacher by the Faculty multiple times.

Local Clinician Talks

Can Robotics Enhance Treatment Precision and Recovery of Stroke Patients?

Stroke is the second leading cause of death worldwide. Robotics presents a unique opportunity to optimize acute stroke treatment through various means. This talk will first address the current limitations of stroke treatment and its delivery to patients, and explore how robotics may resolve these challenges. We will examine the feasibility of remote thrombectomy using robotics and highlight how nanorobots could enhance the recanalization of vascular occlusions. Finally, we will discuss the current challenges in human applications of nanorobots in neurointervention that need to be overcome before full implementation in human subjects can be achieved.

INVITED TALKS

Prof. Auke IJSPEERT

Professor
Bioengineering
École Polytechnique Fédérale de Lausanne, Switzerland

16 January 2025 | xxxxxxxxxx

Auke Ijspeert is a professor at EPFL (the Swiss Federal Institute of Technology in Lausanne, Switzerland), IEEE Fellow, and head of the Biorobotics Laboratory (www.epfl.ch/labs/biorob). He has a B.Sc./M.Sc. in physics from the EPFL (1995), and a PhD in artificial intelligence from the University of Edinburgh (1999). His research interests are at the intersection between robotics and computational neuroscience. He is interested in using numerical simulations and robots to gain a better understanding of animal locomotion and movement control, and in using inspiration from biology to design novel types of robots and locomotion controllers (see for instance Ijspeert et al, Science, Vol. 315, 2007 and Ijspeert, Science Vol. 346, 2014). He is also interested in assisting persons with limited mobility using exoskeletons and assistive furniture. With his colleagues, he has received paper awards at ICRA2002, CLAWAR2005, IEEE Humanoids 2007, IEEE ROMAN 2014, CLAWAR 2015, SAB 2018, CLAWAR 2019, and ICRA2024. He is associate editor for the IEEE Transactions on Medical Robotics and Bionics. He is also a member of the Board of Reviewing Editors of Science magazine.

Using Robots as Scientific Tools to Decipher Animal Locomotion

The ability to efficiently move in complex environments is a fundamental property both for animals and for robots, and the problem of locomotion and movement control is an area in which neuroscience, biomechanics, and robotics can fruitfully interact. In this talk, I will present how biorobots and numerical models can be used to explore the interplay of the four main components underlying animal locomotion, namely central pattern generators (CPGs), reflexes, descending modulation, and the musculoskeletal system. Going from lamprey to human locomotion, I will present a series of models that tend to show that the respective roles of these components might have changed during evolution with a dominant role of CPGs in lamprey and salamander locomotion, and a more important role for sensory feedback and descending modulation in human locomotion. I will also present how deep reinforcement learning can be used to explore questions related to supraspinal learning and planning that takes into account spinal cord dynamics. If time allows, I might present a project showing how robotics can provide scientific tools for paleontology.

INVITED TALKS

Prof. Shoji TAKEUCHI

Professor

The University of Tokyo, Japan

16 January 2025 | 10:20-11:00

Shoji Takeuchi received the B.E, M.E., and Dr. Eng. degrees in mechanical engineering from the University of Tokyo, Tokyo, Japan, in 1995, 1997, and 2000, respectively. He is currently a Professor in Department of Mechano-Informatics, Graduate School of Information Science and Technology, University of Tokyo. He has authored more than 240 peer-reviewed publications and filed over 140 patents. He has been recognized with numerous honors including Young Scientists' Prize, the Commendation for Science and Technology by the MEXT in 2008, the JSPS prize in 2010, ACS Analytical Chemistry Young Innovator Awards in 2015, and UNESCO Netexplo Award Winner 2019. JSME Micro-Nano Science & Technology Achievement Award in 2022. His current research interests include biohybrid robotics, 3D tissue fabrication, bioMEMS, implantable devices, artificial lipid bilayer systems, and cultivated meat.

Biohybrid Robotics

Humanity has developed various technologies to address societal needs, ranging from humanoid robots and smartphones to self-driving cars.

Despite these significant advances, replicating the exceptional functionalities found in nature within robotic systems remains a major challenge. Biological systems exhibit remarkable capabilities: sensors that detect molecular changes with unparalleled sensitivity and selectivity, mechanisms that self-organize into complex structures, and processes that produce materials with efficiency far beyond human engineering. However, translating these natural phenomena into artificial systems remains a significant challenge.

To address this gap, biohybrid robotics combines biological components with artificial materials to develop systems that integrate the strengths of both fields. This approach aims to overcome the limitations of traditional robotics and replicate some of nature's unique functionalities. For example, biohybrid sensors use proteins or cells to detect substances at the single-molecule level, offering potential applications in environmental monitoring or health diagnostics. Biohybrid processors, inspired by neural circuits, enable parallel and energy-efficient data processing, providing robots with capabilities for real-time learning and decision-making. These outputs can drive biohybrid actuators, which use living muscle tissues to achieve movements that are both energy-efficient and quiet, suitable for tasks like surgical assistance or food production. Additionally, biohybrid reactors mimic biological reactions to produce essential components or support self-repair mechanisms, enhancing the sustainability of such systems.

By integrating these technologies, biohybrid robotics provides an opportunity to explore new ways of enhancing robotic design and functionality. This interdisciplinary field highlights the potential for systems that interact more effectively with their environments by leveraging biological principles. Such advancements could contribute to applications in medicine, environmental monitoring, and beyond, supporting a future where robotic systems are more adaptable and efficient.

INVITED TALKS

Prof. Kyu-Jin CHO

Professor

Seoul National University, South Korea

16 January 2025 | 11:30-12:10

Kyu Jin Cho is a Professor and the Director of Soft Robotics Research Center and Biorobotics Lab at Seoul National University. He received his Ph.D. in mechanical engineering from MIT and his B.S and M.S. from Seoul National University. He was a post-doctoral fellow at Harvard Microrobotics Laboratory before joining SNU in 2008. He has been exploring novel soft bio-inspired robot designs, including a water jumping robot, various shape changing robots and soft wearable robots for the disabled. He has received the 2014 IEEE RAS Early Academic Career Award for his fundamental contributions to soft robotics and biologically inspired robot design. He has published a Science paper on water jumping robot and several papers in Science Robotics with novel robot designs. He has served RAS as Associate VP of Publication Activities Board, a general chair of RoboSoft 2019, management committee chair of TMECH. Currently, he serves as VP of the RAS Technical Activities Board and General Chair of ICRA2027.

Bioinspired Robot Designs with Embodied Intelligence

In this talk, I will present research conducted at SNU Biorobotics Lab, which not only draws inspiration from the adaptability and inherent intelligence of natural systems but also incorporates Designs that defy traditional norms. Our projects range from compact jumping robots to origami-inspired robots and prosthetics that can be fabricated in a single step. We focus on developing robots that not only mimic the adaptive behaviors and embodied intelligence found in nature, but also aim to discover new principles that can be integrated into robot design. This presentation will explore the iterative and multidisciplinary approach to nature-inspired robot design, a process that involves identifying engineering challenges, investigating natural solutions, deriving novel principles from nature, fabricating robots, and evaluating their performance through experimentation. This feedback loop leads to the modification and refinement of hypotheses, stimulating further iterations of the process.

INVITED TALKS

Prof. Tiantian Xu

16 January 2025 | 14:00-14:40

Professor
Shenzhen Institutes of Advanced Technology
Chinese Academy of Sciences, China

Pending

TBC

INVITED TALKS

Prof. Kevin CHEN

Associate Professor
Electrical Engineering and Computer Science
Massachusetts Institute of Technology, USA

16 January 2025 | 14:40-15:20

Kevin Chen is an Associate Professor at the Department of Electrical Engineering and Computer Science, MIT, USA. He received his PhD in Engineering Sciences at Harvard University in 2017 and his bachelor's degree in Applied and Engineering Physics from Cornell University in 2012. His research interests include high bandwidth soft actuators, microrobotics, and aerial robotics. He has published in top journals including Nature, Science Robotics, Advanced Materials, PNAS, Nature Communications, IEEE TRO, and Journal of Fluid Mechanics. He is a recipient of the Steven Vogel Young Investigator Award, the NSF CAREER Award, the Office of Naval Research Young Investigator Award, multiple best paper awards (TRO 21, RAL 20, IROS 15), and the Ruth and Joel Spira Teaching Excellence Award.

Agile and Robust Micro-Aerial-Robots Powered by Soft Artificial Muscles

Flapping-wing flight at the insect-scale is incredibly challenging. Insect muscles not only power flight but also absorb in-flight collisional impact, making these tiny flyers simultaneously agile and robust. In contrast, existing aerial robots have not demonstrated these properties. Rigid robots are fragile against collisions, while soft-driven systems suffer limited speed, precision, and controllability. In this talk, I will describe our effort in developing a new class of bio-inspired micro-flyers, ones that are powered by high bandwidth soft actuators and equipped with rigid appendages. We constructed the first heavier-than-air aerial robot powered by soft artificial muscles, which can demonstrate a 1000-second hovering flight. In addition, our robot can recover from in-flight collisions and perform somersaults within 0.10 seconds. This work demonstrates for the first time that soft aerial robots can achieve agile and robust flight capabilities absent in rigid-powered micro-aerial vehicles, thus showing the potential of a new class of hybrid soft-rigid robots. I will also discuss our recent progress in incorporating onboard sensors, electronics, and batteries.

INVITED TALKS

Prof. Pakpong CHIRARATTANANON

16 January 2025 | 15:50-16:30

Associate Professor
Biomedical Engineering
City University of Hong Kong, Hong Kong SAR

Pakpong Chirarattananon is an Associate Professor in Biomedical and Mechanical Engineering at the City University of Hong Kong. He received his Ph.D. in Engineering Sciences from Harvard University and B.A. in Natural Sciences from the University of Cambridge. His research focuses on biologically-inspired robotic systems, micro aerial vehicles, and hybrid locomotion, with work published in prestigious journals such as Science, Nature, and Science Robotics. He uses intelligent mechanisms to address the complexities of power, dynamics, and control, enhancing small robotic devices by integrating mechanical design, actuation, dynamics, control strategies, and environmental conditions. His contributions have earned numerous accolades, including the 2021 IEEE Transactions on Robotics King-Sun Fu Memorial Best Paper Award.

Advancing Miniature Aerial Robotics: Bio-Inspired Design and Mechanical Intelligence

Advancing small aerial robots involves overcoming challenges in efficiency, versatility, and autonomy posed by miniaturization and resource constraints. My research embraces bio-inspired design principles and mechanical intelligence to push boundaries in what's achievable. This talk will explore how bio-inspiration and a minimalist approach have led to significant advancements. We will discuss our recent works, including the Hopcopter, a novel hybrid hopping-flying robot. Our design showcases how passive elements can simplify actuation and improve overall agility, demonstrating how compliant mechanisms and energy recuperation can radically enhance performance of robotic locomotion systems. Together, these biologically-motivated innovations enable miniature aerial vehicles to take on increasingly complex real-world tasks with limited payload capacity and power.

INVITED TALKS

Prof. Cosimo DELLA SANTINA

16 January 2025 | 16:30-17:10

Associate Professor
Delft University of Technology (TU Delft), The Netherlands

Cosimo Della Santina received the Ph.D. degree (cum laude) in robotics from the University of Pisa, Pisa, Italy, in 2019. He is currently an Associate Professor with TU Delft, Delft, The Netherlands, and a Guest Research Scientist with the German Aerospace Institute (DLR), Munich, Germany. He was a visiting Ph.D. student and a Postdoc with Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology, from 2017 to 2019. He was a Senior Postdoc and a Guest Lecturer with the Department of Informatics, Technical University of Munich, in 2020 and 2021, respectively. His research interest is in providing motor intelligence to unconventional robotic systems, especially those involving elastic and soft components. Dr. Della Santina is the Delft AI lab SELF co-director and a VENI laureate. He has been awarded the 2020 Georges Giralt Ph.D. Award, the 2023 IEEE RAS Early Career Award, and an ERC Starting Grant in 2024.

Motor Intelligence for Soft Robots

Pending

INVITED TALKS

Prof. Han DING

17 January 2025 | 09:40-10:20

Director
Huazhong University of Science and Technology, China

Han Ding is a professor and the director of the State Key Laboratory of Intelligent Manufacturing Equipment and Technology, Huazhong University of Science and Technology, China, and was selected as an academician of the Chinese Academy of Sciences in 2013. He is also the Chief Scientist of the Fundamental Research Center of Robotized Intelligent Manufacturing and the Major Research Program of Tri-co robots, the National Natural Science Foundation of China, and the Chairman of the National Innovation Institute of Digital Design and Manufacturing. Currently, his major research interest lies in robotized intelligent manufacturing, humanoids, and embodied intelligence for dexterous manipulation.

Robotized Intelligent Manufacturing: from Tri-co Robots to AI-powered Humanoids

Intelligent manufacturing greatly improves social productivity and people's life quality. However, featuring high quality and high efficiency, traditional intelligent manufacturing faces new challenges: more complex manufacturing targets, diverse customizable demands, and fragile robustness. Notably, natively reconfigurable, flexible, and versatile, robotized intelligent manufacturing can cope well with the above new challenges if high precision manufacturing can be achieved. Funded by the Major Research Program of Tri-co Robots, the National Natural Science Foundation of China (NSFC), the Pilot Program of Humanoid Research, the Ministry of Education of China, and the Fundamental Research Center of Robotized Intelligent Manufacturing, NSFC, intensive research on robots and intelligent manufacturing has been conducted in the past decade. In this talk, we will discuss the core scientific questions and facing challenges during the investigations.

INVITED TALKS

Prof. Yunhui LIU

17 January 2025 | 10:20-11:00

Choh-Ming Li Professor of Mechanical and Automation Engineering
Department of Mechanical and Automation Engineering
The Chinese University of Hong Kong, Hong Kong SAR

Yunhui Liu received his Ph.D. degree from the University of Tokyo. After working at the national Electrotechnical Laboratory of Japan as a Research Scientist, he joined The Chinese University of Hong Kong (CUHK) in 1995 and is currently a Choh-Ming Li Professor of Mechanical and Automation Engineering, the Director of T Stone Robotics Institute, and the Director/CEO of Hong Kong Centre for Logistics Robotics funded by the InnoHK clusters. He has published over 500 papers and was listed in the Highly Cited Authors (Engineering) by Thomson Reuters. His research interests include robotics, AI, and their applications in manufacturing, logistics, healthcare, and construction. He co-founded VisionNav Robotics, AIever Robotics, CornerStone Robotics, etc. He is Fellow of IEEE, HKAE and HKIE.

Robot Perception and Manipulation Using Vision

3D visual perception and visual feedback are crucial for humans to successfully carry out tasks or motion in real worlds. To work intelligently and robustly in natural environments, robots must be able to make use of visual information like humans. This talk presents technical challenges in robotic 3D visual perception and vision-based robotic manipulation, and introduces our latest research on the topics. In particular, we will present our latest results on 3D reconstruction of objects or environments using structured lights, omnidirectional cameras, single or stereo camera, and videos, 3D perception such as point-cloud registration and objects' pose estimation, and robotic manipulation/grasping of objects including soft objects using 3D visual information. Applications of the technologies in manufacturing, logistics and healthcare will be introduced as well.

INVITED TALKS

Dr. Jeremy BOUYER
Director of Research
BIOS Department
CIRAD, France

17 January 2025 | 11:20-12:00

Jérémy Bouyer is a medical and veterinary entomologist at Cirad UMR ASTRE, leading research in ecology and integrated control of vectors, with a particular focus on genetic control. After 18 years in Africa focusing on tsetse flies, he lead the Human Disease Vectors group of the FAO-IAEA Insect Pest Control Laboratory between 2017-2023, developing the Sterile Insect Technique against mosquitoes. He coordinated the ERC Consolidator Grant "Revolinc" from 2016 to 2021, with the goal of developing the boosted Sterile Insect Technique against three insect groups including Aedes mosquitoes. He is currently coordinating a large field trial of boosted SIT against Aedes mosquitoes in Reunion island, to demonstrate its capacity to prevent transmission of arboviruses. In 2023, he funded MoSITouch, a Deeptech start-up that will commercialize boosted SIT against mosquitoes.

Robots to Upscale the Sterile Insect Technique against Mosquitoes

The World Health Organization has emphasized the urgent need for alternatives to insecticides to control mosquitoes, particularly Aedes species vectors of arboviruses. The sterile insect technique (SIT) is thus experiencing rapid development, with more than 40 pilot trials being conducted worldwide. SIT is a species-specific, environmentally friendly method with a long history of successful large-scale implementation against various insect pests since the 1950s. The SIT operates on the principle of releasing large number of irradiated sterile males into the target area, where they outcompete the wild males to mate with wild females, resulting in the production of no viable offspring. It requires the production of large numbers of sterile males, a labour intensive activity that results in high costs currently limiting its scalability. In this presentation, I will illustrate how robots may allow upscaling SIT against mosquitoes with some examples. Wolbaki (China) developed an automated pupa sex sorter that can effectively separate large numbers of males from females, with a male production capacity of this robot ~17-fold more than manual sex separation, enabling one person to separate 16 million males per week. Cicindela (Spain) is currently developing a mosquito larval rearing station with embodied pupal sex sorter combined with a Cartesian robot that picks up and tilts the stacked pupae trays one at a time. This robot is fed with columns of standard self-stacked larval trays. Finally, uncrewed aerial vehicles can increase the field performance of sterile male mosquitoes and decrease the cost of release. After a first model validated in Brazil in a rural landscape, Cirad (France) and his partners has successfully reduced the size of the drone, which was validated in urban areas in France and Greece.

INVITED TALKS

Dr. Tomas KRAJNIK
Associate Professor
Artificial Intelligence Center
Czech Technical University, Czech

17 January 2025 | 12:00-12:40

Tomas Krajnik is an associate professor at the Czech Technical University in Prague and a visiting professor at the University of Durham, UK. He is a founding director of the Chronorobotics laboratory, formed in 2021. The research group investigates problems related to the long-term autonomy of mobile robots in changing environments, focusing on robust perception and spatio-temporal modelling. The group obtained funding through several national and international research projects, industrial collaborations, and the DARPA Subterranean and MBZIRC Robotics Challenges. Tomas is a coordinator of a large EU Horizon Europe Pathfinder project SensorBees, and a principal investigator of H2020-FET EU project RoboRoyale. These projects are deploying methods from the mobile robotics domain in biohybrid systems that integrate robots with social insects to monitor and support declining ecosystems.

Robotic Systems for Honeybee Behavioural Analysis

Social insects, especially honeybees, play an essential role in nature, and the recent decline of their population threatens the stability of many ecosystems. The behaviour of honeybee social insect colonies is typically governed by a central individual, e.g., the honeybee queen. Since honey bee self-organisation and self-regulation are complex, and studying queens in their natural colonies is difficult, the behavioural strategies of these organisms have yet to be studied in sufficient depth. However, advances in robotics, machine perception, and artificial intelligence offer technologies that transform behavioural science and biology. In this talk, we will present robotic systems that can observe, analyse, and affect the behaviour of the honeybee queen within a living honeybee colony. We will show how these systems can improve the efficiency of their operation over time by using predictive models of the queen activity and colony dynamics built from their past observations.

INVITED TALKS

A/Prof. Shelley WICKHAM

Associate Professor
Chemistry and Physics
University of Sydney, Australia

17 January 2025 | 14:00-14:40

Associate Professor Shelley Wickham is Head of the DNA nanotechnology Group in the Schools of Chemistry and Physics at the University of Sydney. She received her PhD in Condensed Matter Physics from the University of Oxford, UK, working on building synthetic molecular motors out of DNA. She then moved to a postdoctoral fellow position at Harvard Medical School, USA, based in the Department of Cancer Biology, Dana-Farber Cancer Institute, and the Wyss Institute for Biologically Inspired Engineering, where she worked on designing 3-dimensional DNA origami nanostructures to study biological systems. Her research group focuses on self-assembling nanotechnology and molecular robotics, with applications in cell biology, materials science and nanomedicine. A/Prof. Wickham has received funding from the Australian Research Council, NSW Health, and the Australia-US International Multidisciplinary University Research Initiative (AUSMURI).

Dynamic DNA Nanorobots as Tools for Biophysics and Material Science

DNA nanotechnology has emerged over the past decades as a powerful strategy to build self-assembling nanostructures, with applications as tools for single molecule biophysics, platforms for diagnostics and therapeutics, and templates for nanofabrication. In parallel, the field of DNA computing has implemented complex logical operations in molecular reaction networks, such as synthetic molecular motors. Current key limitations are the size and complexity of DNA nanostructures, and the integration of structural DNA nanotechnology with DNA computing circuits to build reconfigurable and responsive nanorobots. Here, we develop a modular system of DNA origami 'voxels' with programmable 3D connections as building blocks for nanorobots. Programmable switching of local connections between flexible and rigid states achieved rapid and reversible reconfiguration of global structures. We envision that foldable chains of DNA origami voxels can achieve increased complexity in reconfigurable nanomaterials, providing modular components for the assembly of nanorobotic systems with future applications in synthetic biology, assembly of inorganic materials, and nanomedicine.

INVITED TALKS

Prof. Rong ZHU

Professor

Tsinghua University, China

17 January 2025 | 14:40-15:20

Rong Zhu is Full Professor at Department of Precision Instrument in Tsinghua University, China. She is also serving as Executive Vice President of MEMS&NEMS society, China Instrument and Control Society. Prof. Zhu has been working on research and development of micro/nano electromechanical devices, intelligent measurement and control systems. Her current researches focus on flexible sensors and multifunctional e-skins, and applications specializing in smart robots and healthcare monitoring. Prof. Zhu has published more than 200 peer-reviewed journal/conference papers, and held more than 30 granted patents. She has served as co-chair and ETPC of ICMAN and Transducers conference, and has won National Technological Invention Award (China), Provincial and Ministerial Award for Science and Technology Progress (China), Golden Awards of International Invention Exhibition, Transducers Outstanding Paper Award, World Artificial Intelligence Conference Outstanding Paper Award, etc.

Sensing Science and Technology for Smart Robots

Although robotic technology has achieved significant achievement in industrial applications, aiming at complex scenarios, great challenges exist in terms of multi-modal perceptions and robust implementation for robots. Human is a smart system with multi-sensations, super thinking ability, and strong implementing competence. In this talk, I will present a new approach of multi-sensations and implementation for smart robots, inspired from human. Thermoreceptors of human skin respond to stimuli of temperature, object in touch, and wind flow because these stimuli alter the heat from skin. These delicate thermo-sensations enrich human's feelings during the interaction with environment. Inspired by human's thermoreceptor, we propose a thermosensation-based principle, and utilize thin-film thermistors fabricated on a flexible substrate to implement multimodal sensing integration into flexible sensors and electronic skin (e-skin). The multimodal perceptions encompass pressure sensing, proximity detection, matter-type identification, temperature sensing, flow sensing, slip detection, and texture recognition. These flexible sensors and e-skin have the advantages of high integration, simple structure, excellent sensing performance, and good adjustability. We apply the flexible sensors and e-skin to intelligent robots. We develop multimodal tactile sensors on robotic hands, multifunctional e-skin on robotic arms, and incorporate tactile perception with machine vision and intelligent control, further combine artificial intelligence to accomplish robotic garbage sorting, smart housekeeping, and dexterous manipulation applications.

INVITED TALKS

Prof. Jamie PAIK

17 January 2025 | 15:20-16:00

Professor
École Polytechnique Fédérale de Lausanne, Switzerland

Prof. Jamie Paik is director and founder of Reconfigurable Robotics Lab (RRL) of Swiss Federal Institute of Technology (EPFL). RRL's research leverages expertise in design and advanced manufacturing toward reconfigurable robotic platforms that push the physical limits of material and mechanisms. She is a world expert in soft robotics and self-morphing robotic origamis that transform autonomously planar shape to 3D by folding linkages. Soft material robots and robogamis are designed to be interactive with the users and their environments through both innate and active reconfigurations. Such characteristics of the RRL's robots have direct applications in medical, automobile, space, tangible communication, and wearable robots. While this novel technology has been published in multiple premier academic journals such as in Soft Robotics Journal, IEEE Transactions in Robotics, Nature, and Science, RRL's spin-offs, MIROS and Foldaway-Haptics, have pushed the boundaries of the industrial applications of these robots as seen in TED and CES. The latest robogami is part of Mercedez's 2020 concept car, Avatar, presented during CES 2020, and MIROS in 2023 and 2024.

Reconfigurable Robots for Real Intuitive Interactions

A truly ubiquitous environment is where human-machine interactions are intuitive, reliable, and compatible. This requires an intelligent platform that is versatile and adaptable to evolving tasks and dynamic environments. While there are extensive efforts in addressing this challenge through massive data and learning algorithms, there is yet to be a cohesive solution to improve the actual physical interactions. Recent developments in soft robots with their unconventional material-based solutions and modular robots with a multitude of configurations propose possible avenues to extend the capacities of robotics. This talk will highlight the recent progress in soft-material robots and reconfigurable origami robots that aim at achieving comprehensive solutions toward diverse "softer" human-robot applications.

LIST OF POSTERS

Medical Robotics - 15 Jan 2025 (Wed)

Poster No.	Board No.	Title
7	1	**Biomimetic Helical Robots capable of Targeted Navigation and Prodrug Activation for Intestinal Diseases Treatment** **Prof. Zheng Wang**[1] [1]Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China
8	2	**Robust 3D Path Following Control Framework for Magnetic Helical Millirobots Subject to Fluid Flow and Input Saturation** **Mr Zhaoyang Qi**[1] [1]The Chinese University of Hongkong, Hong Kong SAR
9	3	**Magnetic microswarm for central vein catheter salvage** **Mr. Zifeng Zhang**[1], Prof. Tony Kai Fung Chan[2,3], Prof. Joseph Jao Yiu Sung[4], Prof Li Zhang[1,2,3] [1]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [2]Chow Yuk Ho Technology Center for Innovative Medicine, Hong Kong SAR, [3]Multi-Scale Medical Robotics Center, Hong Kong SAR, [4]Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore
13	4	**Electroporation-Empowered Photodynamic Therapy via Magnetocatheter for Intestinal Cancer** **Mr. Yihang Jiang**[1], Dr. Yuqiong Wang[1], Prof. Kai Fung Chan[2], Prof. Li Zhang[1,2,3,4,5] [1]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [2]Chow Yuk Ho Technology Centre for Innovative Medicine, The Chinese University of Hong Kong, Hong Kong SAR, [3]Multi-Scale Medical Robotics Center, Hong Kong SAR, [4]Department of Surgery, The Chinese University of Hong Kong, Hong Kong SAR [5]CUHK T Stone Robotics Institute, The Chinese University of Hong Kong, Hong Kong SAR
16	5	**Living Microalgae-based Magnetic Microrobots for Ca2+ Overload and Photodynamic Synergetic Cancer Therapy** **Mr. Shuai JIANG**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
17	6	**Magnetic Immune Cell Spheroid Robots for Active immunotherapy of Bile Duct Cancer** **Phd Junjia Guo**[1] [1]Department of Biomedical Engineering, The Chinese University of Hong Kong, Hong Kong SAR

LIST OF POSTERS

Poster No.	Board No.	Title
20	7	**Concentric Wire-Driven Robots With In Situ Torsion for Transnasal Surgery** **Yixuan Kong**[1] [1]Harbin Institute of Technology, Shenzhen, China
33	8	**Magnetic 3D microswarm for biofilm eradication in irregular slit** **Ms. Huihui Du**[1], Doc. Shihao Yang[1], Doc. Kay Fung Chan[2], Prof. Li Zhang[1] [1]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [2]Chow Yuk Ho Technology Centre for Innovative Medicine, The Chinese University of Hong Kong, Hong Kong SAR
34	9	**Magnetic Guidewires Significantly Reduce Manipulation Force in Vascular Intervention** **Mr. Boxian Yao**[1], Prof. Xiaohu Zhou[1], Prof. Zeng-Guang Hou[1] [1]Institute of Automation, Chinese Academy of Sciences, University of Chinese Academy of Sciences, China
36	10	**An Automated Micro Robotic Pathogen Sensing Platform** **Mr Chak Kit Cheng**[1], Mr Wai Shing LIU, Professor Kai Fung CHAN, Professor Li ZHANG [1]The Chinese University of Hong Kong, Hong Kong SAR
37	11	**Automated Micro-robotic Manipulation Using Reconfigurable Magnetic Microswarms** **Dr. Jialin Jiang**[1], Prof. Li Zhang [1]The Chinese University of Hong Kong, Hong Kong SAR
38	12	**Design and Navigation of Magnetic Microcatheter with Rotatable Tip for Endovascular Treatment** **Dr. Moqiu ZHANG**[1] [1]Multi-scale Medical Robotics Center, Hong Kong SAR
39	13	**Combined Three Dimensional Locomotion and Deformation of Functional Ferrofluidic Robots** Prof. Xinjian Fan[1], **Mr. Qinkai Chen**[1], Mr. Yunfei Zhang[1], Prof. Zhan Yang[1] [1]Soochow University, Suzhou, China

LIST OF POSTERS

Poster No.	Board No.	Title
45	14	**Real-time tracking and navigation of a microswarm under laser speckle contrast imaging for targeted delivery in vivo** **Dr. Qinglong WANG**[1,2], Prof. Qianqian WANG[3], Prof. Li ZHANG[2] [1]Multi-scale Medical Robotics Center Limited, Hong Kong SAR, [2]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [3]Jiangsu Key Laboratory for Design and Manufacture of Micro-Nano Biomedical Instruments, School of Mechanical Engineering, Southeast University, Nanjing, China
48	15	**Liquid Metal Amplified Charge Separation in Photocatalytic Micro/Nano-Motors for Antibacterial Therapy** **Zichang Guo**[1], Liquid Metal Amplified Charge Separation in Photocatalytic Micro/Nano-Motors for Antibacterial Therapy Dongdong Jin[1], Liquid Metal Amplified Charge Separation in Photocatalytic Micro/Nano-Motors for Antibacterial Therapy Xing Ma[1] [1]Harbin Institute of Technology (Shenzhen), China
50	16	**Development and Control of Magnetic Microrobot-Assisted Recanalization System for Nasolacrimal Duct Obstruction** **Dr Haojin Yang**[1] [1]Multi-scale Medical Robotics Center, Hong Kong SAR
51	17	**SurRoL: RL Centered and dVRK Compatible Embodied Platform for Surgical Robot Learning** **Dr. Yonghao LONG**[1], Prof. Qi DOU[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
52	18	**Robust Position Control of a Continuum Manipulator Based on Selective Approach and Koopman Operator** **Dr Haodong Wang**[1] [1]Multi-scale Medical Robotics Center, Hong Kong SAR
56	19	**A Magnetic Continuum Robot with In-situ Magnetic Reprogramming Capability** **Mr Junnan XUE**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
60	20	**Autonomous microrobots with long-term genetic memory for anti-tumor regulation** **Mr. Haotian Chen**[1,2], Mr. Yujun Chen[1], PhD Zhen Yin[1], PhD Yu Cheng[1,2] [1]Frontiers Science Center for Intelligent Autonomous Systems, Tongji University, Shanghai, China, [2]Shanghai Fourth People's Hospital, School of Medicine,Tongji University, Shanghai, China

LIST OF POSTERS

Poster No.	Board No.	Title
65	21	**Iontronic pressure sensor with high sensitivity and low drift for biomedical application** **Mr. Xingyu Hou**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
67	22	**Magnetic soft microfiberbots for robotic embolization** **Mr Xurui Liu**[1], Professor Liu Wang[2], PhD student Yuanzhuo Xiang[3], Professor Guangzhong Yang[4], Professor Guangming Tao[3], Professor Jianfeng Zang[3] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]University of Science and Technology of China, China, [3]Huazhong University of Science and Technology, China, [4]Shanghai Jiao Tong University, China
68	23	**Magnetic Continuum Robot with Modular Axial Magnetization: Design, Modeling, Optimization, and Control** **Phd Student Yanfei Cao**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
69	24	**Renal Clearance Magnetic Microrobotic Swarms for Atherosclerotic Plaque Removal and Immune Microenvironment Remodelling** **Mr QINGFU Wang**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
75	25	**Liquid-bodied antibiofilm robot with switchable viscoelastic response for biofilm eradication on complex surface topographies** **Mr. Bonan SUN**[1], Prof. Joseph Sung[2], Prof. Li Zhang[1] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]Nanyang Technological University, Singapore
76	26	**Machine Learning Enabled Rapid Raman Spectroscopy for Intraoperative Cancer Detection** **Miss Yusong Peng**[1,2], Mr Yiqing Wang[3], Mr Christopher Butch[3] [1]Department of Material Science and Engineering, College of Engineering and Applied Sciences, Nanjing University, Nanjing, China, [2]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [3]Department of Biomedical Engineering, College of Engineering and Applied Sciences, Nanjing University, Nanjing, China
78	27	**Modularized microrobot for targeted cell delivery in bile duct** **Dr. Lin Su**[1], Prof. Kai Fung Chan[1,2], Prof. Li Zhang[1,2] [1]Multi-scale Medical Robotics Center Limited, Hong Kong SAR, [2]The Chinese University of Hong Kong, Hong Kong SAR
57	28	**Robot-Assisted Steerable Drilling System for Confined Space Operation: A Cadaveric Study** **Dr. Chen Song**[1], Mr. Lam Him Kwok[2], Dr. Yan Wang[2], Dr. Xiangyu Chu[1,2], Dr. Jienan Ding[1], Prof. K. W. Samuel Au[1,2] [1]Multi-scale Medical Robotics Center, Hong Kong SAR, [2]The Chinese University of Hong Kong, Hong Kong SAR

LIST OF POSTERS

Bioinspired Robotics - 16 Jan 2025 (Thu)

Poster No.	Board No.	Title
5	1	**Counterfactual rewards promote collective transport using individually controlled swarm microrobots** **Dr. Hongri Richard Gu**[1] [1]University of Konstanz, Konstanz, Germany
6	2	**Reaching New Hopping Height with Reactive Parallel-Elastic Actuation** **Dr Songnan Bai**[1] [1]City University Of Hong Kong, Hong Kong SAR
12	3	**A non-electrical pneumatic hybrid oscillator (PHO) for high-frequency multimodal robotic locomotion** **Mr Yongzhou Long**[1], Dr Zhuang Zhang[2], Mr Siyue Yao[1], Dr Hao Wang[1], Dr Hangqing Jiang[3], Dr Genliang Chen[1] [1]Shanghai Jiao Tong University, Shanghai, China, [2]Fudan University, Shanghai, China, [3]Westlake University, Hangzhou, China
14	4	**Knee-Inspired Hinge Absorbs Axial Impacts to Enhance Robot-Environment Interaction Safety** **Dr Lianxin Yang**[1], Ms Xinyan Li[1], Mr Tianyu Zhao[1], Prof Zhihua Zhao[1] [1]Tsinghua University, China
15	5	**Fracture-driven Power Amplification in a Hydrogel Launcher** **Mr Xin Wang**[1], Professor Chengfeng Pan[2], Professor Carmel Majidi[3], Professor Li Zhang[1] [1]CUHK, Hong Kong SAR, [2]Zhejiang University, Hangzhou, China, [3]Carnegie Mellon University, Pittsburgh, USA
18	6	**Virtual reality and robotics to reveal collective behavior mechanisms** **Dr Liang Li**[1], Dr Sercan Sayin[1], Dr Pavan Kaushik[1], Mr August Paula[1], Dr Iacopo Hachen[1], Ms Kajal Kumari[1], Prof Iain Couzin[1] [1]Max Planck Institute of Animal Behavior, Germany
21	7	**The functions of phasic wing-tip folding on flapping-wing aerodynamics** **Mr. Yiming Li**[1], Mr. Keyu Li[1], Dr. Fang Fu[2], Prof. Yao Li[1], Prof. Bing Li[1] [1]Harbin Institute of Technology, Shenzhen, China, [2]Shenzhen University, China

LIST OF POSTERS

Poster No.	Board No.	Title
22	8	**An Aerial-aquatic Robot Capable of Fully Actuated Operation Both in the Air and Underwater** **Ph.D Bocheng Tian**[1], Ph.D Yuchen Liu[1], Ph.D Xiangyu Ren[1], Professor Li Wen[1] [1]School of Mechanical Engineering and Automation, Beihang University, Beijing, China
23	9	**Multidirectional planar motion transmission on a single-motor actuated robot via microscopic galumphing** Mr. Lingqi Tang, **Prof. Yao Li**, Prof. Bing Li [1]Harbin Insititute of Technology (Shenzhen), Shenzhen, China
24	10	**Multiple jumping and Perching of a miniature mobile robot** Mr. Lingqi Tang, **Prof. Yao Li**, Prof. Bing Li [1]Harbin Insititute of Technology (Shenzhen), Shenzhen, China
26	11	**Moobot: A Miniature Origami Omnidirectional Jumping Robot with High Trajectory Accuracy** Mr. Lingqi Tang, **Prof. Yao Li**, Prof. Bing Li [1]The Chinese University of Hongkong, Hong Kong SAR
27	12	**Multimodal Magnetic Sensing for Soft Robots** **Dr Chong Zhang**[1], Prof Chengfeng Pan[1], Prof Kaifung Chan[1] [1]The Chinese University Of Hong Kong, Shatin, Hong Kong SAR
28	13	**Compact Octopus-Inspired Suction Cup with Optoelectronic Innervation for Soft Continuum Robot Arms** **Mr. Yuchen Liang**[1], Mr. Chaoyang Liu[1], Mr. Stein van Veggel[2], Dr. Michael Wiertlewski[2], Dr. Eugeni L. Doubrovski[2], Mr. Adrie Kooijman[2], Dr. Barbara Mazzolai[3], Dr. Rob B.N. Scharff[1] [1]The Hong Kong University of Science and Technology, Sai Kung, Hong Kong SAR, [2]Delft University of Technology, Delft, Netherlands, [3]Istituto Italiano di Tecnologia, Genova, Italy
40	14	**Light-triggered multi-joint microactuator** **Dr Chen Xin**[1] [1]The Chinese University Of Hong Kong, Hong Kong SAR
42	15	**Near-boundary Viscous Fluid Transport Induced by Milli-scale Undulatory Motion** Shiqing Liu[1], Yi Zheng[1], Dr Li Wen[1], **Dr Ziyu Ren**[1] [1]Beihang University, Beijing, China

LIST OF POSTERS

Poster No.	Board No.	Title
44	16	**Dynamic morphological transformations in soft architected materials via buckling instability encoded heterogeneous magnetization** **Dr Neng Xia**[1,2], Dr Dongdong Jin[2], Dr Chengfeng Pan[2], Prof. Jiachen Zhang[3], Dr Zhengxin Yang[2], Dr Lin Su[1], Dr Jinsheng Zhao[2], Prof. Liu Wang[4], Prof. Li Zhang[1,2,5,6,7] [1]Multi-scale Medical Robotics Center, Hong Kong SAR, [2]Department of Mechanical and Automation Engineering, The Chinese University of Hong Kong, Hong Kong SAR, [3]Department of Biomedical Engineering, City University of Hong Kong, Hong Kong SAR, [4]Department of Modern Mechanics, University of Science and Technology of China, China, [5]Chow Yuk Ho Technology Center for Innovative Medicine, The Chinese University of Hong Kong, Hong Kong SAR, [6]CUHK T Stone Robotics Institute, The Chinese University of Hong Kong, Hong Kong SAR, [7]Department of Surgery, The Chinese University of Hong Kong, Hong Kong SAR
46	17	**Stretchable e-skin and transformer enable high-resolution morphological reconstruction for soft robots** **Dr Delin Hu**[1] [1]Chinese University Of Hong Kong, Hong Kong SAR
47	18	**Controlling Pattern Transformation Rates of Magnetic Microrobotic Swarms in Complex Fluids** **Dr. Shihao Yang**[1,2], Prof. Li Zhang[1,2] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]Multi-scale Medical Robotics Center, Hong Kong SAR
49	19	**Animating Hydrogel Knotbots with Topology-invoked Self-Regulation** **Phd Qingli ZHU**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
54	20	**Swarming Nanorobotic System for Dynamic SERS Sensing** **Mr Dongfang Zhao**[1], Dr Dongdong Jin[2], Dr Xing Ma[2] [1]The Chinese University Of Hong Kong, Hong Kong SAR, [2]Harbin Institute of Technology (Shenzhen), Shenzhen, China
59	21	**Seifert Ribbon Actuators for Multimodal Self-sustainable Autonomous Locomotions** **Zhenzhou Nie**[1] [1] Multi-scale Medical Robotics Center, Hong Kong SAR
62	22	**Sensorized Suction Cup with Mechanically Self-Guided Adhesion** **Mr. Feiyang Yuan**[1], Mr. Lufeng Tian[1], Mr. Haoyuan Xu[1], Mr. Wenjie Wu[1], Prof. Li Wen[1] [1]Beihang University, Beijing, China

LIST OF POSTERS

Poster No.	Board No.	Title
66	23	**Propeller-based Appendage Can Improve Landing Stability of Legged Robot Under Aggressive Angular Velocity** **Prof. Xiangyu Chu**[1] [1]The Chinese University Of Hong Kong, Hong Kong SAR
70	24	**A Multimodal Robot with Biomimetic Suction for Autonomous Perching and Climbing** **Mr. Haoyuan Xu**[1,2], Mr. Shuyong Zhao[1], Mr. Jiale Zhi[3], Mr Chongze Bi[1], Prof. Li Wen[1] [1]School of Mechanical Engineering and Automation of Beihang University, Beijing, China, [2]ShenYuan Honors College of Beihang University, Beijing, China, [3]CEN- TRALE PEKIN/School of General Engineering of Beihang University, Beijing, China
73	25	**Neutrophil-Mimetic Upconversion Photosynthetic Nanosystem for Targeted Treatment of Stroke** **Dr Xingping Quan**[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
77	26	**Octopus-inspired Underwater Grasping Using Bending Propagation** **Mr. Jiaqi Liu**[1], Prof. Li Wen[1] [1]Beihang University, China

LIST OF POSTERS

Robots in the Real World - 17 Jan 2025 (Fri)

Poster No.	Board No.	Title
4	1	**Freeform Cellular Robots: Design, Modeling, Sensing and Control** **Dr. Guanqi LIANG**[1] [1]The Chinese University of Hong Kong, Shenzhen, China
10	2	**Mode Shape Analysis for Robotic Elastic Matrices Design** **Mr Kun Chen**[1] [1]Harbin Institute of Technology, Shenzhen, China
11	3	**3D Printing of Silicone-based Soft Robotic Systems** **Mr. Fei Xiao**[1,2], Mr. Zhuoheng Wei[1,2], Mr. Zhipeng Xu[1,2], Miss Yiqun Xu[1,2], Dr Jisen Li[1,2], Prof Jian Zhu[1,2] [1]The Chinese University of Hongkong, Shenzhen, China, [2]Shenzhen Institute of Artificial Intelligence and Robotics for Society, Shenzhen, China
19	4	**Inflatable Metamorphic Origami** **Mr Peng Yan**[1] [1]Harbin Institute of Technology, Shenzhen, China
41	5	**Magnetic Field Sensing with 4D Printed Fiber-Tip Microcantilever** **Mr Haoqiang Huang**[1] [1]Shenzhen University, Shenzhen, China
43	6	**Development and Investigation for Rigid-flexible Coupling Dynamic Performances of Morphing Wing with Clearance Joints** **Mr Xiong Zhang**[1,2,3], Dr Xi Kang[1,2,3], Prof Yue Dong[1,2,3], Prof Bing Li[1,2,3] [1]State Key Laboratory of Robotics and System,Harbin Institute of Technology, Harbin, China, [2]Guangdong Provincial Key Laboratory of Intelligent Morphing Mechanisms and Adaptive Robotics, Harbin Institute of Technology, Shenzhen, China, [3]School of Mechanical Engineering and Automation, Harbin Institute of Technology, Shenzhen, China
53	7	**Cross-modal Place Recognition Using Event-based Sensors for Mobile Robots** **Mr Xiang Ji**[1], Mrs Jiaxin Wei[2], Mr Yifu Wang[2], Mr Huiliang Shang[3], Mr Laurent Kneip[2] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]Shanghai Tech University, Shanghai, China, [3]Fudan University, Shanghai, China
55	8	**Shared Object Manipulation with a Team of Collaborative Quadrupeds** **Mr. Shengzhi Wang** [1]The Chinese University Of Hong Kong, Hong Kong SAR

LIST OF POSTERS

Poster No.	Board No.	Title
61	9	**Analysis of Micro-Scale Shape Design Based on Microscopic Visual Imaging** **Mr Yihan Chen**[1], Mr Honglu Li[2], Mr Zijian Zhu[2], Professor Chenyang Zhao[2] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]Harbin Institute of Technology, Shenzhen, China
63	10	**Prioritized Whole-body Control for Humanoid Robots with Centroidal Dynamics** **Mr. Tianllin Zhang**[1], Dr. Linzhu Yue[1], Mr. Hongbo Zhang[1], Prof. Yunhui Liu[1] [1]The Chinese University of Hong Kong, Hong Kong SAR
71	11	**A Dual-Modal Hybrid Gripper with Wide Tunable Contact Stiffness Range and High Compliance for Adaptive and Wide-Range Grasping Objects with Diverse Fragilities** **Dr Jiaqi Zhu**[1], Prof Han Ding[2], Prof Zhigang Wu[2] [1]The Chinese University of Hong Kong, Hong Kong SAR, [2]Huazhong University of Science and Technology, Wuhan, China

CONFERENCE INFORMATION

Date

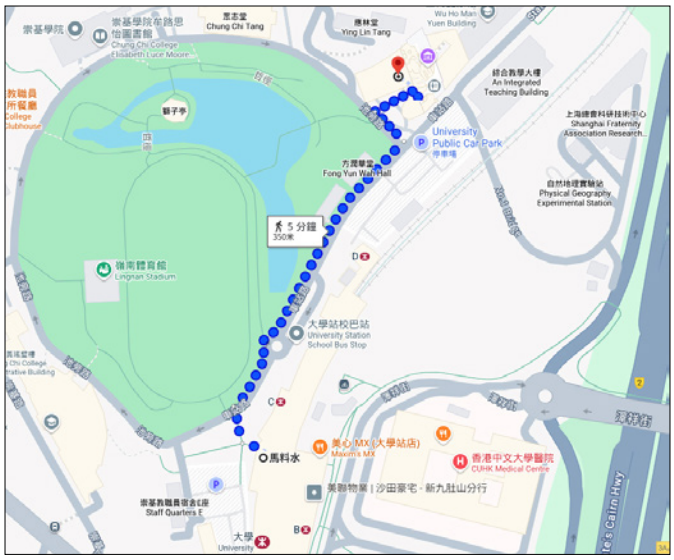
15 January 2025 (Wednesday) – 17 January 2025 (Friday)

Conference Venue

Yasumoto International Academic Park (YIA)
The Chinese University of Hong Kong
Shatin
Hong Kong SAR

Getting access to the Campus

- 5-minute walking distance from **Exit A** of University MTR Station.
- All participants will need to pass through security check at the main entrance outside University MTR Station Exit A.
- Please present the Visitor Registration System (VRS) QR Code sent to you by email or identity document for the security checking purpose. The VRS QR codes are person specific and valid only for the **date** specified.



Shuttle Service from Hyatt Regency Shatin to YIA

Date	Opening Time	Pick-up Point
15 Jan 2025 16 Jan 2025 17 Jan 2025	08:45	Hotel Entrance, Lobby Level, Hyatt Regency Shatin

Registration and Information Desk

Date	Opening Time	Location
15 – 17 Jan 2025 (Wed – Fri)	08:30 – 18:00	Foyer, Lecture Theatre 2 (LT2), G/F, YIA

Please bring along the eCopy of your registration confirmation or provision of your name for check-in. Please send email to Secretariat for receiving a copy again if you have misplaced it.

Conference Sessions

Opening ceremony, conference sessions, round-table discussions and closing ceremony will be held at LT2, G/F, YIA.

Poster Presentation

Poster presentation is located at Multi-function room inside the bookstore located at 1/F, YIA with the following schedule:

Date	Theme	Setup	Dismantle
15 Jan 2025 (Wed)	Medical Robotics	08:30-09:00	17:30-18:00
16 Jan 2025 (Thu)	Bioinspired Robotics	08:30-09:00	17:30-18:00
17 Jan 2025 (Fri)	Robots in the Real World	08:30-09:00	17:30-18:00

Best Poster Awards will be announced and presented at the Closing Ceremony on 17 January 2025.

CONFERENCE INFORMATION

Wifi

Wi-Fi Name (SSID): CUguest
Identity: Conference Guests
User ID: src2025
Password: yiacuhk

How to Connect

1. Select CUguest from the list of available Wi-Fi networks on your device.
2. You will be prompted to sign in. Alternatively, visit any webpage to get the sign in prompt. (CUHK homepage, www.cuhk.edu.hk, is viewable without sign in.)
3. Select your identity and enter User ID/Password, then click the Login button.
4. Remember to observe the terms and conditions and do not use the Wi-Fi network for the exchange of sensitive or personal Information.

Coffee/Tea

Coffee/tea will be served at the Market Café on 1/F, YIA at the designated times.

Lunch

Registrants and Exhibitors

Lunch boxes will be arranged at Chung Chi Tang Student Canteen.

Speakers and Invited Guests

Date	Lunch Venue
15 Jan 2025 (Wed)	Richard M.W. Ho Lounge, Lee Woo Sing College
16 Jan 2025 (Thu)	Connexion, S. H. College Staff Common Room
17 Jan 2025 (Fri)	The Green, Lee Woo Sing College

Cocktail Reception

(For conference participants except student registrants)

Date:	15 January 2025 (Wednesday)
Time:	18:30 – 20:30
Venue:	MRC R&D Lab, 20E, Hong Kong Science Park (HKSTP)
Shuttle service:	From YIA to HKSTP - 18:15 From HKSTP to Hyatt Regency Shatin & University MTR Station - 21:00

Welcome Dinner

(For all conference participants)

Date:	16 January 2025 (Thursday)
Time:	19:00 – 22:00
Venue:	Happiness Cuisine Shop S101-S106, 2/F, Core Building 2, 1 Science Park E Ave, Hong Kong Science Park (HKSTP)
Shuttle service:	From YIA to HKSTP - 18:15 From HKSTP to Hyatt Regency Shatin & University MTR Station - 22:00

Badge Identification

Each participant will receive a name badge upon registration. All participants are requested to wear their name badges throughout the Conference. Only badge holders will be admitted to the Conference venues.

CONFERENCE INFORMATION

Certificate of Attendance

E-certificate of attendance will be sent to those attended the Conference within 2 weeks after the Conference.

Personal Property

Please take good care of your personal belongings. Do not leave them unattended. The Organizers and the Conference Secretariat will not be responsible for any loss or damage of your personal properties.

Liability

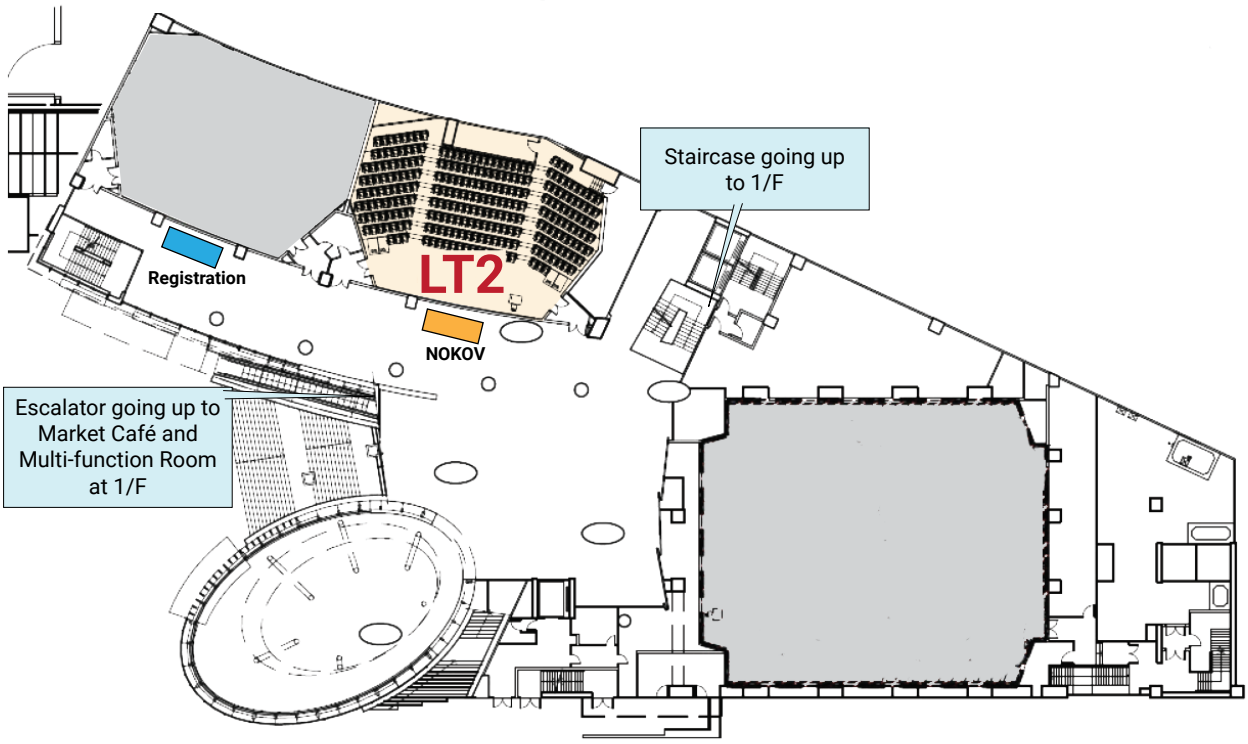
The Organizers and the Conference Secretariat will not be liable for personal accidents, or any loss or damage of private property during the Conference. Participants should make their own arrangements with respect to personal insurance.

Disclaimer

Whilst every attempt will be made to ensure that all aspects of the Conference announced will take place as scheduled, the Organizers reserve the right to make last minute changes should the need arise.

FLOOR PLANS

Yasumoto International Academic Park (YIA)
Lecture Theatre 2 (LT2), G/F



1/F, YIA