



**Issue 46 (August 2023)**

**Event**



**College of Engineering**

The Bright Future Engineering Talent Hub under the College recently held a STEM Carnival cum Student Project Exhibition 2023, showcasing a range of fascinating student and staff research projects with direct applications to daily life. Over 700 secondary school students participated in STEM workshops designed to inspire and enhance problem-solving skills of the participants, in line with CityU's focus on STEM education.

**Faculty Achievement**

**General Research Fund (GRF) & Early Career Scheme (ECS)**

**College of Engineering**

The College has achieved outstanding results in the General Research Fund (GRF) & Early Career Scheme (ECS) 2023-24 Exercise, winning a total of 66 grants worth HK\$70.4M. The College was ranked first and second in the "Electrical & Electronic Engineering" and "Computing Science & Information Technology" disciplines respectively for GRF grants. In the subject area of "Mechanical, Production & Industrial Engineering", the College received the highest number of awards and funding under both GRF and ECS schemes among all institutions, with a 100% success rate for ECS grants.

**Faculty Achievement**



**College of Engineering**

The College is highly successful in securing research funding.

**Areas of Excellence Scheme (AoE)**

Project Title	Advanced Antenna Technology for a Smart World HK\$69.19M
Principal Coordinator	Department of Electrical Engineering Prof LUK Kwai Man
Co-Principal Investigators	Department of Electrical Engineering Prof LEUNG Kwok Wa Prof Stella PANG Prof CHAN Chi Hou Prof WONG Hang Prof Alex WONG Department of Mechanical Engineering Prof LU Jian

**Theme-based Research Scheme (TRS)**

Project Title	Co-Principal Investigator(s)
Overcoming Technical Limits of Copper Hybrid Bonding for Advanced Three-Dimensional Integrated Circuits	Department of Materials Science and Engineering Prof TU King Ning Department of Systems Engineering Prof FENG Shien Ping Prof LIU Yingxia
INTACT: Intelligent Tropical-storm-resilient System for Coastal Cities	Department of Architecture and Civil Engineering Prof LI Qiusheng
Diamond-based Multi-modal Quantum Sensing of Nanomagnetism	Department of Mechanical Engineering Prof LU Jian

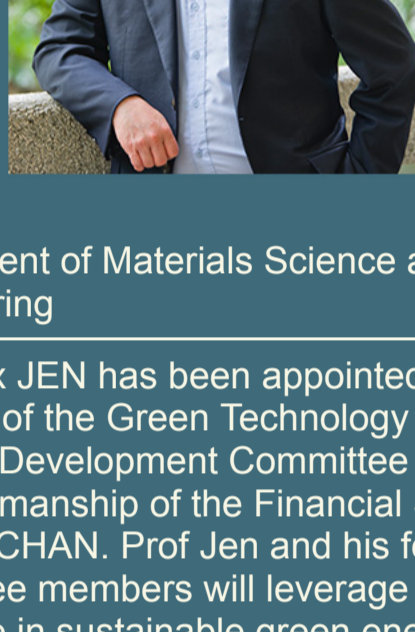
**Faculty Achievement**



**Department of Materials Science and Engineering**

Prof Alex JEN and his team have developed a multifunctional and non-volatile additive that improves the efficiency and stability of perovskite solar cells (PVSCs). By modulating perovskite film growth using a simple but effective strategy, the team has made a significant breakthrough in improving the commercial viability of PVSCs. The discovery was published in *Nature Photonics*, highlighting the potential impact of this innovation.

**Faculty Achievement**



**Department of Materials Science and Engineering**

Prof Alex JEN has been appointed as a member of the Green Technology and Finance Development Committee under the chairmanship of the Financial Secretary Mr Paul CHAN. Prof Jen and his fellow committee members will leverage their expertise in sustainable green energy technology to develop useful strategies for improving Hong Kong's position in sustainable green technology and finance development, paving the way for net-zero carbon emissions.

**Faculty Achievement**



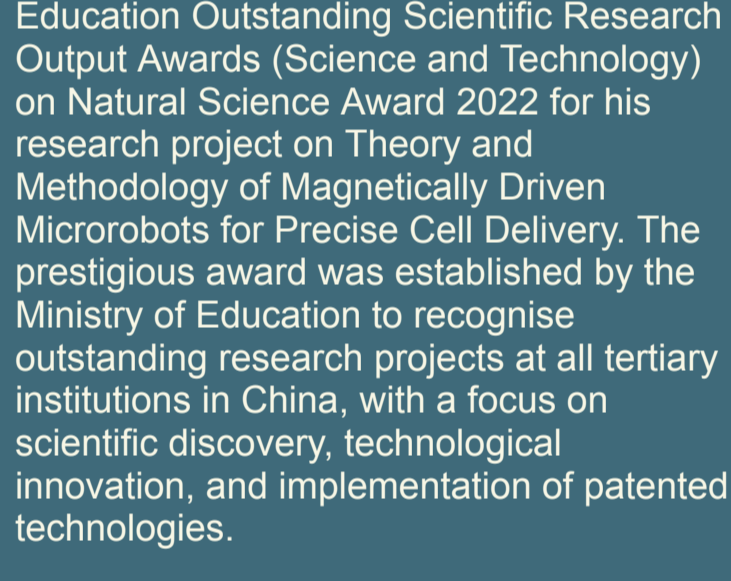
**Department of Materials Science and Engineering**

In a recent publication in *Nature Communications*, Prof LIU Bin and his team delves into the intrinsic structure feature of single-atom centres in electrochemical CO/CO<sub>2</sub> reduction to methanol using in-situ spectroscopic probes. Meanwhile, Prof ZHI Chunyi and his team have published a paper titled Anion chemistry in energy storage devices in *Nature Reviews Chemistry*.

**Faculty Achievement**

The Research Grants Council has awarded grants to three outstanding faculty members of the College. Prof Andrey ROGACH and Prof ZHI Chunyi received Senior Research Fellow Scheme Awards, while Prof YU Xing received a Research Fellow Scheme Award. The schemes provide relief from teaching and administrative duties to exceptional researchers, enabling them to dedicate their efforts to research and development. Awardees will receive fellowship grants of approximately HK\$7.8M and HK\$5.2M, respectively, for 60 months.

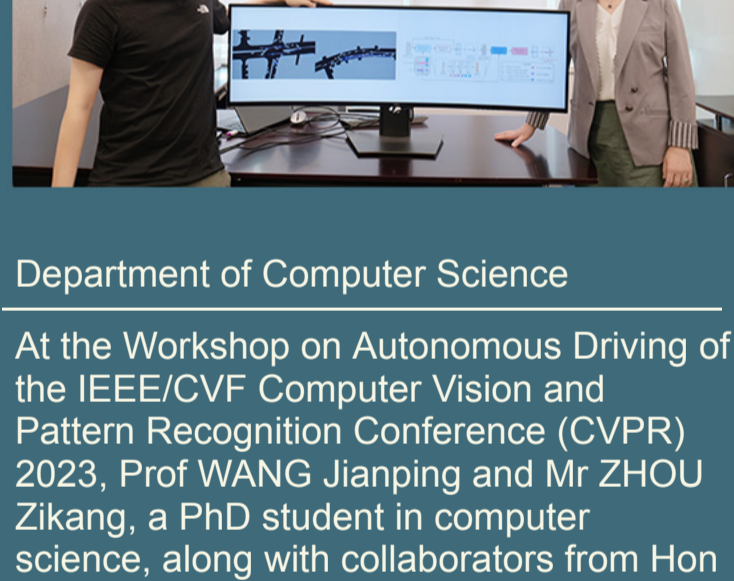
**Faculty Achievement**



**Department of Biomedical Engineering**

Prof SUN Dong has been honoured with the second-class award at the Higher Education Outstanding Scientific Research Output Awards (Science and Technology) on Natural Science Award 2022 for his research project on Theory and Methodology of Magnetically Driven Microrobots for Precise Cell Delivery. The prestigious award was established by the Ministry of Education to recognise outstanding research projects at all tertiary institutions in China, with a focus on scientific discovery, technological innovation, and implementation of patented technologies.

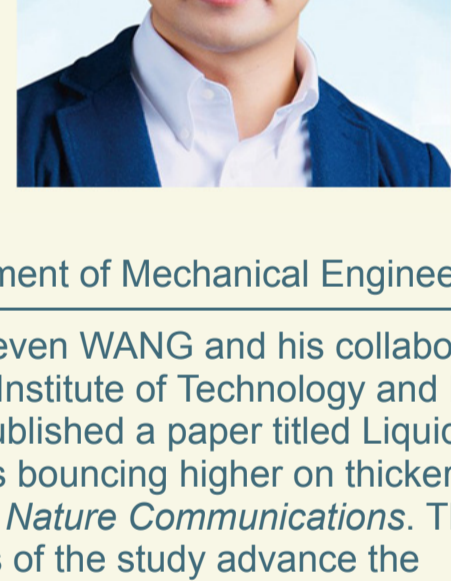
**Faculty Achievement**



**Department of Computer Science**

At the Workshop on Autonomous Driving of the IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023, Prof WANG Jianping and Mr ZHOU Zikang, a PhD student in computer science, along with collaborators from Hon Hai Research Institute and Carnegie Mellon University, were crowned champions of the Argoverse 2 Multi-agent Motion Forecasting Challenge. Additionally, the paper entitled Query Centric Trajectory Prediction was published in the proceedings of the CVPR 2023 and featured in the Conference's Workshop on Autonomous Driving.

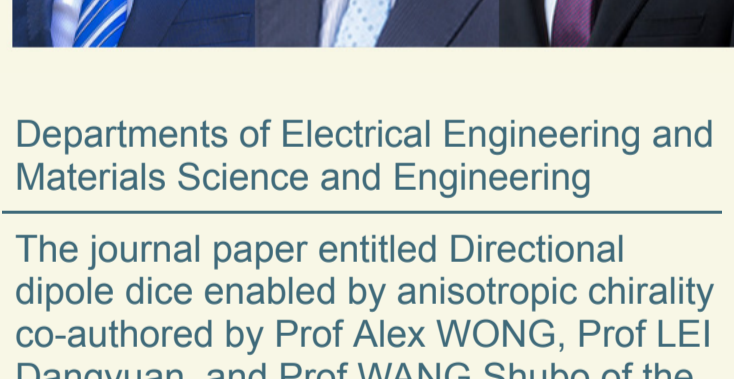
**Faculty Achievement**



**Department of Mechanical Engineering**

Prof Steven WANG and his collaborators at Harbin Institute of Technology and PolyU have published a paper titled Liquid metal droplets bouncing higher on thicker water layer in *Nature Communications*. The findings of the study advance the fundamental understanding of complex fluids' droplet dynamics and provide insights into fluid control.

**Faculty Achievement**



**Departments of Electrical Engineering and Materials Science and Engineering**

The journal paper entitled Directional dipole dice enabled by anisotropic chirality co-authored by Prof Alex WONG, Prof LEI Danguan, and Prof WANG Shubo of the College of Science was published in *The Proceedings of the National Academy of Sciences*, one of the world's top academic journals.

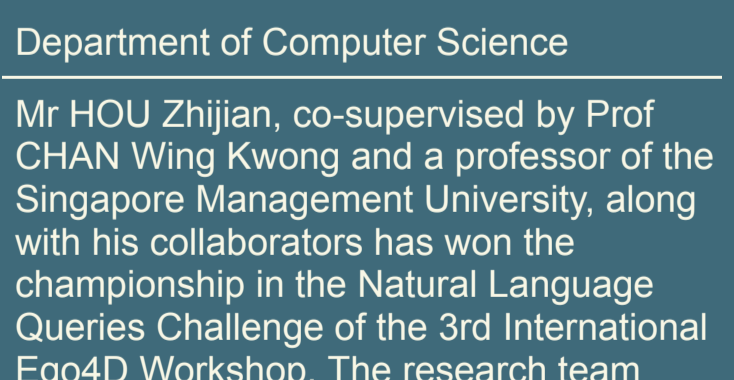
**Student Achievement**



**Department of Biomedical Engineering**

Mr Nicholas CHAN has been selected by the Chiang Chen Industrial Charity Foundation for the Chiang Chen Overseas Fellowship 2023-2024. He will receive a maximum stipend of US\$25,000 for graduate study in a full-time Master's or PhD programme in engineering or a closely related field at a top ten US university or a selected institution in Europe.

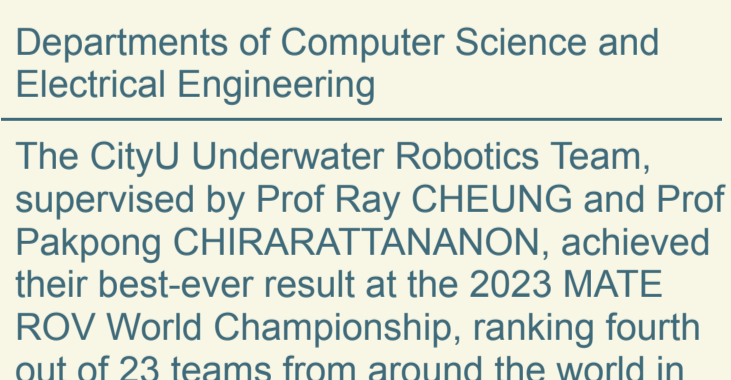
**Student Achievement**



**Department of Computer Science**

Mr HOU Zhijian, co-supervised by Prof CHAN Wing Kwong and a professor of the Singapore Management University, along with his collaborators has won the championship in the Natural Language Queries Challenge of the 3rd International Ego4D Workshop. The research team proposed a novel video-language framework that pushed the boundaries of ego-centric video moment retrieval via natural language. Their entry achieved the best performance on every metric by a significant margin in the leaderboard.

**Student Achievement**

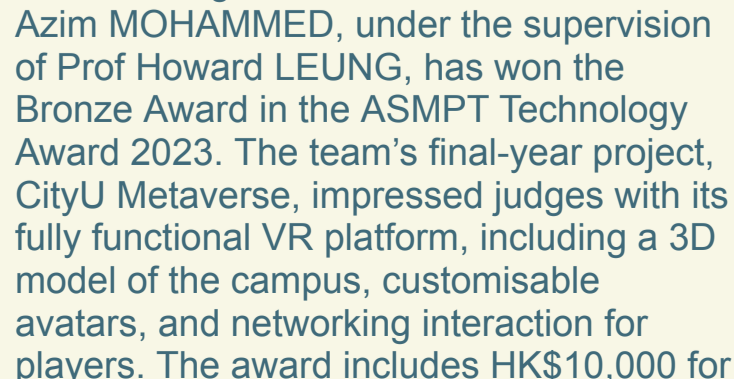


**Departments of Computer Science and Electrical Engineering**

The CityU Underwater Robotics Team, supervised by Prof Ray CHEUNG and Prof Pakpong CHIRARATTANANON, achieved their best-ever result at the 2023 MATE ROV Championship, ranking fourth out of 23 teams from around the world in the EXPLORE class.

Department of Electrical Engineering	Mr LI En Yee Ian (Team Leader) Miss CHAN Ho Yan Mr GUO Yicheng Miss LAU Ka Pik Sabrina Mr LAM Ting Kwan Miss SIT Yan Tung Mr WEI Mau Chun
Department of Computer Science	Mr CHEUNG Wai San
School of Data Science	Mr SIU Nok Man

**Student Achievement**



**Department of Computer Science**

A team of three graduates comprising Miss NG Sin Yung, Mr PANG Chun Hei and Mr AZIM MOHAMMED, under the supervision of Prof Howard LEUNG, has won the Bronze Award in the ASMPT Technology Award 2023. The team's final-year project, CityU Metaverse, impressed judges with its fully functional VR platform, including a 3D model of the campus, customisable avatars, and networking interaction for players. The award includes HK\$10,000 for the team and a donation of HK\$30,000 to CityU as ASMPT Scholarships for outstanding academic students.

**Student Achievement**



**Department of Biomedical Engineering**

Miss PARK Se Weon and Miss SU Haoyun have received prestigious awards at the 2023 ISMRM & ISMRT Annual Meeting & Exhibition. Miss Park received the Second Place Award on applications, while Miss Su received the Third Place Award on methods. The International Society for Magnetic Resonance in Medicine is a non-profit organisation that promotes the development and application of magnetic resonance techniques in medicine and biology worldwide.