



Department of
Electrical Engineering

香港城市大學
City University of Hong Kong

Innovating and Transforming the Future

Get to know

Department of Electrical Engineering

Hong Kong
1st

Worldwide
20th

**in Electrical and
Electronic Engineering**

U.S. News Best Global
Universities Rankings 2021

Hong Kong
1st

Worldwide
13th

in Electrical Engineering

Performance Ranking of Scientific
Papers for World Universities
National Taiwan University Ranking 2020

**HIGHEST “expected
output index” Worldwide**

in Engineering

Times Higher Education World
University Rankings 2018

Hong Kong
1st

Worldwide
18th

Prof Ron Chen on
Top Scientist List in
Computer Science and
Electronics by h-Index
Google Scholar 2021

World's
Top **2%** Scientists

23 EE faculty are listed as the
top 2% of the world's most
highly cited scientists by a study
led by Stanford University





Excellence in Professional
Education and Research

**We nurture and groom new
generations of talents and
professionals to compete at the
technological frontier.**

WORLD-CLASS

Electrical Engineering

Electrical Engineering

with us every day and everywhere



**Biomedical
diagnostics
& treatment**



**Control &
autonomous car**



**Imaging &
signal processing**



**Computer, cell phone &
communication device**



**Big data &
artificial intelligence**



Sensor & tracking

Microelectronics

Big data


Computer &
mobile device

Communication
device

THz antenna

ELECTRIFYING THE FUTURE

Facilitating people living in a Technology-Driven World



● Autonomous car

● Artificial intelligence

● Sensor

● Internet of things

● Biomedical diagnostics & treatment

Improving the lives of people across the world

We focus on professional education and research excellence on rigorous science and technology, while extending ground-breaking findings to serve industry and our society. We have a vision for a better tomorrow through constant innovation and discovery.

We endeavor to bring together students, faculty and collaborators in a multidisciplinary work environment that supports open-ended thinking in science, engineering and entrepreneurship.

Message from the Head

Pushing boundaries and transforming

Technology nowadays is advancing in an unprecedented rate in human history and has brought dramatic new options in all aspects of everyday life – health care, education, entertainment, communication, commerce, etc. Only our imagination is the limit.

Almost all the goods and services people use depend on technology related to electrical engineering (EE).



Pioneering innovation and entrepreneurship for better future

EE Department is an exciting hub of discovery and innovation led by a group of passionate and knowledgeable faculty working in the fields of **Antenna Design; Big Data, Machine Learning, and Artificial Intelligence; Bioinformatics; Biomedical Systems, Biosensors and Bioelectronics; Computer Engineering; Control Systems and Optimization; Microelectronic Devices and Circuits; Nanotechnology and Nanodevices; Networking and Internet of Things; Photonics; Power Electronics and Systems; Signal and Image Processing; Terahertz and Millimeter Waves; and Wireless Communications**; to make innovation happen by embracing the importance of multidisciplinary approaches in technology.

Nurturing new stars of EE profession is one of our top goals to achieve. There is absolutely a competitive edge for a graduate with Electrical Engineering background to excel in a full range of careers in a technology-driven economy.

We will continue to focus on professional education and research excellence on rigorous science and technology, while extending groundbreaking findings to serve industry and our society. We endeavor to bring together students, faculty and other collaborators in a multidisciplinary work environment that supports open-ended thinking in science, engineering and entrepreneurship.

I look forward to working with you all – students, researchers, colleagues at EE and around the world, alumni, industry partners, government and entrepreneurs to explore and build a better future in this thriving and exciting field of electrical engineering.

Professor Stella W. Pang
Head of Department and
Chair Professor of Electronic Engineering



EE by the Numbers

51
FACULTY

948
UNDERGRADS

420
GRAD STUDENTS

10903
ALUMNI



EE Faculty

**Delivering excellence through
passionate and knowledgeable faculty**

An outstanding team of 51 academics
actively engaging in quality teaching
and frontier research.





1



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14



15

15 IEEE Fellows

1. Prof Way KUO
University
Distinguished Professor
2. Prof Ron CHEN
Chair Professor
3. Prof Stella PANG
Head of Department
and Chair Professor
4. Prof Chi CHAN
Chair Professor
5. Prof K M LUK
Chair Professor
6. Prof Michael TSE
Chair Professor
7. Prof Hong YAN
Chair Professor
8. Prof Jie CHEN
Chair Professor
9. Prof Moshe ZUKERMAN
Chair Professor
10. Prof Ping LI
Chair Professor
11. Prof Ben LEUNG
Chair Professor
12. Prof Din-Ping TSAI
Chair Professor
13. Prof H C SO
Professor
14. Prof Henry CHUNG
Chair Professor
15. Prof Tommy CHOW
Professor

Academy Fellows



**Fellow of the World
Academy of Sciences 2015**

**Member of Academia
Europaea 2014**

Prof Ron CHEN
Chair Professor



**Fellow of the UK
Royal Academy
of Engineering 2018**

Prof K M LUK
Chair Professor



**Member of the European
Academy of Sciences
and Arts 2019**

Prof Hong YAN
Chair Professor

Promising Young Scholar



**Croucher Innovation
Award 2020**

**National Natural Science
Foundation of China (NSFC) -
Excellent Young Scientists Fund
(Hong Kong and Macao) 2019**

Dr Cheng WANG
Assistant Professor

IEEE Society Award Winners



**IEEE SMC-S Norbert
Wiener Award 2016**

Prof Hong YAN
Chair Professor



**IEEE AP-S John
Kraus Antenna
Award 2017**

Prof K M LUK
Chair Professor



**IEEE AP-S
Harrington-Mittra
Computational
Electromagnetics
Award 2019**

Prof Chi CHAN
Chair Professor

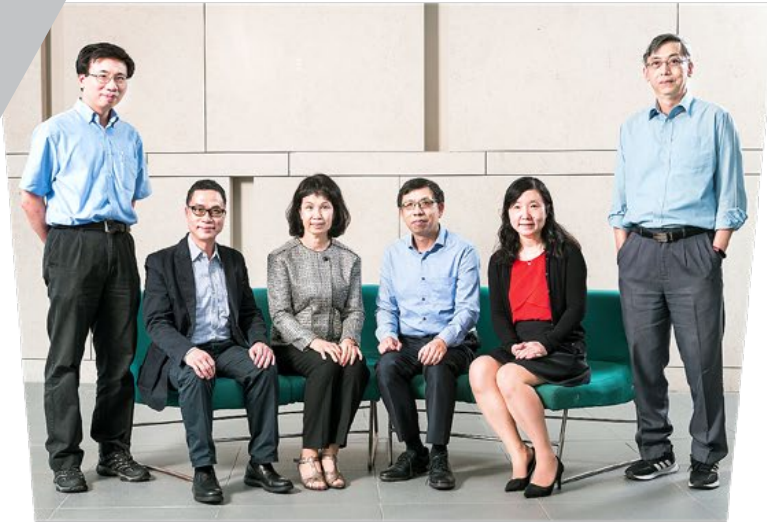


**IEEE PEL-S
R. David Middlebrook
Achievement
Award 2021**

Prof Henry CHUNG
Chair Professor

EE Faculty Teams

Teaming up to excel in education, innovation and entrepreneurship.



Head, Associate Heads and Leads



Undergraduate Programmes Management Team



Postgraduate Programmes Management Team



Applied Electromagnetics



Computer Engineering and Control Systems



Networking and Wireless Communications



**Optoelectronics, Electronics, Power,
Nanotechnology and Biosystems**

Faculty Highlights

We are proud to present distinguished faculty who achieved multiple world-class recognitions.



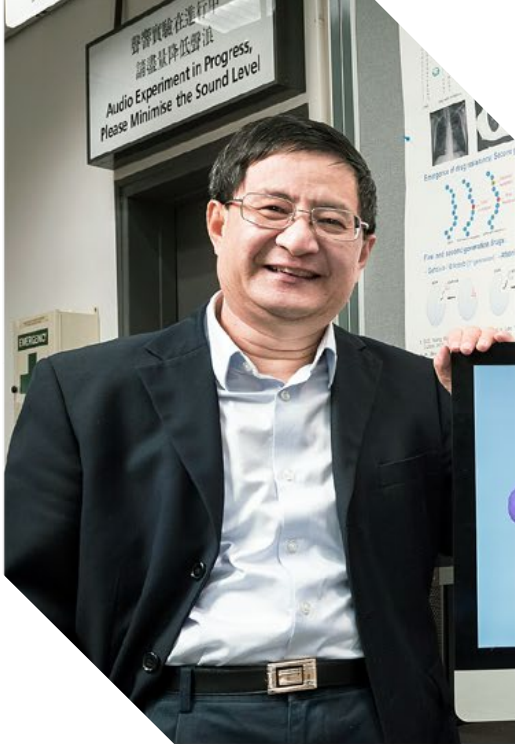
Prof Ron CHEN
Chair Professor

- ▶ EE Outstanding Teacher Award 2020/21
- ▶ Top Scientist by h-Index in Computer Science and Electronics 2021
- ▶ Highly-cited Researcher in "Engineering" (7 years) and "Mathematics" (4 years)
- ▶ Chinese Institute of Electronics Best Paper Award 2020
- ▶ The President's Award 2018
- ▶ State Natural Science Awards – Second-class Awards 3 Times (2016, 2012, 2008)
- ▶ Fellow of The World Academy of Sciences 2015
- ▶ Member of the Academia Europaea 2014



Prof K M LUK
Chair Professor

- ▶ Prize for Scientific and Technological Progress by the Ho Leung Ho Lee Foundation 2019
- ▶ Fellow of the UK Royal Academy of Engineering 2018
- ▶ IEEE AP-S John Kraus Antenna Award 2017
- ▶ CityU Outstanding Research Award 2017



Prof Hong YAN
Chair Professor

- ▶ Centre for Intelligent Multidimensional Data Analysis 2021
- ▶ Member of the European Academy of Sciences and Arts 2019
- ▶ Wong Chung Hong Professor of Data Engineering 2019
- ▶ IEEE SMC-S Norbert Wiener Award 2016



Prof Chi CHAN
Chair Professor

- ▶ ECE Distinguished Alumni Award University of Illinois at Urbana-Champaign 2019
- ▶ IEEE AP-S Harrington-Mittra Computational Electromagnetics Award 2019
- ▶ The President's Award 2017



Dr Cheng WANG
Assistant Professor

- ▶ EE Outstanding Teacher Awards 2020/21 and 2019/20
- ▶ CENG Outstanding Teaching Award 2020/21
- ▶ Croucher Innovation Award 2020
- ▶ The President's Award 2020
- ▶ National Natural Science Foundation of China (NSFC) - Excellent Young Scientists Fund (Hong Kong and Macao) 2019
- ▶ Papers in Nature, Nature Communications and Nature Photonics



Faculty Awards



World's Top 2% Scientists 2020

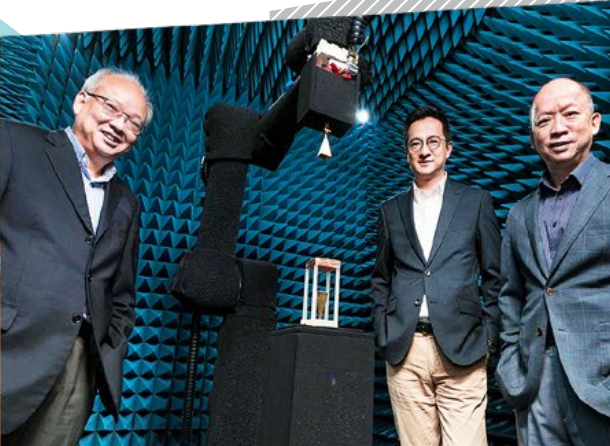
23 EE faculty are listed as the top 2% of the world's most highly cited scientists according to a study led by Stanford University. This is based on publicly available database including information on citations, h-index, co-authorship, authorship positions and a composite indicator.

Outstanding Teacher Awards 2021

Six EE faculty have been conferred Outstanding Teacher Awards in 2021 by the College of Engineering or Department of Electrical Engineering in recognition of their excellence in teaching as well as promoting effective teaching and learning in the engineering community.

Top Scientist in Computer Science and Electronics 2021 – 1st in HK and Asia

Prof Ron CHEN has been put on World's Top 1000 Scientist List according to the 2021 7th edition of Top Scientists Ranking for Computer Science & Electronics prepared by Guide2Research. Prof Chen is ranked 18th worldwide and ranked 1st in Hong Kong and in Asia by h-index of 154 with 106,779 citations.



The Greater Bay Area Joint Laboratory of Big Data Imaging and Communications 2020

Prof K M LUK, Prof Chi CHAN and Dr Steve WONG have been awarded by the Department of Science and Technology of Guangdong Province for establishing The Greater Bay Area Joint Laboratory of Big Data Imaging and Communications, the first joint laboratory in the field of information and communication technology, to promote Guangdong and Hong Kong as an international innovation and technology hub.



Croucher Innovation Award 2020

Dr Cheng WANG has received the Croucher Innovation Award 2020 which aims to identify exceptionally talented scientists from all countries working at an internationally competitive level and to offer support to these “rising stars” at a formative stage in their careers. Dr Wang’s current research focuses on realising integrated lithium niobate photonic circuits for applications in optical communications and nonlinear optics.



Gifted Education Fund 2021

Dr Ray CHEUNG has been awarded the Gifted Education Fund by the Education Bureau to provide gifted students year-long advanced learning in the topic “AIoT Coding and Engineering Skills Education” with hands-on training in software, hardware, mathematics and engineering skills.



Student Awards

Undergraduates



HKSTP's Technology Leaders of Tomorrow Programme 2020

The Hong Kong Science and Technology Park (HKSTP) InnoAcademy develops forward-looking learning and training programmes to upskill talents for innovation and technology careers in Hong Kong. Two EE graduates, Mr Chun Kit LAW and Dr Ho Chun LEUNG, are selected to be two of the eight talents to join its inaugural Technology Leaders of Tomorrow Programme among 600 applicants from 50 top universities.



Second Prize in Contemporary Undergraduate Mathematical Contest in Modeling 2020

Mr Boxun YAN and Mr Feng CHENG teaming up with a student from Department of Mathematics have won the Second Prize in Contemporary Undergraduate Mathematical Contest in Modeling 2020. The winning project is titled "Furnace Temperature Curve Analysis and Optimization".



Two Prizes in Pan-Pearl River Delta Region IT Project Competition 2020

Miss Wing Yan LAM, supervised by Dr Yixuan YUAN, has been awarded the First Prize and Best Innovation Award in Pan-Pearl River Delta Region IT Project Competition 2020. The winning project is titled "Sign Language Translator with Deep Learning".



The Institute of Engineering and Technology Prize 2020

Miss Yuyan RUAN has won the Institute of Engineering and Technology (IET) Prize 2020 which aims to recognize students with extraordinary performance and achievement.



China Youth Science and Technology Innovation Award 2020

Mr Yiqing ZHANG, supervised by Dr Ray CHEUNG and Dr Alan LAM, has won the 12th China Youth Science and Technology Innovation Award among 91 awardees and Mr Zhang is one of the two awardees from Hong Kong.



HK\$100K each for 2 Teams from The Cyberport University Partnership Programme 2020-21



Two teams of EE students and graduates are awarded HK\$100K each of seed fund to develop their start-up projects by The Cyberport University Partnership Programme (CUPP) 2020-21. The winners are Mr Nikil SENTHIL KUMAR, Mr Kwok Woon YIM, Mr Ajay RAJNIKANTH, Mr Kin Yam LAU and Mr Tsz Kit CHU, supervised by Dr Ray CHEUNG and others.



Student Awards Postgraduates



Paper Awards in the 21st IEEE (HK) AP/MTT Postgraduate Conference 2020

Four teams comprising PhD students and graduates have won the Antenna and Propagation (AP) Student Paper Award and Microwave Theory and Techniques (MTT) Student Paper Award in the 21st IEEE (HK) AP/MTT Postgraduate Conference.

- “A Terahertz On-Chip Antenna with Wide Impedance and Gain Bandwidths” by Mr Shangcheng KONG and Mr Kam Man SHUM, supervised by Prof Chi CHAN.
- “Terahertz High-Gain Open Resonator Antenna Based on Silicon-Etching and Imprinting” by Mr Yuan Long LI and Dr Shu Yan ZHU, supervised by Prof K M LUK and Prof Stella PANG.
- “A Dual-Polarized Lens Antenna Using Gradient Refractive Index (GRIN) Metasurface” by Mr Yat Sing TO and Dr Quenwei LIN, supervised by Dr Steve WONG.
- “Highly Reconfigurable Dual-Band Coupler with Independently Tunable Frequency and Coupling Coefficient at the Lower Band” by Mr Ye YANG, Mr Yufei PAN and Dr Shaoyong ZHENG, supervised by Dr Wing CHAN.



Best Fintech Award in International Blockchain Olympiad 2020

Mr Chi Ho LAU and Mr Kwok Woon YIM, supervised by Dr Ray CHEUNG and teamed up with students from Department of Biomedical Science, School of Data Science and Department of Finance, have won the Best Fintech Award in International Blockchain Olympiad (IBCOL) 2020.



Chinese Institute of Electronics Best Paper Award 2020

Prof Ron CHEN and Dr Yang LOU have received the Chinese Institute of Electronics Best Paper Award 2020 with the paper titled "Enhancing Controllability Robustness of Q-Snapback Networks through Redirecting Edges".



CCF Big Data & Computing Intelligence Contest and Zhejiang Lab Cup Global AI Competition 2020

Mr Shaomian ZHENG, who teamed up with a member from a company in China, has won the First Prize in the 8th China Computer Federation (CCF) Big Data & Computing Intelligence Contest among 1483 teams. He has also won the Second Prize in Zhejiang Lab Cup Global AI Competition-Video Generation Challenge 2020 among 327 teams. He was supervised by Dr Yanni SUN.



Undergraduate Programmes

JUPAS Catalogue No. JS1205

Department of Electrical Engineering, City University of Hong Kong



Our Majors

- Common first year
- Students choose a major after one year of study
- Majors offered:

BEng in Computer and Data Engineering (CDE)
工學士(電子計算機及數據工程學)

BEng in Electronic and Electrical Engineering (ELEL)
工學士(電子及電機工程學)

BEng in Information Engineering (INFE)
工學士(資訊工程學)

Upcoming New Major
BEng in Microelectronics Engineering (MEE)
工學士(微電子工程學)

The department provides direct applications to admit local and international students.



Programme Highlights

CDE – Computer and Data Engineering

- Hardware and Software Design
電腦硬件及軟件設計
- Data Analytics and Security
數據分析及安全
- Cloud Computing Systems
雲端運算系統
- Machine Learning
機器學習
- Control and Internet of Things
控制與物聯網

ELEL – Electronic and Electrical Engineering

- Wireless Communications and Data Technology
無線通訊及數據技術
- Terahertz and Optical Technologies
太赫茲與光學科技
- Photonic, Electronic and Sensor Devices
光電子及電子器件、感應器
- Smart Control and Power Systems
智能管理及能源系統
- Bioelectronics and Bioinformatics
生物電子及生物信息技術

INFE – Information Engineering

- Networking and Communications
網絡及通訊
- Algorithms and Optimization
算法與優化
- Cybersecurity
網絡安全
- Artificial Intelligence
人工智能
- Signal Processing
訊號處理

Career Prospects

Engineering companies, telecommunications, major utilities (CLP, PCCW)

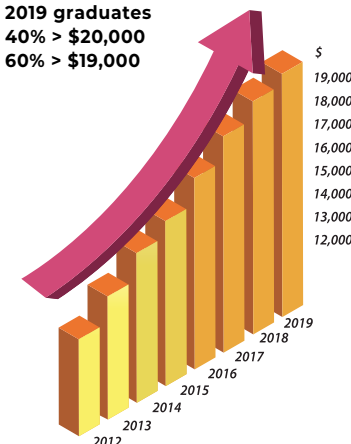
- Engineer (Computer/Technical/ Telecommunication/Electronic/ Electrical/High Tech Equipment)
- Scientific Consultant/Technologist

Banking & financial institutions, software and IT companies, transportation (airlines, shipping), government

- IT Specialist/Network Administrator
- Analyst/Programmer/ Software Engineer
- Application Developer/ Game Developer

Salary Trend (2012-2019 graduates)

2019 graduates
40% > \$20,000
60% > \$19,000



Graduate Programmes

Master of Science in Electronic Information Engineering (MScEIE) Master of Science in Multimedia Information Technology (MScMIT)

The two Master programmes aim to advance EE professionals their knowledge in strategically selected areas that are relevant to the current and anticipated future industrial and societal needs. Students are exposed to various interactive learning activities, equipping them with in-depth technical knowledge and the necessary soft skills for conducting high-end development to meet the global challenges, as well as facilitating their professional and career advancement in the rapidly changing technology industry.

Programme Features

- Business Management or Industrial Research Option
- Dissertation for research exposure
- Internship at local or overseas research institutions or companies
- Exchange programme with University of Limoges, France
- Fellowship awards for local students in EIE programme

More Programme Information



Graduate Programmes

Research Degree Programmes (PhD/MPhil)

The Department offers research degree programme in a wide range of research areas to suit individuals' research interests, which cover (1) Antenna Design; (2) Big Data, Machine Learning and Artificial Intelligence; (3) Bioinformatics; (4) Biomedical Systems, Biosensors and Bioelectronics; (5) Computer Engineering; (6) Control Systems and Optimization; (7) Microelectronic Devices and Circuits; (8) Nanotechnology and Nanodevices; (9) Networking and Internet of Things; (10) Photonics; (11) Power Electronics and Systems; (12) Signal and Image Processing; (13) Terahertz and Millimeter Waves; and (14) Wireless Communications. The programme (4 years for PhD and 2 years for MPhil) consists of both coursework and independent research studies culminating in the submission of a thesis.

The Department is well equipped with state-of-the-art laboratories to support high-quality teaching and research activities. A number of co-curricular activities such as research seminars, soft skills workshops and research student symposium are offered to prepare students the all-roundness for the pursuit of professional career in the academia or in the industry. The stipend for PhD students in 2021/22 is HK\$17,510 per month up to 4 years.



Hong Kong PhD Fellowship Scheme

With the aim to recruit the brightest students from around the world to pursue their PhD studies in Hong Kong, the Government of Hong Kong has established the Hong Kong PhD Fellowship Scheme (HKPFS). In 2021/22, HKPFS provides a monthly stipend of HK\$26,900 (~US\$3,449), and conference and research-related travel allowance of HK\$13,500 (~US\$1,731) per year for the awardees.

2019 HKPFS Awardees



Mr WAN Tsz Kin



Miss LI Xiaoting

*More
Programme
Information*



Life in CityU-EE and Student Society/Chapter

EE students are encouraged to learn by doing and playing. Their university experiences are enriched with much of hands-on learning through various student activities.

Competitions

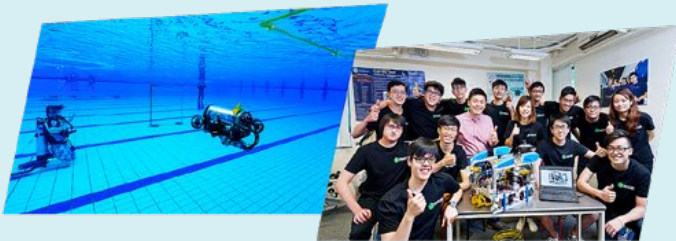
Final Year Project and Product Design Competitions



Robocon Hong Kong Contest



Underwater Robot Challenge



ACM International Collegiate Programming Contest



EE Honor Society

EE Honor Society recruits top 5% of EE students as members. Through organizing and participating meaningful, fulfilling and creative initiatives under the coaching of EE professors, students are nurtured to be all-rounded students with positive mindset to influence and support peers in the pursuit of university and future life.



EE Student Chapter

EE Student Chapter is a student organization that all EE students are welcome to join. It aims to nurture members' professional status and help members develop professional autonomy through a diverse spectrum of programmes and activities.

Research Projects and Internships

Undergraduate Research Fellowship

The EE Departmental Undergraduate Research Fellowship programme aims to encourage and provide financial support for selected undergraduate students to participate and obtain in-depth experience in academic research. Students will engage in 250 to 300 hours of research work under the supervision of a faculty.



Internship Opportunities

In collaboration with industry, the Department aims to equip students with real work experience before graduation through different internship schemes held locally or overseas. A student successfully matched with a renowned enterprise or institution will be jointly supervised by a company mentor and a faculty mentor. Monthly allowance and funding support are available through the following internship options:

Professional One-Year Internship (EE4081) is an 8- to 12-month long professional internship programme. One day per week release is in place to allow students taking courses and graduating on time. Course waiver is available and a hundred industrial positions are open to students yearly.

Overseas Internship Scheme allows students to widen their horizon by engaging in internship opportunities abroad. Around 40 EE students are selected yearly to join the Scheme to work in France, Korea, Singapore, USA, UK and Canada. Students will mostly work as interns in institution setting in addition to some in companies.

Industrial Attachment Scheme offers students a 9-13 weeks of local internship opportunity. About 50-60 EE students participate in the scheme yearly.



Global Outreach

Uplifting students' global outreach and international competitiveness through **STUDENT EXCHANGE** is one of the Department's goals. Each year 80 EE students study in top international universities in Australia, Belgium, Canada, Czech Republic, Denmark, Finland, France, Japan, Korea, Mainland China, Netherlands, New Zealand, Spain, Norway, Sweden, Taiwan, UK and USA come for semester-long exchange or summer exchange with scholarships and funding support. Currently, we have over 230 partner universities.



Germany



“ The semester exchange works so significantly for me to gain the ability on how to overcome fear when stepping out of your comfort zone and become an international talented youth. ”

**Exchange at KTH Royal
Institute of Technology, Sweden**

USA



“ I really love my friends and teachers there. They encouraged and inspired me so much. Their devotion to knowledge always reminds me of the importance of learning. ”

**Exchange at University of Illinois
at Urbana-Champaign, USA**

EE has organized a **4-WEEK SUMMER EXCHANGE PROGRAMME** since 2014. Through a series of technical workshops, hands-on trainings, seminars, company visits, mini-projects and presentations, students will gain technical know-how relevant to their major studies. Over 320 EE students joined this exchange programme between 2014 to 2019 summer. Reciprocally, EE has received a similar number of students from the partner universities.



Current partners include:

- Dankook University (DKU), South Korea
- National Cheng Kung University (NCKU), Taiwan
- University of Hradec Kralove (UHK), Czech Republic
- University of Limoges, France



“ It is really an unforgettable experience and it changed me a lot. In these 6 months, I have studied and lived with people from different cultures. There are too many things we could learn – time management for work-life balance, how to cook, and how to bike, etc. I’m glad that I had a chance to experience all these in my University life. ”

**Exchange at Aarhus University,
Denmark**



The Cultural and Language Immersion Scheme supports undergraduate students to go overseas staying with premier universities for a period of 28 consecutive days with financial support to develop their global outlook and improve foreign language skills. EE students are arranged to visit the UK through immersion in the British culture and classroom learning.

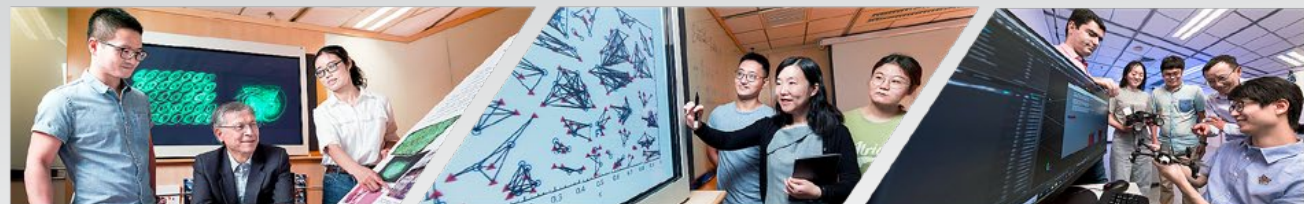
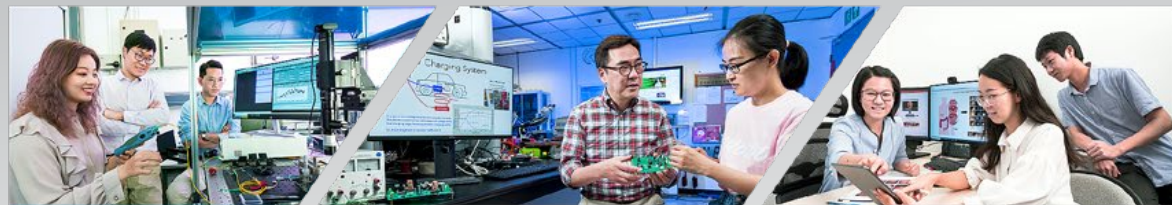
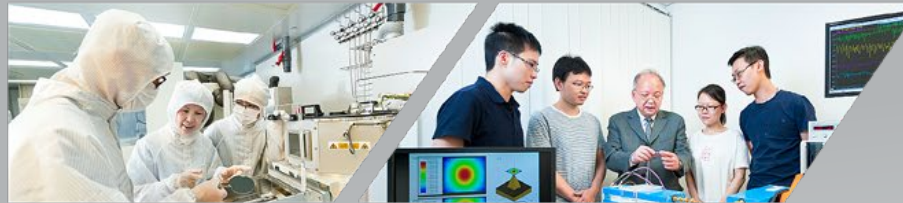




Research Themes

Electrical Engineering has diverse areas of outstanding research strengths with world-renowned faculty members.

- Antenna Design
- Big Data, Machine Learning and Artificial Intelligence
- Bioinformatics
- Biomedical Systems, Biosensors and Bioelectronics
- Computer Engineering
- Control Systems and Optimization
- Microelectronic Devices and Circuits
- Nanotechnology and Nanodevices
- Networking and Internet of Things
- Photonics
- Power Electronics and Systems
- Signal and Image Processing
- Terahertz and Millimeter Waves
- Wireless Communications



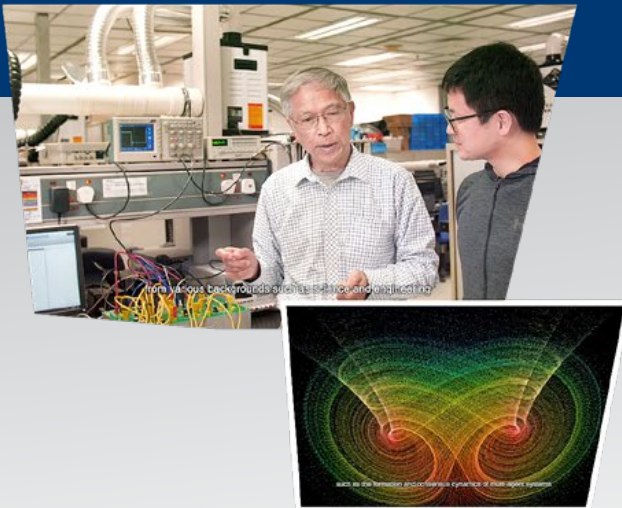


Research Highlights

EE faculty are committed to performing high-impact research to meet the global challenges.

Network Control and Synchronization of Multi-Agent Dynamical Systems

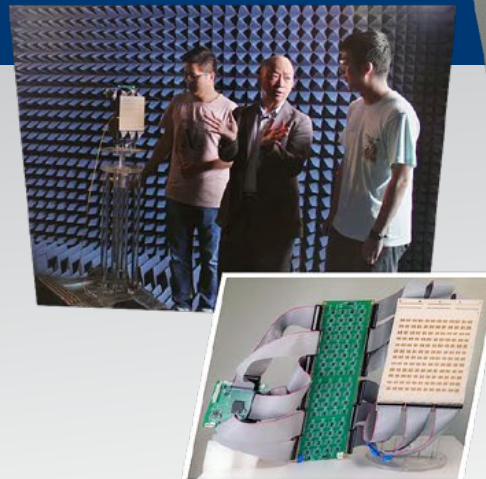
Prof Ron CHEN



Network science and engineering, nonlinear dynamics and control systems.

Antenna Magicians in the Era of Wireless Connectivity

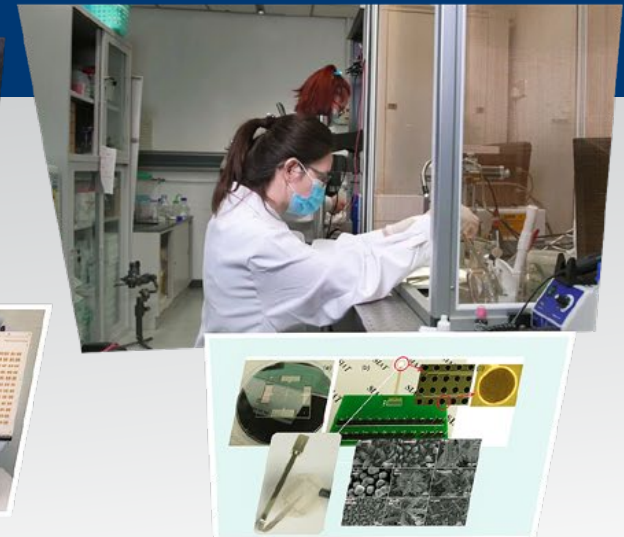
Prof K M LUK



Wideband and multi-band antennas, reconfigurable antennas, high-gain THz antennas, compact antennas.

Pre-Clinical Assessment of High-Performance Flexible Micro Electrode Arrays for Artificial Retina

Dr Leanne CHAN



A pre-clinical microelectrode array development for neural interface applications.



Research Highlights

EE faculty are committed to performing high-impact research to meet the global challenges.

A Microfluidic Biosensing System for Improved Cancer Diagnostic and Screening

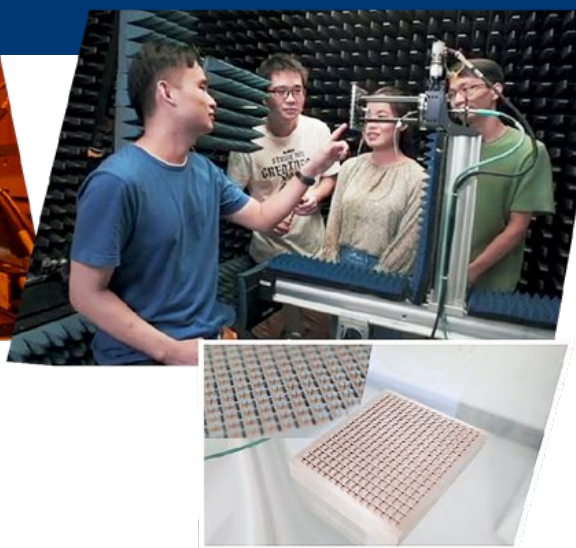
Prof Stella PANG



A portable microfluidic apparatus with a plasmonic biosensor to provide fast, highly sensitive and low cost cancer screening.

Smart Reconfigurable Surfaces for 6G

Dr Steve WONG



Reconfigurable coding metasurfaces enabling wideband beam forming, titling and steering features at terahertz frequency spectrum for future 6G applications.

Artificial Intelligence Powered Healthcare

Dr Yixuan YUAN



Deep learning in medical image diagnosis, segmentation and anomaly detection.

Novel Transmission Model for COVID-19 and Data-Driven Methods for Prediction of the Pandemic Progression

Prof Michael TSE



The model integrates available travel, testing and control data for prediction and identification of factors affecting the scope of outbreak.

Integrated Lithium Niobate Photonics for Future Optical Networks

Dr Cheng WANG



High-speed components for next-generation optical communication networks/millimeter wave and terahertz photonic devices/quantum integrated photonic circuits.

Intelligent Random Access for Future Wireless Communication Networks

Prof Lin DAI



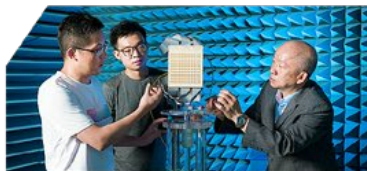
Modeling, performance analysis and optimal access design of next-generation wireless communication networks.

State Key Laboratory and Research Centres

State Key Laboratory and research centres are integral part of EE's research infrastructure fostering synergy and collaboration for interdisciplinary research.

State Key Laboratory of Terahertz and Millimeter Waves (SKLTMW)

The establishment of the State Key Laboratory of Terahertz and Millimeter Waves (SKLTMW) at CityU was approved by the Ministry of Science and Technology of the People's Republic of China in 2008. It is the first laboratory of its kind in the engineering discipline in Hong Kong. Research activities in the Laboratory focus on the advancements and applications of millimeter wave and terahertz technologies.



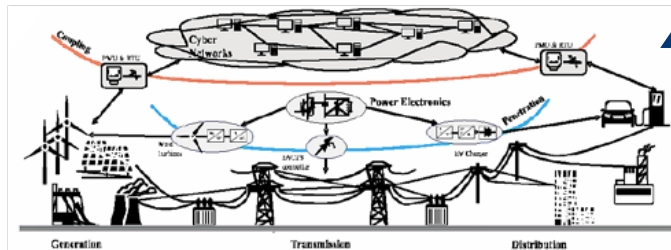
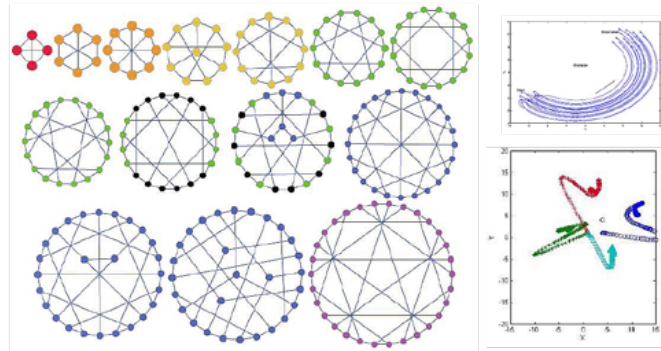
Centre for Biosystems, Neuroscience and Nanotechnology (CBNN)

The Centre for Biosystems, Neuroscience and Nanotechnology (CBNN) merges nanotechnology with biosystems and neuroscience to create a revolutionary impact on many aspects of medicine. The centre aims at developing materials, structures, devices and microsystems with nanometre precision for single molecule and cell interactions.



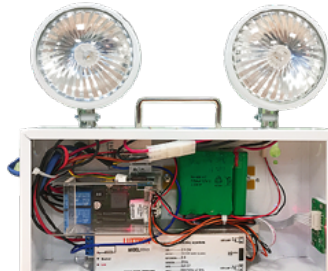
Centre for Chaos and Complex Networks (CCCN)

The Centre for Chaos and Complex Networks (CCCN) aims to promote fundamental and applied research on the emerging and cutting-edge technology of chaos control and synchronization, as well as complex dynamical networks, targeting academic leadership and commercial and industrial applications.



Centre for Smart Energy Conversion and Utilization Research (CSCR)

The Centre for Smart Energy Conversion and Utilization Research (CSCR) focuses on the fundamental and applied research in power electronics and its applications. It plays an effective role in the development of energy conversion and utilization technologies in conjunction with the industry and to provide extension services contributing to the social and economic development of Hong Kong.



Industrial Collaboration and Knowledge Transfer

EE forges close ties with industry on exchange and collaboration for nurturing future engineering professionals and fostering applied research as well as entrepreneurship.

Departmental Advisory Committee

Chairman



Mr M Y WONG
Founding Director
InnoLink Investments

Members



Ms Cally S S CHAN
General Manager
Microsoft
(Hong Kong and Macau)



Mr Stephen K K CHAU
Executive Director & Chief
Technology Officer
SmarTone Telecommunications



Mr David C C CHEUNG
Independent Non-
Executive Director
Wong's International



Mr C W CHEUNG
President and Chief
Executive Officer
Compass Technology



Mr Thomas T Y CHEUNG
Chairman
Chinagrowth Group



Mr Matthew P H LEUNG
Director
Huawei Hong Kong
Research Center



Mr Peter H Y NG
Vice President
ASM Pacific Technology



Dr Alfred M C NG
Executive Director
& Chief
Technology Officer
Suga International



Ir Andrew M C YOUNG
Associate Director
(Innovation)
Sino Group



Mr Wilson Y F YUEN
Chief Executive Officer
TFI Digital Media

Knowledge Transfer

EE faculty actively apply their expertise and innovations to benefit the industry and the community through various knowledge transfer activities such as applied research, contract research, consultancy, start-up, publications, conferences, exhibitions, seminars, etc.

Notable Impact Cases

High-Performance Antennas for Wireless Communications

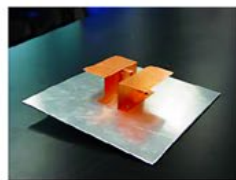
- Supporting the growth of the base station antenna industry in China through the establishment of a joint venture Higain-HiTech Co. Ltd. in Shandong Province in 2002 for the design and production of 2G and 3G wideband base station antennas that have been widely used in the country. The developed antenna technology, L-probe patch antenna, has become a classic one which has been employed for various wireless applications globally.
- Developing novel small antennas for numerous pieces of receiving terminals of the BeiDou Navigation Satellite System of China through a spin-off company in Shenzhen founded in 2002 for far-reaching impact beyond conventional communication applications.
- Advancing millimeter-wave and terahertz antenna technology for 5G, 6G and beyond through the establishment of the State Key Laboratory of Terahertz and Millimeter Waves since 2008.

L-probe patch antenna
2G-3G base station



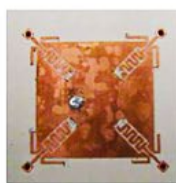
1998

Magneto-electric dipole
4G-5G base station



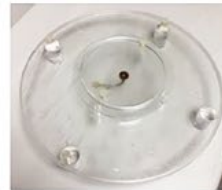
2006

Small CP antenna
GPS antenna



2010

Water-patch antenna
All transparent antenna



2015

Terahertz antenna
High efficiency at THz frequencies



2017

Emerging Technologies for Energy Conversion and Utilization

- Development of advanced machine learning algorithms for diagnosing power electronics equipment, leading to significant resource saving in site inspection and reduction in electronic waste.
- Development of large-scale energy management systems for indoor and outdoor lighting equipment used in residential estates and roads, achieving an energy saving of 20% to 40%.
- Development of a cost-effective energy recycling technology for a power supply manufacturer for reducing energy loss in power supply burn-in systems, leading such technology to advanced inverter technologies for distributed power generation systems.



CityU EE Joint Laboratory

CityU EE Joint Lab is a “Government-Industry-Academic-Research Centre” scheme to promote collaboration between EE Department and industrial associations, research centres, corporates and organizations. It aims to empower recruitment, research collaboration, commercialisation and technology transfer. Since its establishment in 2019, the CityU EE Joint Lab Scheme has connected with a total of 22 partners.



Collaboration Platform

Provides a platform and communication channel between industry and university to collaborate.



Regular Technology Events

Provides regular events including technology seminars, lab visits, launching events, open day events, etc.



Recruitment

Provides different schemes such as Final Year Project, Internship, Career Expo, etc.



R & D and Commercialization

Provides a platform for funding applications for R&D projects, technology licensing, start up and investment opportunities.

CityU EE Joint Lab Ceremonies

Phase 1

September 2019



Phase 2

September 2020



Phase 3

January 2021



Phase 4

June 2021



Partners

- Automotive Platforms and Application Systems R&D Centre
- Electrical and Mechanical Services Department
- Hong Kong Applied Science and Technology Research Institute
- Hong Kong Electronic Industries Association
- Hong Kong Productivity Council

- Huawei Technologies
- Microchip Technology
- Sengital
- Shenzhen Corerain Technologies
- Xilinx

- ASM Pacific Technology
- Gold Peak Industries
- Microsoft Hong Kong
- Sino Group
- SmarTone Telecommunications
- SUGA International

- Compass Technology
- Hewlett Packard
- Intel Corporation
- Pong Yuen
- Provista
- United Microelectronics Center (Hong Kong)

Quotes from CityU President and Joint Lab's Partners



Prof Way KUO

President
City University of Hong Kong

“ CityU is striving to communicate and collaborate with the industry to promote research breakthroughs as well as to foster the development and application of science and technology. ”



Mr Peter NG

Vice-President
ASM Pacific Technology

“ With the establishment of the ASMPT-CityU EE Joint Lab, ASMPT looks forward to forging a long-term collaborative relationship to foster innovation, explore emerging technologies and create positive societal impact. ”



Dr Brian LI

Executive Director
and Executive
Vice-President
Gold Peak Industries

“ We look forward to working with the EE Joint Lab to resolve a number of technology challenges and identify good EE graduates to help our Group's further development. ”



Ms Cally CHAN

General Manager
Microsoft (Hong Kong
and Macau)

“ We are pleased to be part of CityU EE Joint Lab and provide technological support in areas of Cloud and AI for our partners. We hope this partnership will fuel students' innovation and empower CityU EE to achieve more in R&D. ”



Dr Kelvin PUN

Chief Technology Officer
Compass Technology

“ We look forward to accelerating innovation through close cooperation with the CityU EE Joint Laboratory and promoting the development of new fields through the development of the latest technology. ”



Dr Meikei IEONG

Chief Executive Officer
United Microelectronics
Center (Hong Kong)

“ The Joint Lab enables our mutual effort in the cutting-edge technology research and nurture of tech talents and domain experts, that support the industry growth in the long run. We are very much looking forward to the strong synergies with CityU EE! ”



Mr K C FUNG

Chief Technology Advisor
Hewlett Packard (Hong
Kong and Macau)

“ With our knowledge sharing efforts, graduate hiring and internship opportunities, we hope to inspire a new generation of IT talent in Hong Kong and look forward to seeing CityU's bright future. ”



Mr Ben WONG

Business Development Manager
ProVista

“ It once again confirms the far-sighted vision of the Department of Electrical Engineering of City University of Hong Kong. At the same time, it shows that Hong Kong scientific research responds with a close cooperation between industry, academia and research. ”

Alumni

EE loves to stay connected with students after they graduated. We organize social gatherings, conferences, seminars, workshops, sharing sessions, etc. We help to strengthen ties among alumni, EE and CityU.

The First International CityU EE Alumni Conference



Get Together with Alumni





Our Graduates

EE has nurtured graduates who thrive in a diverse range of professions for the betterment of the society.

1. **Miss NG Chak Lam Rica (2020 BEng)**
Graduate Engineer, MTR Corporation
2. **Mr MEW Kin Ni (2012 BEng)**
CEO and Founder, MINDLAYER
3. **Dr CHEN Jiashu (2007 BEng)**
Founder, Calterah Semiconductor
4. **Miss MISHRA Ishita (2020 MSc)**
Engineer, Hong Kong Applied Science and Technology Research Institute
5. **Dr GUO Yongxin (2001 PhD)**
Professor, Department of Electrical and Computer Engineering, National University of Singapore
6. **Dr TONG Kin Fai (1993 BEng, 1997 PhD)**
Reader, Department of Electronic and Engineering, University College London
7. **Dr WANG Huai (2012 PhD)**
Professor, Aalborg University



2.

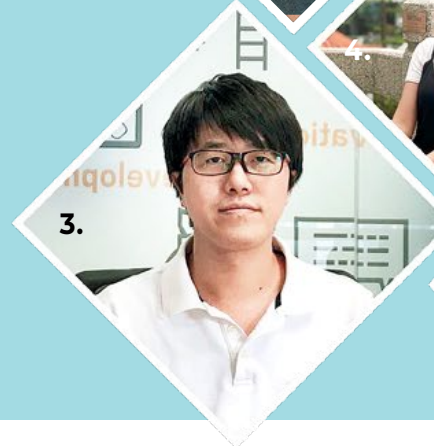
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6.



EE Annual Awards

EE Annual Awards has been launched in 2021 to honor outstanding alumni/individuals who had made remarkable contributions to their professions, CityU EE community, or the society. Outstanding Alumni Awards, Outstanding Service Awards and Young Alumni Awards are set up to celebrate the achievements of alumni/individuals in different areas.





Connect with us

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