

Information Sciences

Investment into Five Focused Areas of Research

The Chinese University of Hong Kong, entering its fifth decade, has distinguished itself in many aspects of teaching and research. Academic staff engage in scholarly inquiry of world-class standard which has led to findings of regional and global impact. The University also strives to complement this breadth of scholarship with focus on a number of selected areas. In its **Strategic Plan 2006**, five among its existing areas have been identified as key areas for strategic research investment. Substantial new resources are being devoted to these areas.

- Chinese Studies
- Biomedical Sciences
- **Information Sciences**
- Economics and Finance
- Geoinformation and Earth Sciences

Other Related Units

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Reaching New Frontiers through Innovation

Information Sciences are the foundation for the development of Information and Communications Technology (ICT), a vital tool for participating in global markets, improving service delivery, and tapping opportunities for development.

Mission

We will advance towards our vision by

- Creating and disseminating knowledge of Information Sciences technologies that have profound impact on the field, its industrial practice, and human society
- Educating and training the next generation of scientists and engineers to be leaders in academia, industry and government, in Hong Kong, China and the world

VISION

To define and lead the field of Information Sciences as:

- A globally respected research institution with consistent scholarly output in prestigious journals and conferences
- A knowledge centre with a constant flow of world-renowned researchers, that fosters ideas and innovations
- A training site for postgraduate students who upon graduation can compete with counterparts from top universities around the world

BACKGROUND

For the past 15 years, The Chinese University of Hong Kong has established a significant presence in Information Sciences. The Internet, for example, was first introduced to Hong Kong by CUHK which still operates as a major Internet hub for the region. Staff have also won global recognition for their research and received significant funding from the Research Grants Council (RGC) and Innovation and Technology Fund (ITF).

OUR FOCUS

We strive to scale even greater heights through theoretical and applied research, and to seek opportunities for technology transfer in these areas:

- Theoretical computer science
- Information and coding theory
- Information security
- Multimedia technology
- Bioinformatics

OUR EDGE

We are poised for greater excellence thanks to:

- A group of interdisciplinary professionals with a strong track record of securing competitive grants: over 610 RGC and ITF grants totaling over HK\$515 million in the past 14 years
- The founding of Shun Hing Institute of Advanced Engineering, a partnership between CUHK and a private donor
- The founding of CUHK–MSRA Joint Laboratory for Human-centric Computing and Interface Technologies in 2005, a joint venture between the Faculty of Engineering and Microsoft Research Asia (MSRA), Beijing, which was upgraded to a Ministry of Education National Key Laboratory in 2008
- Prof. Andrew Yao, CUHK Distinguished Professor-at-Large and the first Chinese to win the Turing Award in Computer Science, under whose leadership our Theoretical Computer Science Programme is now the most acclaimed in the region
- Prof. Raymond Yeung and Prof. Robert Li, who co-founded the field of network coding, one of the most important breakthroughs in Information Sciences in the past two decades
- Academic staff with frequently cited articles, who have won numerous Best Paper Awards at prestigious international conferences and journals

OUR ACHIEVEMENTS

Our key achievements include:

- Prof. Raymond Yeung and Prof. Robert Li together with the investigators from other institutions have successfully secured a University Grants Committee (UGC) Areas of Excellence funding of HK\$103 million in September 2009 to establish the Institute of Network Coding at CUHK
- Designated 'Areas of Excellence—IT' by the UGC for our potential to be among the best in the world
- Our researcher being the first Asian to win the IEEE Information Theory Society Paper Award (2005), since the award's establishment in 1962
- Our researcher being the first in Hong Kong to win the IEEE Transactions on Multimedia Prize Paper Award (2005)
- Upgrading of the CUHK–MSRA Joint Laboratory for Human-centric Computing and Interface Technologies to a Ministry of Education National Key Laboratory in just three years

OUR STRATEGY FOR THE NEXT DECADE

To spur Information Sciences and related disciplines to a higher level of excellence by:

- Setting up a world-leading Institute of Network Coding with a view to making Hong Kong a major research centre in network coding
- Building the region's strongest theoretical computer science group
- Developing the theory for the design and implementation of secured computer/communication systems
- Promoting and localizing education on Information Security
- Supporting the interdisciplinary exploration of multimedia research and to become a world leader in the field
- Launching a dynamic joint-research programme in bioinformatics

INVESTING IN OUR FUTURE

To deliver our promises in the next decade, we need, on top of University investment, generous external donations and support for the following:

- The Institute of Network Coding to be established in early 2010
- Joint departmental professorial appointments to encourage research collaboration between related fields
- The Institute of Theoretical Computer Science and Communications (ITCSC), set up in July 2007
- Information Security Research Centre, to be jointly set up by the Computer Science & Engineering Department and the Information Engineering Department

DONATIONS

Donors may consider:

- Setting up an Endowment Fund that is designated for the support of research institutes/centres mentioned above
- Donating chair professorships to designated department or research unit
- Making a one-off donation to research projects
- Setting up named scholarships to support research postgraduate students working for the research centres or projects mentioned above
- Setting up named fellowships to support famous scholars and eminent postdoctoral researchers from overseas or mainland China to develop state-of-the-art technologies with CUHK researchers

Recognition

- Prof. Charles K. Kao, former Vice-Chancellor and founder of the Faculty of Engineering of CUHK, was awarded the 2009 Nobel Prize in Physics
- 24 among our emeritus, honorary and current professors, are IEEE Fellows, a recognition bestowed on IEEE members with extraordinary accomplishments
- Other outstanding recognitions received include:
 - Prof. Benjamin W.S. Wah, Prof. Andrew Chi-chih Yao and Prof. John Lui, Fellows of Association for Computing Machinery (ACM)
 - Prof. Lei Xu, IAPR Fellow, member of European Academy of Sciences
 - Prof. Tony Lee, winner of National Science Award
 - Prof. Victor Wei, listed among the top 250 most cited computer scientists in the world by ISIHighlyCited.com
 - Prof. David Yao, Guggenheim Fellow, recipient of the Presidential Young Investigator Award (US), and several awards from IBM Research
 - Prof. Michael Lyu, Fellow of the American Association for the Advancement of Science (AAAS).
 - Prof. Raymond Yeung, recipient of the Friedrich Wilhelm Bessel Research Award 2007
 - Prof. Lau Lap-chi, being the first computer scientist to receive the Canadian Mathematical Society (CMS) Doctoral Prize in 2007, which recognizes outstanding performance by a doctoral student who graduated from a Canadian University

Contact

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