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# Introduction to CSE Department

**Dit-Yan Yeung**  
**Professor and Head**  
**Department of Computer Science and Engineering**

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Visualizing locations and finding the way to a new destination are set to become simpler

## Quick Links for

[Undergraduates](#)

[Postgraduates](#)

[Faculty & Staff](#)

[Alumni](#)































[Job Seekers](#)































[Employers & Industry Partners](#)

# Faculty

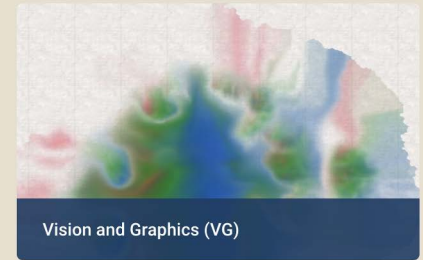
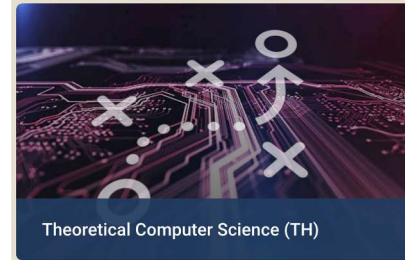


THE DEPARTMENT OF  
**COMPUTER SCIENCE  
& ENGINEERING**  
計算機科學及工程學系

|   |   |  |   |   |
|---|---|--|---|---|
| <br><b>Yu-Yao YEUNG</b><br>Professor and Head<br>Artificial Intelligence                   | <br><b>Shing-Chi CHENG</b><br>Professor and Associate Head<br>Software Engineering and Programming Languages | <br><b>Andrew B. HOBNER</b><br>Professor and Associate Head<br>Human-Computer Interaction                        | <br><b>Kwong Ting TAN</b><br>Chair Professor<br>Chair Professor<br>Vision and Graphics   | <br><b>Bo LI</b><br>Chair Professor<br>Networking and Computer Systems                     |
| <br><b>Lionel M. NI</b><br>Chair Professor<br>Networking and Computer Systems              | <br><b>Qing YANG</b><br>Chair Professor<br>Artificial Intelligence   | <br><b>Qian ZHANG</b><br>Tenured Professor of Engineering and Chair Professor<br>Networking and Computer Systems | <br><b>Tsang ZHANG</b><br>Chair Professor<br>Primary Appointment: MATH<br>Artificial Intelligence, Data, Knowledge and             | <br><b>Sheng-Hwa Gary CHAN</b><br>Professor<br>Networking and Computer Systems             |
| <br><b>Lai CHEN</b><br>Chair Professor<br>Data, Knowledge and Information Management       | <br><b>Siu-Wing CHENG</b><br>Chair Professor<br>Theoretical Computer Science                                 | <br><b>Albert Chi-Shing CHUNG</b><br>Professor<br>Vision and Graphics, Artificial Intelligence                   | <br><b>Camille DING</b><br>Professor<br>Theoretical Computer Science, Cybersecurity  | <br><b>Pamela FUNG</b><br>Professor<br>Primary Appointment: ECE<br>Artificial Intelligence |
| <br><b>Mordecai J. GOLUB</b><br>Professor<br>Theoretical Computer Science                  | <br><b>James Tie-Yao KWOK</b><br>Professor<br>Artificial Intelligence  | <br><b>Suk-Lun LEE</b><br>Professor<br>Artificial Intelligence and Information Management                        | <br><b>Yungchen LIN</b><br>Professor<br>Data, Knowledge and Information Management, Software Engineering and Programming Languages | <br><b>Dimitris PAPADIAS</b><br>Professor<br>Data, Knowledge and Information Management    |
| <br><b>Ting-Chuen PONG</b><br>Professor<br>Vision and Graphics, Human-Computer Interaction | <br><b>Huiwen QI</b><br>Professor<br>Human-Computer Interaction, Vision and Graphics                         | <br><b>Long QUAN</b><br>Professor<br>Vision and Graphics   | <br><b>Chuen-Lan TAI</b><br>Professor<br>Vision and Graphics, Human-Computer Interaction   | <br><b>Chi-Kwong TANG</b><br>Professor<br>Vision and Graphics                              |
| <br><b>Oksa YU</b><br>Professor<br>Artificial Intelligence, Human-Computer Interaction     | <br><b>Kai YU</b><br>Professor<br>Theoretical Computer Science, Data, Knowledge and Information              | <br><b>Ninan Liawen ZHANG</b><br>Professor<br>Artificial Intelligence  | <br><b>David ARYA</b><br>Associate Professor<br>Theoretical Computer Science   | <br><b>Bhavin BENDADU</b><br>Associate Professor<br>Networking and Computer Systems        |

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|---|---|---|--|--|
| <br><b>Kai CHEN</b><br>Associate Professor<br>Networking and Computer Systems                                      | <br><b>Pan HUI</b><br>Associate Professor<br>Networking and Computer Systems, Human-Computer Interaction   | <br><b>Benjamin WU</b><br>Associate Professor<br>Software Engineering and Programming Languages, Artificial Intelligence | <br><b>Shing LUD</b><br>Associate Professor<br>Data, Knowledge and Information Management, Software Engineering and             | <br><b>Sheng-Kwan WONG</b><br>Associate Professor<br>Artificial Intelligence                                      |
| <br><b>Jogesh K. MURPALLA</b><br>Associate Professor<br>Networking and Computer Systems                            | <br><b>Wilfred Siu-Hung NG</b><br>Associate Professor<br>Data, Knowledge and Information Management        | <br><b>Pedro SANDER</b><br>Associate Professor<br>Vision and Graphics  | <br><b>Raymond Chi-Wing WONG</b><br>Associate Professor<br>Data, Knowledge and Information Management                           | <br><b>Bai-Kai YEUNG</b><br>Associate Professor<br>Primary Appointment: SD<br>Vision and Graphics, Human-Computer |
| <br><b>Charles Zhefeng</b><br>Associate Professor<br>Software Engineering and Programming Languages, Cybersecurity | <br><b>Qingfeng GUO</b><br>Assistant Professor<br>Vision and Graphics, Artificial Intelligence             | <br><b>Ming LIU</b><br>Assistant Professor<br>Primary Appointment: ECE<br>Artificial Intelligence, Human-Computer        | <br><b>Stephan MIA</b><br>Assistant Professor<br>Human-Computer Interaction   | <br><b>Zhehan PARASPOPOULOS</b><br>Assistant Professor<br>Cybersecurity   |
| <br><b>Yunguo SONG</b><br>Assistant Professor<br>Artificial Intelligence   | <br><b>Shuai WANG</b><br>Associate Professor<br>Generalized Software Engineering and Programming Languages | <br><b>Tao WANG</b><br>Assistant Professor<br>Cybersecurity  | <br><b>Wei WANG</b><br>Assistant Professor<br>Computer Systems  | <br><b>Hui LEE</b><br>Adjunct Professor<br>Networking and Computer Systems  |
| <br><b>Zhongqian ZHONG</b><br>Associate Professor<br>Artificial Intelligence, Vision and Graphics                  | <br><b>Ho-Wing TAM</b><br>Adjunct Associate Professor<br>Vision and Graphics                               | <br><b>Scott TOWSE</b><br>Adjunct Assistant Professor<br>Community   | <br><b>David Paul ROBERTS</b><br>Associate Professor of Engineering Education<br>Software Engineering and Programming Languages | <br><b>Ching-Yen LI</b><br>Senior Lecturer<br>Networking and Computer Systems                                     |
| <br><b>Wai Ting LEUNG</b><br>Lecturer<br>Data, Knowledge and Information Management                                | <br><b>Desmond Yau Chai TSOI</b><br>Associate Professor of Engineering Education<br>Vision and Graphics    | <br><b>Cecilia KI CHAN</b><br>Lecturer<br>Data, Knowledge and Information Management                                     | <br><b>Gibson LAH</b><br>Lecturer<br>Software Engineering and Programming Languages   | <br><b>Ngok LAH</b><br>Lecturer<br>Networking and Computer Systems  |

# Research Areas







## Artificial Intelligence (AI)

Artificial intelligence research studies how computers can be made to exhibit intelligent behavior in performing certain tasks, which, at the moment, are often done better by human beings. These tasks include speech and language processing, vision, motion control, reasoning, planning, decision making, and learning.

### Subareas

Machine Learning: [James Kwok](#), [Qiang Yang](#), [Dit-Yan Yeung](#), [Nevin Zhang](#), [Tong Zhang](#)

Language Technologies and Text Mining: [Brian Mak](#), [Yangqiu Song](#), [Dekai Wu](#), [Nevin Zhang](#), [Tong Zhang](#)

Computer Vision and Image Processing: [Qifeng Chen](#), [Albert Chung](#), [Dit-Yan Yeung](#), [Tong Zhang](#)

Knowledge Representation and Reasoning: [Fangzhen Lin](#)

AI Applications: [Sunghun Kim](#), [Ming Liu](#), [Nevin Zhang](#)

### Affiliated Labs & Centers

[Big Data Institute \(BDI\)](#)

[Human Language Technology Center \(HLTC\)](#)

[WeChat-HKUST Joint Lab on Artificial Intelligence Technology \(WHAT Lab\)](#)



## Cybersecurity (SEC)

The Cybersecurity group develops cutting edge ideas and tools to greatly strengthen the resistance of computer systems to malicious threats. The group works on all major areas of cyber security such as security, privacy, and cryptography. We aims to be a key voice of cyber security locally in Hong Kong, of greater China, and at the world stage.

### Subareas

Cryptography: [Cunsheng Ding](#), [Dimitris Papadopoulos](#)

Privacy: [Dimitris Chatzopoulos](#), [Tao Wang](#)

System Security: [Shuai Wang](#), [Charles Zhang](#)

### Affiliated Labs & Centers

[Cybersecurity Lab](#)



## Data, Knowledge and Information Management (DB)

Research in Data, Knowledge and Information Management draws upon techniques from the database, knowledge base, information retrieval, software engineering and networking areas and focuses primarily on the effective integration and application of technologies from these areas. It is driven by the need of existing and emerging data-, knowledge- and information-intensive applications in both centralized and distributed environments.

### Subareas

Information Retrieval and Search Engine: [Dik-Lun Lee](#), [Wilfred Ng](#)

Hardware Accelerated Data Processing: [Qiong Luo](#)

Graph Databases and Blockchain: [Lei Chen](#), [Qiong Luo](#), [Wilfred Ng](#), [Dimitris Papadias](#), [Raymond Wong](#)

Spatial Databases: [Lei Chen](#), [Dimitris Papadias](#), [Raymond Wong](#)

Database Theory and Stream Data Processing: [Ke Yi](#)

Data Integration and Knowledge Graphs: [Lei Chen](#), [Dik-Lun Lee](#), [Wilfred Ng](#), [Raymond Wong](#), [Tong Zhang](#)

Data-driven Machine Learning: [Lei Chen](#), [Dik-Lun Lee](#), [Qiong Luo](#), [Dimitris Papadias](#), [Raymond Wong](#), [Ke Yi](#), [Tong Zhang](#)

### Affiliated Labs & Centers

[Spatial-Temporal Crowdsourcing Group \(STC\)](#)



## Human-Computer Interaction (HCI)

Human-Computer Interaction research focuses on data-driven approaches to empowering the seamless integration of the digital realm and the physical world with an emphasis on designing technologies that better fulfill human needs and values. The major research areas include interactive data visualization, augmented reality, affective computing, computational linguistics, and HCI techniques for healthcare, education, e-commerce, robotics, and social welfare.

### Subareas

Virtual Reality and Augmented Reality: [Pan Hui](#), [Xiaojuan Ma](#), [Huamin Qu](#)

Learning and Education: [Xiaojuan Ma](#), [Ting-Chuen Pong](#), [Huamin Qu](#)

Interaction Techniques, Devices and Modalities: [Xiaojuan Ma](#), [Chiew-Lan Tai](#), [Dekai Wu](#)

Visualization: [Huamin Qu](#)

Computer Music: [Andrew Horner](#)

Human-Robot Interaction: [Ming Liu](#), [Xiaojuan Ma](#)

### Affiliated Labs & Centers

[Human-Computer Interaction Initiative](#)





## Networking and Computer Systems (NE)

Faculty members in Networking and Computer Systems are conducting cutting edge research that is at the heart of the Information Technology revolution. Their research covers wide and well integrated topics that can be classified as follows: networking equipment, networking applications, networking protocols and networking security.

### Subareas

Wireless Networking: [Brahim Bensaou](#), [Gary Chan](#), [Bo Li](#), [Jogesh Muppala](#), [Qian Zhang](#)

Cloud Computing and Data Center Networking: [Brahim Bensaou](#), [Kai Chen](#), [Pan Hui](#), [Bo Li](#), [Wei Wang](#)

Internet of Things and Sensor Networks: [Gary Chan](#), [Qian Zhang](#)

Mobile Systems and Applications: [Gary Chan](#), [Dimitris Chatzopoulos](#), [Pan Hui](#), [Jogesh Muppala](#), [Qian Zhang](#)

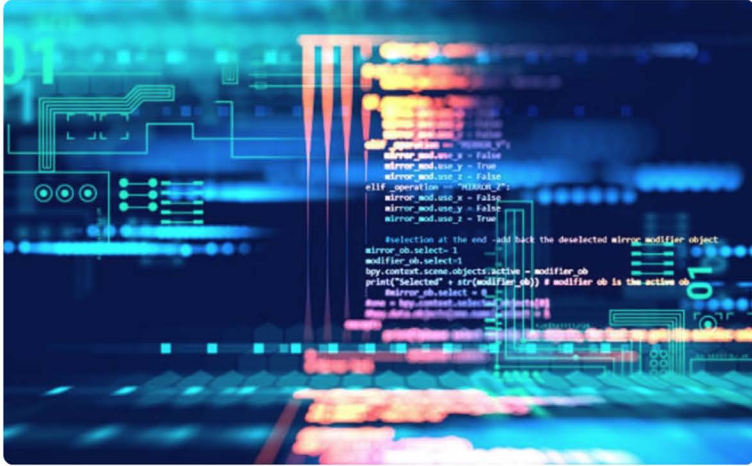
Big Data and Machine Learning for Networks and Systems: [Gary Chan](#), [Dimitris Chatzopoulos](#), [Kai Chen](#), [Pan Hui](#), [Bo Li](#), [Wei Wang](#), [Qian Zhang](#)

### Affiliated Labs & Centers

[HKUST-DT System and Media Laboratory \(SyMLab\)](#)

[Huawei-HKUST Innovation Laboratory](#)

[System Networking Research Group \(SingLab\)](#)



## Software Engineering and Programming Languages (SE)

Software Engineering and Programming Languages group aims to advance and develop solutions to real-world software development problems. Research in the group includes software analysis, testing, verification, debugging, synthesis, repository mining, empirical methods, application of AI in programming, language understanding, parallel programming and end-user programming.

### Subareas

Program Analysis and Testing: [Shing-Chi Cheung](#), [Shuai Wang](#), [Charles Zhang](#)

Empirical and Mining Software Repository: [Shing-Chi Cheung](#), [Sunghun Kim](#)

Verification and Language Understanding: [Fangzhen Lin](#)

Concurrency and Parallel Programming: [Qiong Luo](#), [Charles Zhang](#)

### Affiliated Labs & Centers

[CASTLE Lab](#)



## Theoretical Computer Science (TH)

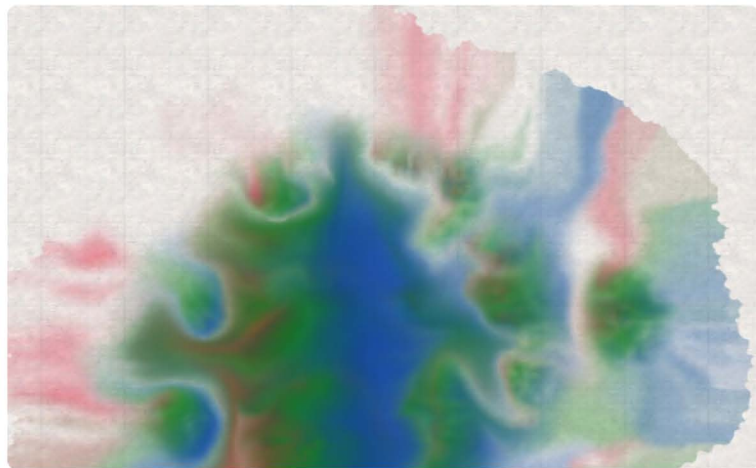
The Theoretical Computer Science group studies fundamental problems arising from a variety of computational applications, looks for efficient approaches to solving them, and determines their inherent complexity. In particular, the group's research covers the following topics: design and analysis of algorithms, data structures, computational geometry, information theory, coding theory, cryptography, and database theory.

### Subareas

Computational Geometry: [Sunil Arya](#), [Siu-Wing Cheng](#)

Design and Analysis of Algorithms: [Mordecai Golin](#), [Ke Yi](#)

Coding Theory and Cryptography: [Cunsheng Ding](#)



## Vision and Graphics (VG)

The Vision and Graphics group leads research in image analysis, computer vision and computer graphics. Computer Vision and Image Analysis focuses on the challenge of making computers see and understand images while Computer Graphics focuses on the challenge of making computers create pictures. The major research areas under investigation include computer vision, computer graphics, medical image, biometric systems and video processing.

### Subareas

Vision, Recognition and Learning: [Qifeng Chen](#), [Tim Cheng](#), [Albert Chung](#), [Ting-Chuen Pong](#), [Pedro Sander](#), [Chi-Keung Tang](#)

Graphics and Interactive Techniques: [Huamin Qu](#), [Long Quan](#), [Pedro Sander](#), [Chiew-Lan Tai](#), [Chi-Keung Tang](#)

3D Reconstruction: [Long Quan](#)

3D Visualization: [Huamin Qu](#)

Medical Image Analysis: [Albert Chung](#)

### Affiliated Labs & Centers

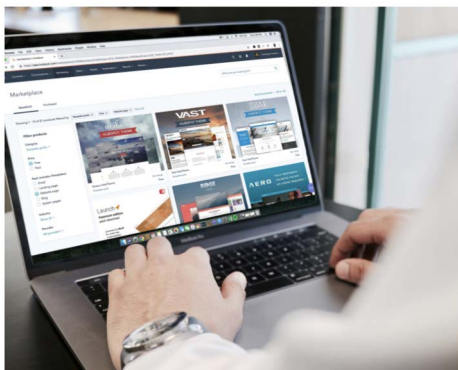
[VisLab](#)



# Joint Research Labs with Companies



# Research Institutes



**Sino Software Research Institute**  
Prof Shing Chi Cheung (Director)



**Big Data Institute**  
Prof Lei Chen (Director)



**Robotics Institute**  
Prof Michael Wang (Director)



**GREAT Smart Cities Institute**  
Prof Hong Kam Lo (Director)

# HKUST(Guangzhou)





# Hubs and Thrust Areas

- Advanced Materials
- Microelectronics
- Earth, Ocean and Atmospheric Sciences
- Sustainable Energy and Environment
- Artificial Intelligence
- Data Science and Analytics
- Internet of Things
- Digital Media and Arts
- Smart Manufacturing
- Intelligent Transportation
- Robotics and Autonomous Systems
- Bioscience and Biomedical Engineering
- Urban Governance and Design
- Innovation, Policy and Entrepreneurship
- Financial Technology
- MBA+

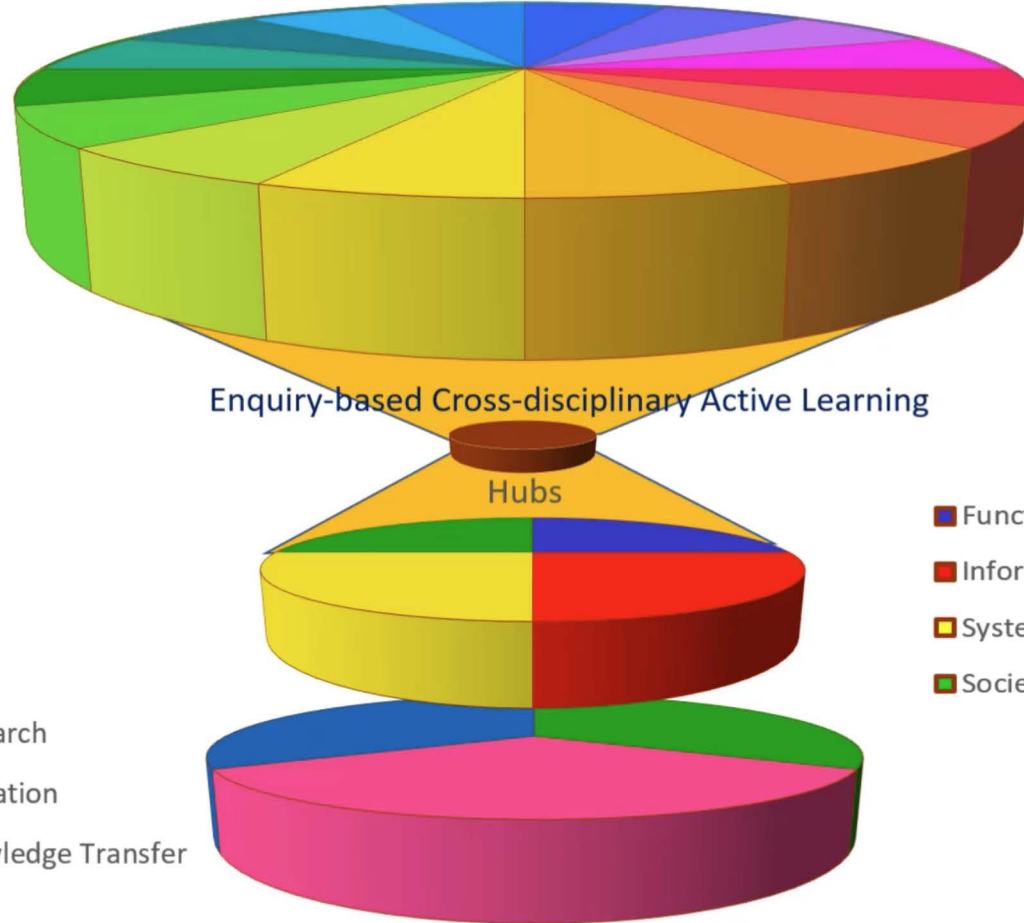
Thrust Areas

Enquiry-based Cross-disciplinary Active Learning

Hubs

- Function
- Information
- Systems
- Society

- Research
- Education
- Knowledge Transfer







# Thank You

