

# Mathematics and Information Engineering

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The Chinese University of Hong Kong

Major Allocation  
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# About MIEG programme

## MIEG Programme

Jointly offered by the **Faculty of Science** and **Faculty of Engineering**

### Managed by

- ▶ **Department of Mathematics** (Faculty of Science)
- ▶ **Department of Information Engineering** (Faculty of Engineering)

### Curriculum:

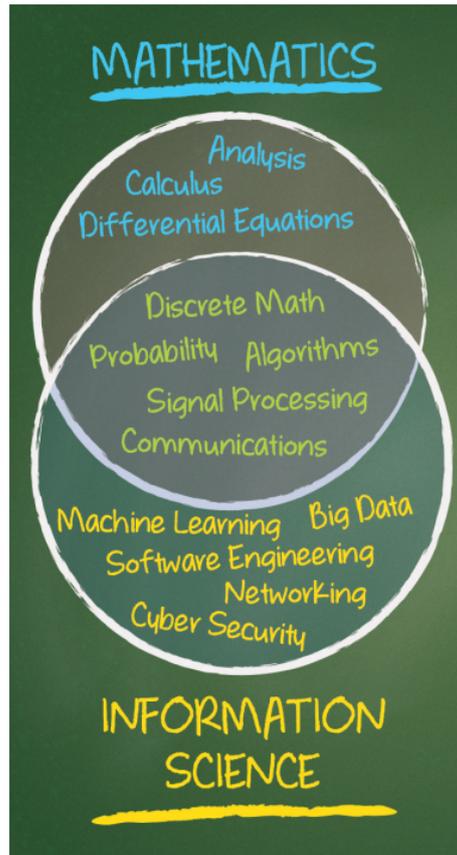
- ▶ Higher level math courses: along with **math majors** (rigorous treatment)
- ▶ Engineering Courses: mainly with **IERG** and some with **CSCI** students

### Admission to this programme

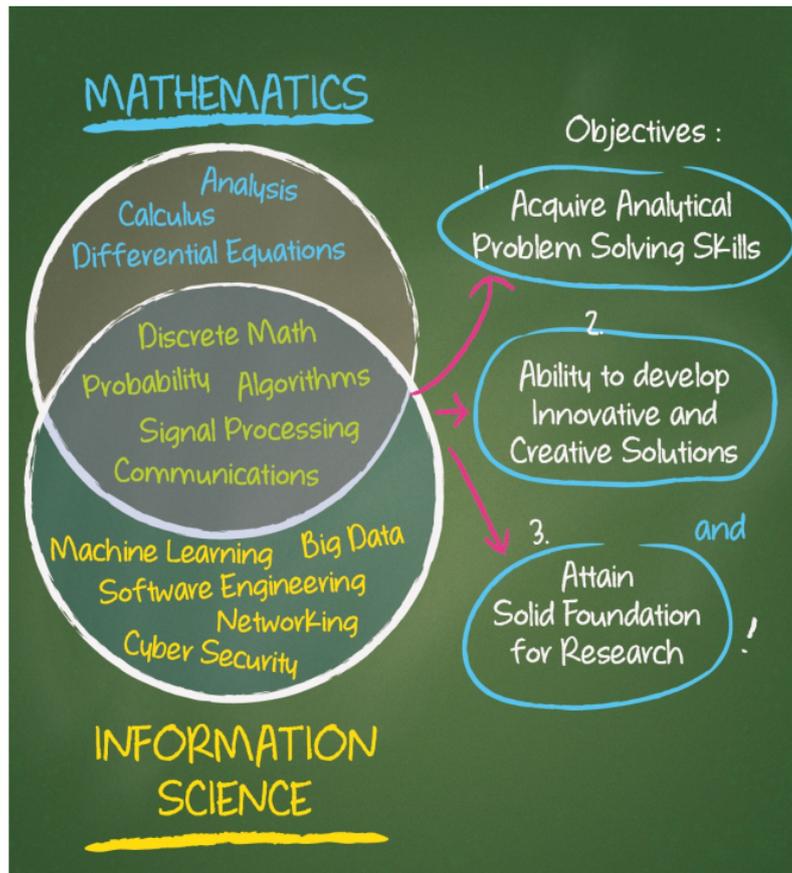
- ▶ Enrichment Math students: Faculty of Science
- ▶ **Broadbased students: Faculty of Engineering**



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# What does the curriculum look like?

## Mathematics + Information Engineering

\* Wide Range of Electives \*

Major Requirement including Faculty Package (84 units)

Fundamental	Year 1	Engineering Faculty Package or <b>Enrichment Mathematics Study Scheme</b> <i>plus Extra Foundation Courses</i>	Web-scale Information Analytics Programming Big Data Systems Probabilistic Models & Inference Algorithms for Machine Learning Internet of Things Building Scalable Internet-based Services Social Media & Human Info Interaction Multimedia Coding and Processing Simulation & Statistical Analysis Digital Communication Reinforcement Learning Advanced Topics in Blockchain Applied Cryptography Digital Forensics Random Processes Network Economics Graph Theory Numerical Analysis Linear Programming Mathematical Modeling  <i>and MORE!</i>
	Year 2	<b>Foundation of Modern Math · Advanced Calculus</b> Data Structures · Basic Analog & Digital Circuits Electronic Circuit Design Lab · Probability Models & Applications Principles of Communication Systems · Communications Lab Intro to Systems Programming · Engineering Practicum Fourier Analysis · Discrete Structures and Probability	
Advanced	Year 3	<b>Linear Algebra II · Algebraic Structures · Mathematical Analysis I</b> <b>Complex Variables with Applications</b> Information & Software Engg Practice · Computer Networks Information Infrastructure Design Lab <i>plus Major Elective Courses</i>	
	Year 4	Final Year Project I and Final Year Project II Design and Analysis of Algorithms <i>plus Major Elective Courses</i>	

\*Plus University Core Requirement, including English Language, Chinese Language, General Education, Physical Education & IT Training.\*



# What are some of the areas you can specialize in?

A wide range of **major electives** allow you to specialize in

- ▶ Communications Systems and Computer Networks
- ▶ Multimedia (Image and Video) Processing, Machine Learning (Artificial Intelligence)
- ▶ Coding and Information Theory
- ▶ Theory of Computation
- ▶ Data Sciences (Big Data), Optimization
- ▶ Formal and Abstract Mathematics



# To which graduate programs have some of the alumni gone?

Data (2010 - 2020)

## M.S./Ph.D. in Electrical (Information) Engineering

- ▶ U.C. Berkeley (2011, 2016, 2020), Stanford (2012, 2013, 2018), Caltech (2012, 2016), UIUC (2012), U.C. San Diego (2015), CMU (2016, 2017, 2018), Georgia (2019), Toronto (2019), Waterloo (2019), Notre Dame (2019), CUHK (2010-2020), U.T. Austin (2017), HKUST (2018)

## M.S./Ph.D. in Computer Science and Mathematics

- ▶ Georgia (2012), Caltech (2014), Stony Brook (2012), Stanford (2013), Wisc-Mad (2013), HKU (2015, 2016), HKUST (2016), CUHK (2016, 2017, 2018), CMU (2017), Rice (2017), U.C. San Diego (2017), Edinburgh (2020)

## M.S./Ph.D. in Finance

- ▶ CUHK (2014, 2015), Waterloo (2010), Oxford (2010), George Washington (2011), Edinburgh (2017)



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## M.S./Ph.D. in Computer Science and Mathematics

- ▶ Georgia (2012), Caltech (2014), Stony Brook (2012), Stanford (2013), Wisc-Mad (2013), HKU (2015, 2016), HKUST (2016), CUHK (2016, 2017, 2018), CMU (2017), Rice (2017), U.C. San Diego (2017), Edinburgh (2020)

## M.S./Ph.D. in Finance

- ▶ CUHK (2014, 2015), Waterloo (2010), Oxford (2010), George Washington (2011), Edinburgh (2017)

## Remark

- ▶ More than **60 percent** of the alumni of this program goes to graduate schools
- ▶ Rest find jobs in a variety of industries like finance, programming, etc.



Institution	Programme	No. of Offers
Carnegie Mellon University	MS in Information Networking	1
	MS in Computer Vision	1
Princeton University	PhD in Electrical and Computer Engineering	1
Columbia University	MS in Computer Science	1
University of Maryland	PhD in Electrical Engineering	1
University of Illinois Urbana-Champaign	PhD in Computer Science	1
University of Michigan	PhD in Computer Science and Engineering	1
University of Chicago	MS in Computational and Applied Mathematics	1
University of California, San Diego	MS in Computer Science	1
Georgia Tech	PhD in Computer Science	1
Purdue University	PhD in Computer Science	1
EPFL	PhD in Computer and Communication Sciences	2
ETH Zurich	MS in Computer Science	1
CUHK	PhD in Information Engineering	1
	PhD in Systems Engineering and Engineering Management	1
	PhD in Computer Science and Engineering	1



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- ▶ You reap what you sow
  - In other words, the curriculum is **demanding**
- ▶ It is designed for **the top students** (Yearly intake:  $\approx 15$ )



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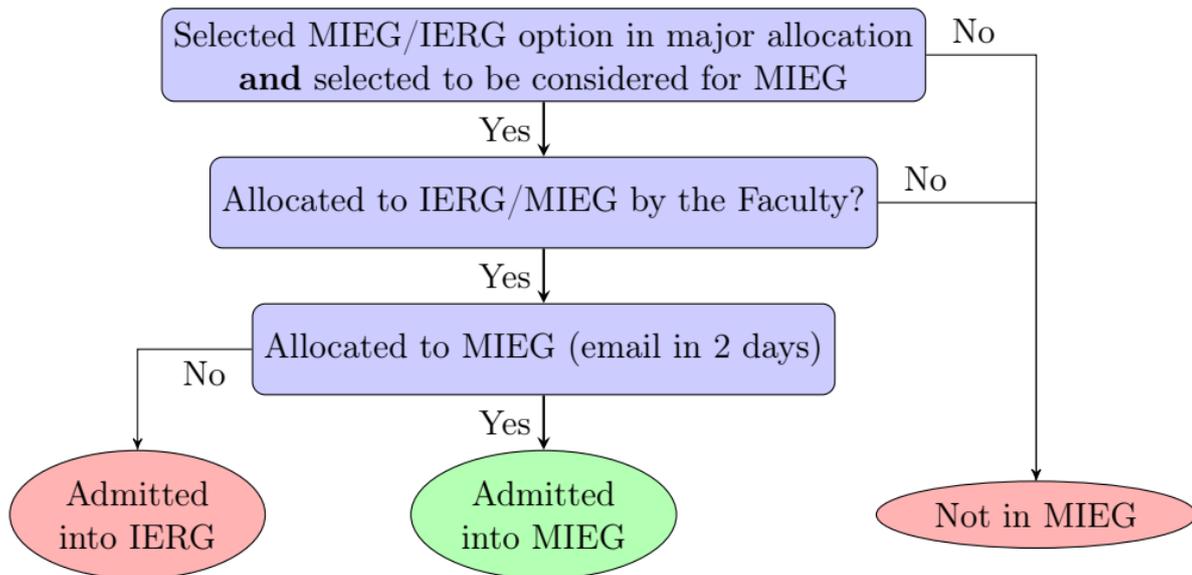
**Important:** If you are considering this programme, please read:

<http://www.mie.cuhk.edu.hk/advice.shtml>



# Major Admission Scheme for MIEG

Read all about it: [http://www.mie.cuhk.edu.hk/mieg\\_admission.shtml](http://www.mie.cuhk.edu.hk/mieg_admission.shtml)



## Preferences on Major Programmes

1. Drag and drop the programmes

1st	IERG/MIEG - Information Engineering/Mathematics and Information Engineering
2nd	SEEM - Systems Engineering and Engineering Management
3rd	MAEG - Mechanical and Automation Engineering
4th	CENG - Computer Engineering
5th	CSCI - Computer Science

2. Regarding the programme choice of IERG/MIEG, my intended major is:

IERG  MIEG

Remember to select MIEG here to indicate your choice

**Note:**

- If you choose IERG, you will not be considered for MIEG
- If you choose MIEG but did not make it, you will be defaulted to IERG

3. Submit your preferences

Submit



# Recap

Ask yourself:

- ▶ Am I interested in learning fundamentals of information and computer sciences?



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- ▶ Am I mathematically inclined?
- ▶ Do I want to pursue higher studies?



# Recap

Ask yourself:

- ▶ Am I interested in learning fundamentals of information and computer sciences?
- ▶ Am I mathematically inclined?
- ▶ Do I want to pursue higher studies?

If the answer to these questions is a resounding **YES**, then MIEG is the right programme for you.

Please read: <http://www.mie.cuhk.edu.hk/advice.shtml>



# Our advice

Your next step: gather lots of information

- ▶ From Alumni
- ▶ From Webpage: <http://www.mie.cuhk.edu.hk>
- ▶ From Prof. Chandra Nair, Programme Director (MIEG)
  - Email: [chandra@ie.cuhk.edu.hk](mailto:chandra@ie.cuhk.edu.hk)
  - Webpage: <http://chandra.ie.cuhk.edu.hk>
  - Office: SHB 811
- ▶ From me (send email to make an appointment)
  - My email: [ctli@ie.cuhk.edu.hk](mailto:ctli@ie.cuhk.edu.hk)
  - My webpage: <https://staff.ie.cuhk.edu.hk/~ctli/>
  - My office: SHB 807



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## QUESTIONS

