



香港資優教育學苑

The Hong Kong Academy for Gifted Education

香港特別行政區政府教育局資助

Subvented by the Education Bureau, the Government of the HKSAR



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E2ENG003T

(Not-token required)

[**Gifted Programme**]

 **Academic Introductory Talk Series**

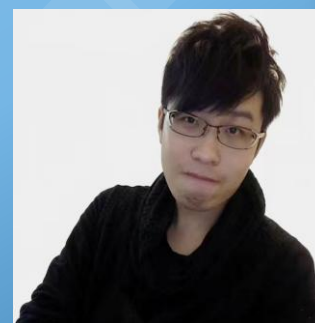
Engineering talk (Level II):

Engineering the Impossible in Cryptography

Professor CHOW Sze Ming, Sherman

Associate Professor

Department of Information Engineering, CUHK



Application Deadline

22 Jul 2026

12:00 noon

Intended Learning Outcomes

Upon completion of the gifted programme, gifted students should be able to:

1. explain the core ideas behind secure multi-party computation and zero-knowledge proofs, including how they allow computation or proof without revealing unnecessary private information;
2. describe how modern cryptographic techniques can support real-world applications, such as privacy-preserving payments, statistics, credentials, and campus or city services;
3. recognise how Information Engineering connects mathematics, computer systems, and real-world privacy applications, and how early projects can lead to research opportunities;
4. foster awareness of data privacy and positive learning attitude towards related research.



◆ Gifted Programme Introduction

Seeming impossibilities become real systems in modern cryptography. How can computers learn from data they never see? Exactly how can one prove a claim without revealing anything else? Rather than trusting by default, one can rely on cryptographic techniques, including secure multi-party computation (SMC) and zero-knowledge proofs (ZKPs). This talk introduces simple conceptual models and relates them to deployments on real platforms. At the engineering layer, the speaker shows the criteria to evaluate whether a cryptosystem is practical. Next, he illustrates applications, including transit and retail payments, privacy-preserving statistics, and selective-disclosure credentials for campus and city services. Consequently, he highlights some ideas on how to make these systems possible. Having set the context, he then briefly describes preparation in our Information Engineering program that links core math and systems courses with small research projects. Over time, these steps enable students to contribute to ongoing projects and explore internships with different research groups. With this foundation, early contributions can grow naturally into research careers and PhD study that advances both science and deployable privacy.

Professor Chow researches cryptography and privacy, was a keynote speaker at Asiacrypt 2025, and serves on the IRTF Crypto Review Panel. For students curious about finding hidden weaknesses in systems, this talk shows how that curiosity can grow into cryptography research—starting from Hong Kong.

◆ Schedule

Session	Date	Time	Venue
1	7 Aug	2:30 p.m. – 3:30 p.m.	CUHK

◆ Suitable for

- S3 – S6 HKAGE student members in 2025/26 school year.
 - Class size: 100
- * First-come, first-served.

◆ Medium of Instruction

English

◆ Certificate

E-Certificate will be awarded to participants who have attended the talk.

◆ Remark

Starting from the 2024/25 school year, after the first review period, ALL student members must complete the following requirements in each school year in order to maintain their membership:

- Attend One Talk; AND
- Participate in One programme or activity of any kind



Trendy Academic Talk Series



This talk is one of the items in the five domains of the Holistic Talk Series. The objective is to facilitate the all-round development of student' gifted potential.



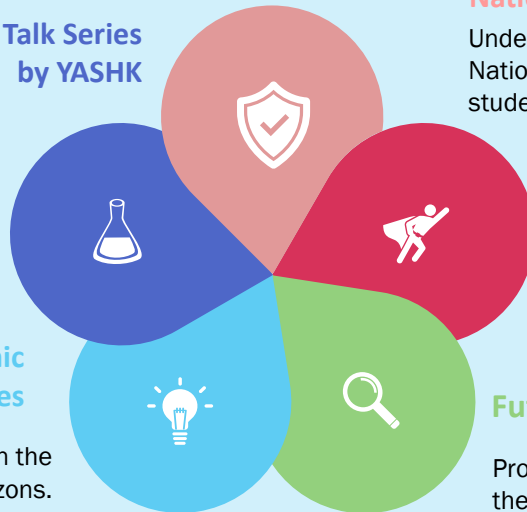
Emerging Technology Talk Series by YASHK

Scientists introduce eye-opening emerging technology to enhance students' motivation to learn.



Trendy Academic Talk Series

Introduce trendy topics to widen the students' horizons.



National Security Talk Series



Understanding the meaning of National Security, enhances students' sense of national identity.

Ignite Life Talk Series



Celebrities share their life-changing moments to enhance students' aspirations for life.

Future Insight Talk Series



Professionals share insights about the latest trends in their industry to help students plan their future.