



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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[ **Gifted Programme** ]

💡 **Academic Introductory Talk Series**

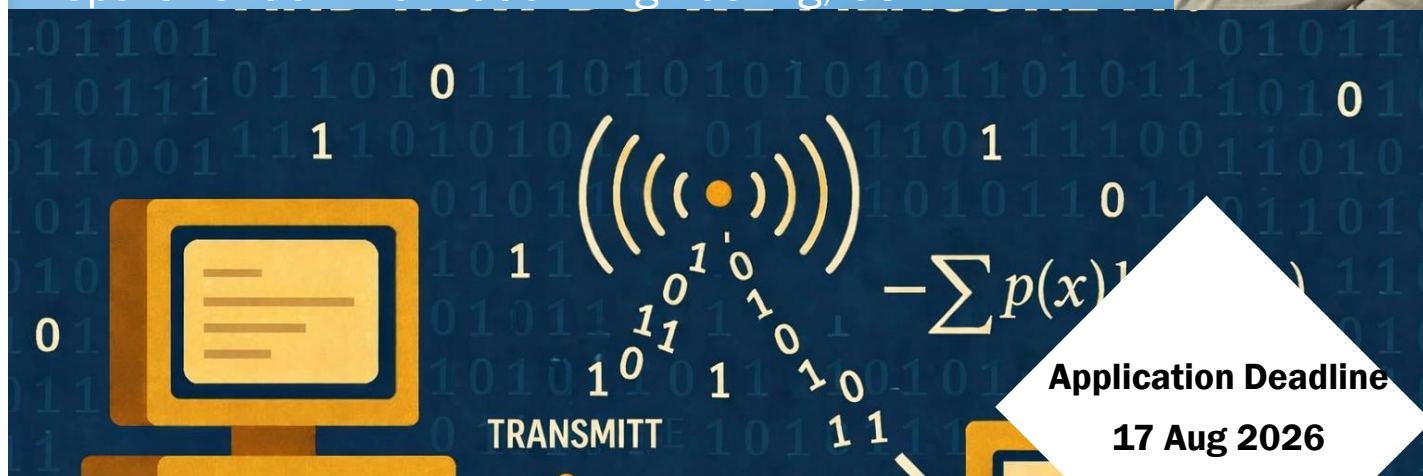
Engineering Talk (Level II)

# What Is Information, and How Do We Measure It?

Professor Amin Gohari

Associate Professor

Department of Information Engineering, CUHK



**Application Deadline**

**17 Aug 2026**

**12:00 noon**

## Intended Learning Outcomes

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

1. explain the core ideas of communication engineering and information theory, including how information can be measured independently of meaning and how probability models uncertainty in messages;
2. describe key concepts such as bits and entropy, and how they relate to yes/no choices, data compression, and the limits of lossless compression;
3. draw inspiration from Claude Shannon's insights to identify and reflect on real-world applications of information theory, including ZIP files and modern image, audio, and video compression formats;
4. plan for further study in information engineering and related fields and develop curiosity to explore more topics in communication or data science.



## ◆ Gifted Programme Introduction

What is “information,” and how can we measure it mathematically? In 1948, Claude Shannon—mathematician and communication engineer—offered an answer that laid the foundation for modern communication systems and ignited the digital revolution. This talk introduces Shannon’s notions of information and uncertainty, explains entropy as a quantitative measure, and explores their impact on data compression and beyond. No specialized background is required; we will build the ideas intuitively.

Amin Gohari received his Ph.D. in Electrical Engineering from UC Berkeley (2010), where he was a three-time finalist for the IEEE Jack Keil Wolf ISIT Student Paper Award (2008–2010) and won the Eli Jury Award and the Bernard Friedman Memorial Prize. He also won a Gold Medal at the 2000 International Mathematical Olympiad and First Prize at the 2002 International Mathematics Competition. He served as an Associate Editor for IEEE Transactions on Information Theory (2018–2021).

## ◆ Schedule

| Session | Date   | Time                   | Venue |
|---------|--------|------------------------|-------|
| 1       | 19 Sep | 9:30 a.m. – 10:30 a.m. | CUHK  |

## ◆ Suitable for

- S3 – S6 HKAGE student members in 2026/27 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 2023/24 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

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



### The Hong Kong Young Academy of Sciences (YASHK) talk series

Talks are about emerging technology to inspire students’ motivation in pursuing knowledge in specialized areas.



### Academic Introductory Talk Series

Introduce trendy topics to widen the students’ horizons.



### Celebrities Talk Series

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



### Future Insight Talk Series

Professionals explain the latest trend in their industry to give students an insight to plan their future.

