SFTL (Student Feedback on Teaching & Learning)

http://sftl.hku.hk/

- **Your Feedback Is Greatly Appreciated!**

Meanwhile, welcome to share your thoughts anytime, via email or in person or any approach you can figure out.

Assignments

- ~~Individual Project Deadline: **Wed, 8 April 2026**~~
- In-Class Demo
  - Date: 9:00 -11:00, April 29, 2026, Wed
  - Location: LE1
  - All teams are invited to present in person.

- ~~Group Project Deadline: **Apr 24, 2026 (NO slip days)**~~

- Problem Set Deadline: **April 30, 2026**

COMP3516: Data Analytics for IoT

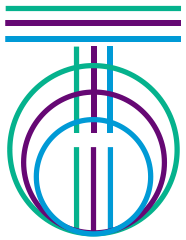
Lecture 11: Course Summary

Chenshu Wu

Department of Computer Science

2026 Spring

香 港 大 學
THE UNIVERSITY OF HONG KONG



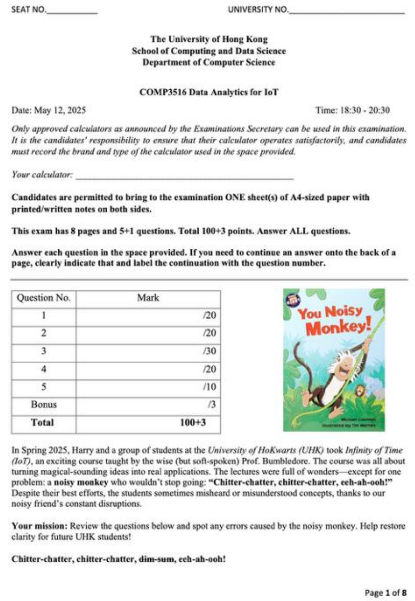
HKU AIoT LAB
香港大學人工智能物联网實驗室

Final Exam

- Time: May 11 (Monday) 2026, 14:30-16:30pm (2 hours)
- Location: LE 5

- Candidates are permitted to bring to the examination ONE sheet(s) of A4-sized paper with printed/written notes on both sides.
- Candidates may use the approved models of calculators as announced by the Examinations Office.
- Covers all topics in the lectures, unless otherwise specified.

- Format
  - 5 questions + 1 bonus question (10 pages in total), assembled in a special theme (like past years)
    - Including 10 T/F Qs, 1 Fill-in-the-Blank Qs, plus 3 small essay Qs
  - Questions similar to those in the problem sets
    - More conceptually rather than mathematically (there are some calculations)
  - Try to answer all questions, and answer those you are able to solve first
  - Total 100 + 3 points
  - (DON'T write long essays in your answers. Write your answers within the provided areas.)



SEAT NO._____ UNIVERSITY NO._____

The University of Hong Kong
School of Computing and Data Science
Department of Computer Science

COMP3516 Data Analytics for IoT

Date: May 12, 2025 Time: 18:30 - 20:30

Only approved calculators as announced by the Examinations Secretary can be used in this examination. It is the candidates' responsibility to ensure that their calculator operates satisfactorily, and candidates must record the brand and type of the calculator used in the space provided.

Your calculator: _____

Candidates are permitted to bring to the examination ONE sheet(s) of A4-sized paper with printed/written notes on both sides.

This exam has 8 pages and 5+1 questions. Total 100+3 points. Answer ALL questions.

Answer each question in the space provided. If you need to continue an answer onto the back of a page, clearly indicate that and label the continuation with the question number.

Question No.	Mark
1	/20
2	/20
3	/30
4	/20
5	/10
Bonus	/3
Total	**100+3**

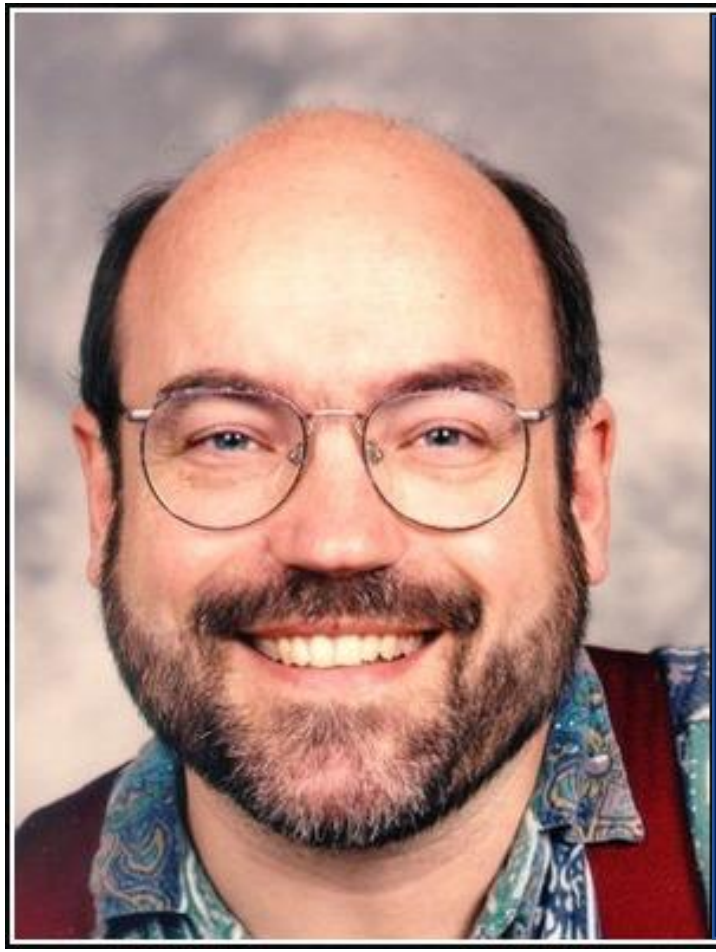
In Spring 2025, Harry and a group of students at the *University of HoKwarts (UHK)* took *Infinity of Time (IoT)*, an exciting course taught by the wise (but soft-spoken) Prof. Bumbledore. The course was all about turning magical-sounding ideas into real applications. The lectures were full of wonders—except for one problem: a **noisy monkey** who wouldn't stop going: **"Chitter-chatter, chitter-chatter, eeh-ah-ooh!"** Despite their best efforts, the students sometimes misheard or misunderstood concepts, thanks to our noisy friend's constant disruptions.

Your mission: Review the questions below and spot any errors caused by the noisy monkey. Help restore clarity for future UHK students!

Chitter-chatter, chitter-chatter, dim-sum, eeh-ah-ooh!

Page 1 of 8

What do we learn in this course?



The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

-- Mark Weiser
(The Father of Ubiquitous Computing)

The Computer for the 21st Century

Specialized elements of hardware and software, connected by wires, radio waves and infrared, will be so ubiquitous that no one will notice their presence

(Scientific American, 1991)

Wow, we've learnt a lot!

- Introduction
- Connectivity
  - Wireless networks
  - Wireless protocols
  - Wireless communication
- Signals & Data
  - Signal basics
  - Time-frequency
  - Periodicity/Correlation
  - Detection
  - Filtering
- Radio Analytics: mmWave Sensing
  - Range Estimation
  - Doppler Estimation
  - Angle Estimation
- Radio Analytics: Wi-Fi Sensing
  - Channel State Information
  - Signal modeling
  - Motion detection
  - Breathing rate estimation
  - Speed estimation
- Mobile Analytics: Mobile sensing
  - Inertial sensors
  - Sensing applications
- Location Analytics: Localization
  - Fingerprinting
  - Triangulation/Trilateration
  - Inertial Tracking [RIM, Particle Filter not required]
- Systems Design and Implementation
  - *Sensing Systems*
  - *Performance Evaluation*
- *Neural Networks for Data Analytics*
  - *Deep Wireless Sensing*
  - ~~*Sensing AI for Healthcare*~~
  - *Thermal Sensing*

[NOT/LESS REQUIRED FOR FINAL EXAM.]

Systems Thinking – Group Project

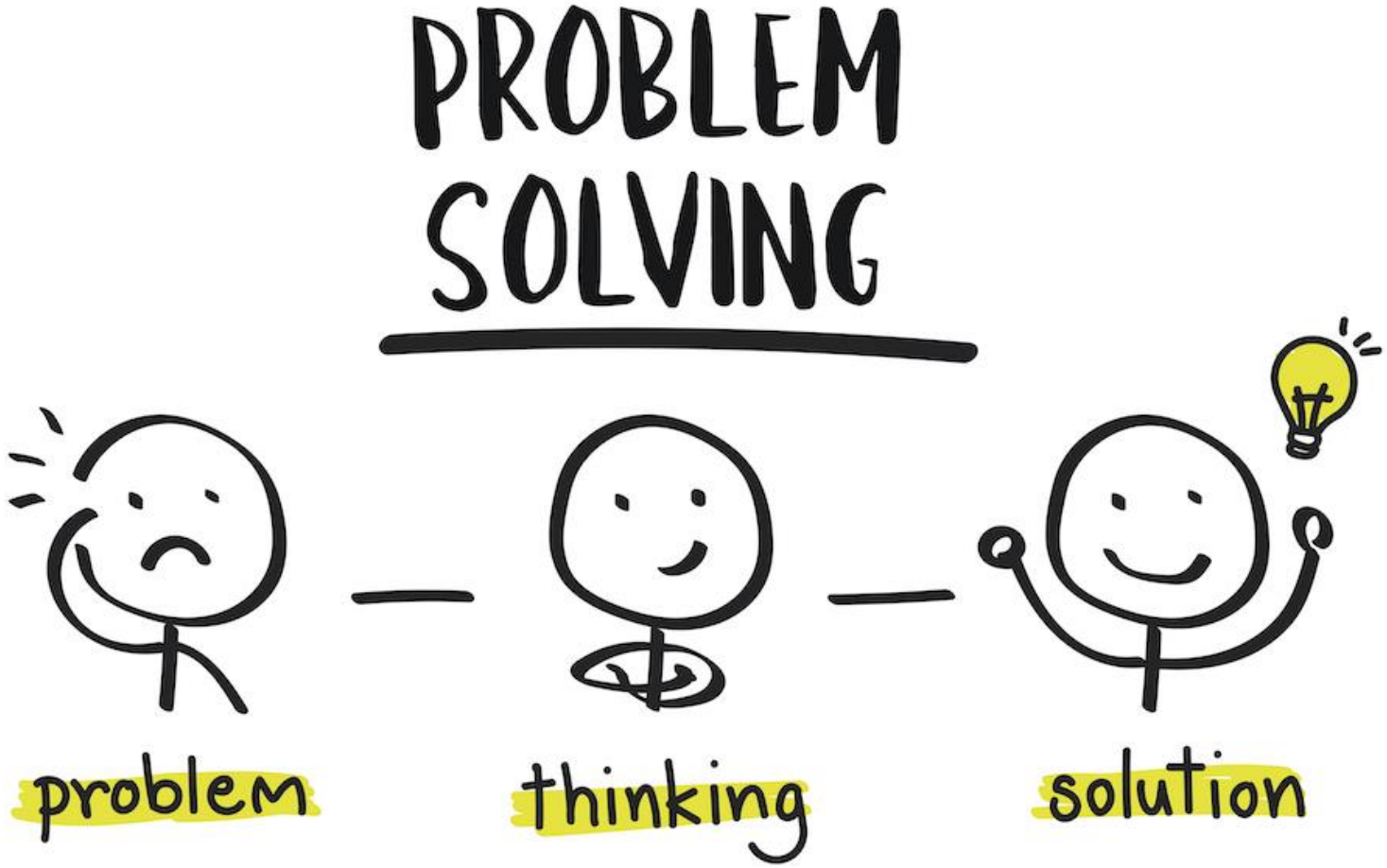
- Teamwork is not taken for granted and is often not easy.
- Systems require solid theory.
- Systems and engineering are all about trade-off.
- Anything else to share?

If you were provided a second chance.....

- Would you still be determined to enroll COMP3516?

  - This course is about …
    - … concepts, technologies, and applications of IoT and AIoT
    - … learning how to sense signals from the physical world
    - … developing sensing and learning solutions to extract information
    - … designing IoT systems that solve practical problems
  - Warning 1: The course will be in general challenging for most HKU CS students without relevant background and/or strong motivation to learn.
  - Warning 2: The workload is HIGH (but FUN too)!!
  - Warning 3: Difficult at the beginning, but gets better when going deeper.

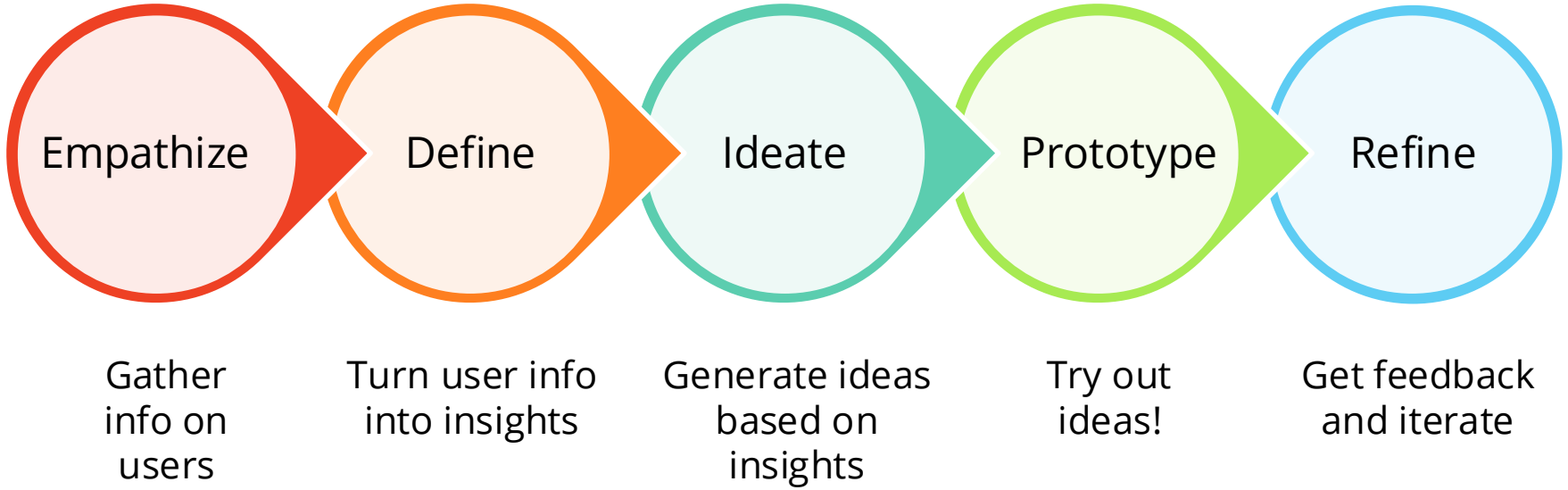
What do we learn in this course?



Design Thinking

Stanford d.school

- A human-centered path to innovation that draws from the designer's toolkit to integrate the needs of people (Desirability), the possibilities of technology (Feasibility), and the requirements for business success (Viability).



Empathize: Mission-led Design

- What do we mean by “Problem Solving”?

- Solving True Problems: Don’t work on a fake problem!
- Truly Solving Problems: Don’t pretend to solve the problem!
- Problems Truly Solved: Make sure the solution indeed works!

Design Thinking - Define

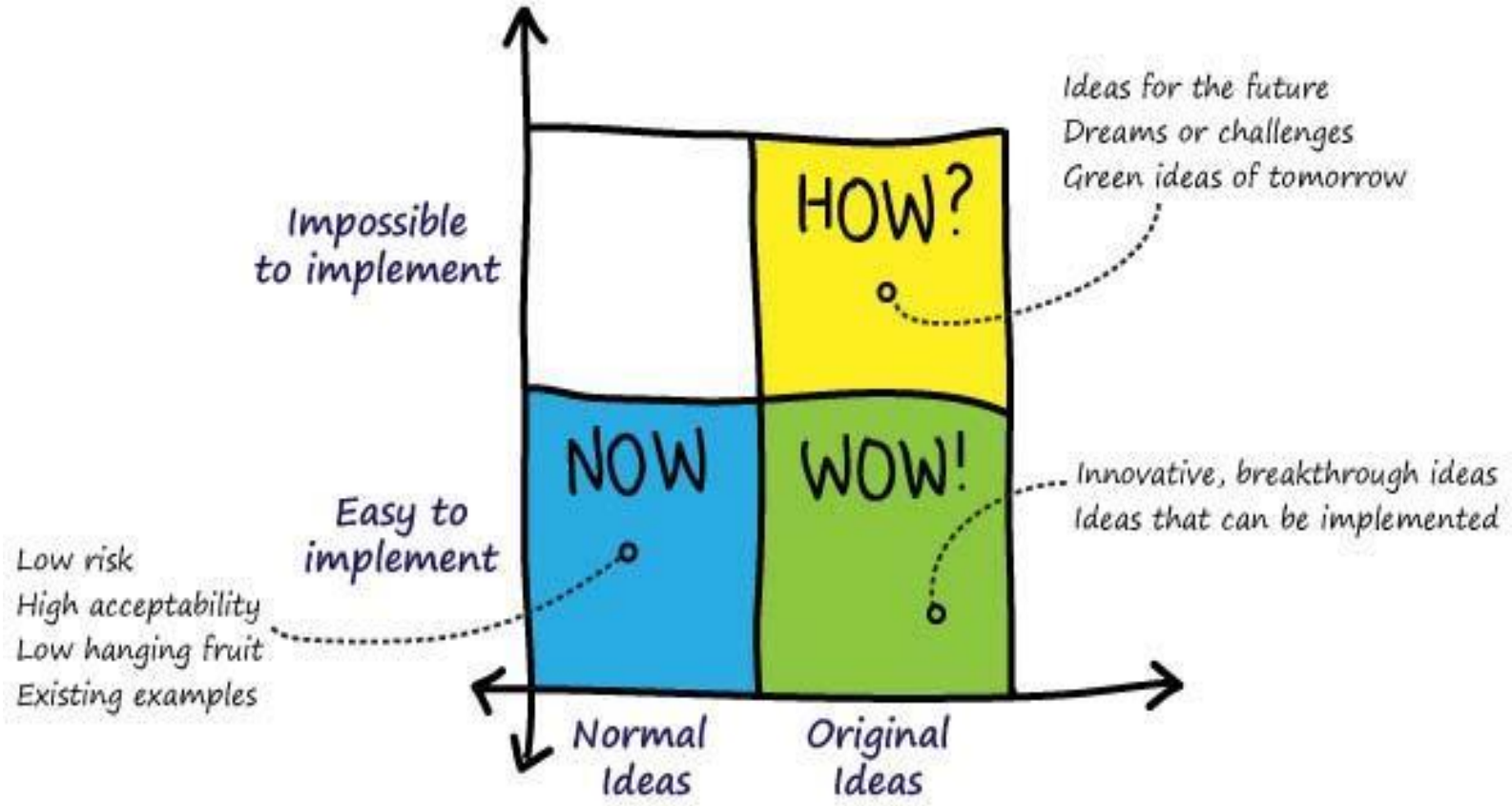
How Might We _____ [what]

For

_____ [who]

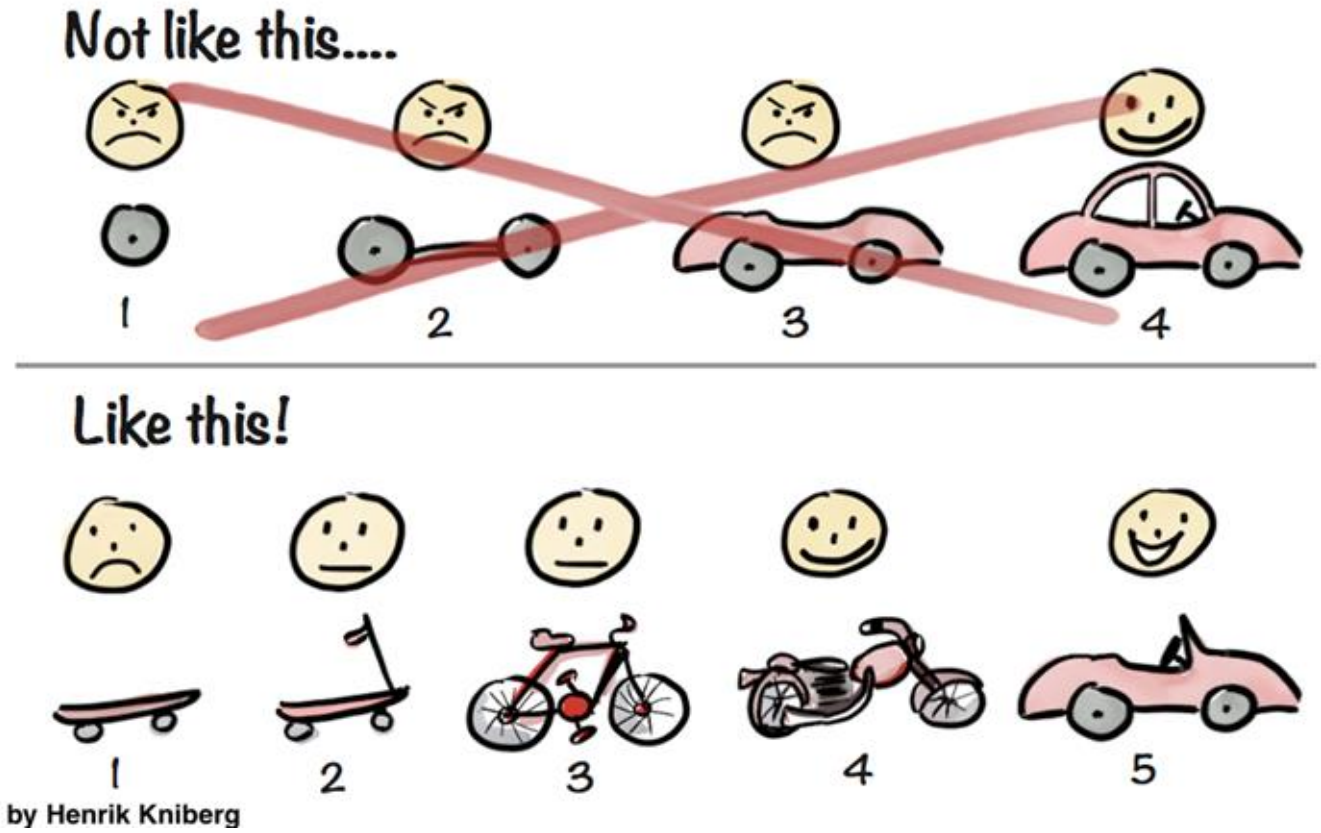
So that they _____ [why]

Design Thinking - Ideate



Design Thinking – Prototype

- Get it done, then get it done perfectly.



A bit more before saying bye…

- **I hope the course has inspired you as much as it has challenged you.**
- Teaching & Learning: Two-Way Communications
- Our approach: Student-Centric & Student-Aware
- What do you think?
  - You are always more than welcome to send me a note, anytime.
  - And…

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Meanwhile, welcome to share your thoughts anytime, via email or in person or any approach you can figure out.

Example UG Projects

- Next-Gen Citation Networks via LLM
  - Skillsets: LLM, Web dev, big data
- Miniature Thermal-Millimeter-Wave Radar Prototype
  - Skillsets: mmWave radars, hardware (PCB/MCU), embedded dev
- PeakView: Smartphone AR for Enriched “Peak Views”
  - Skillsets: Computer Vision, mobile dev
- Visualizing the crowd with spatio-temporal mobility
  - Skillsets: Visualization, sensing
- And many more…

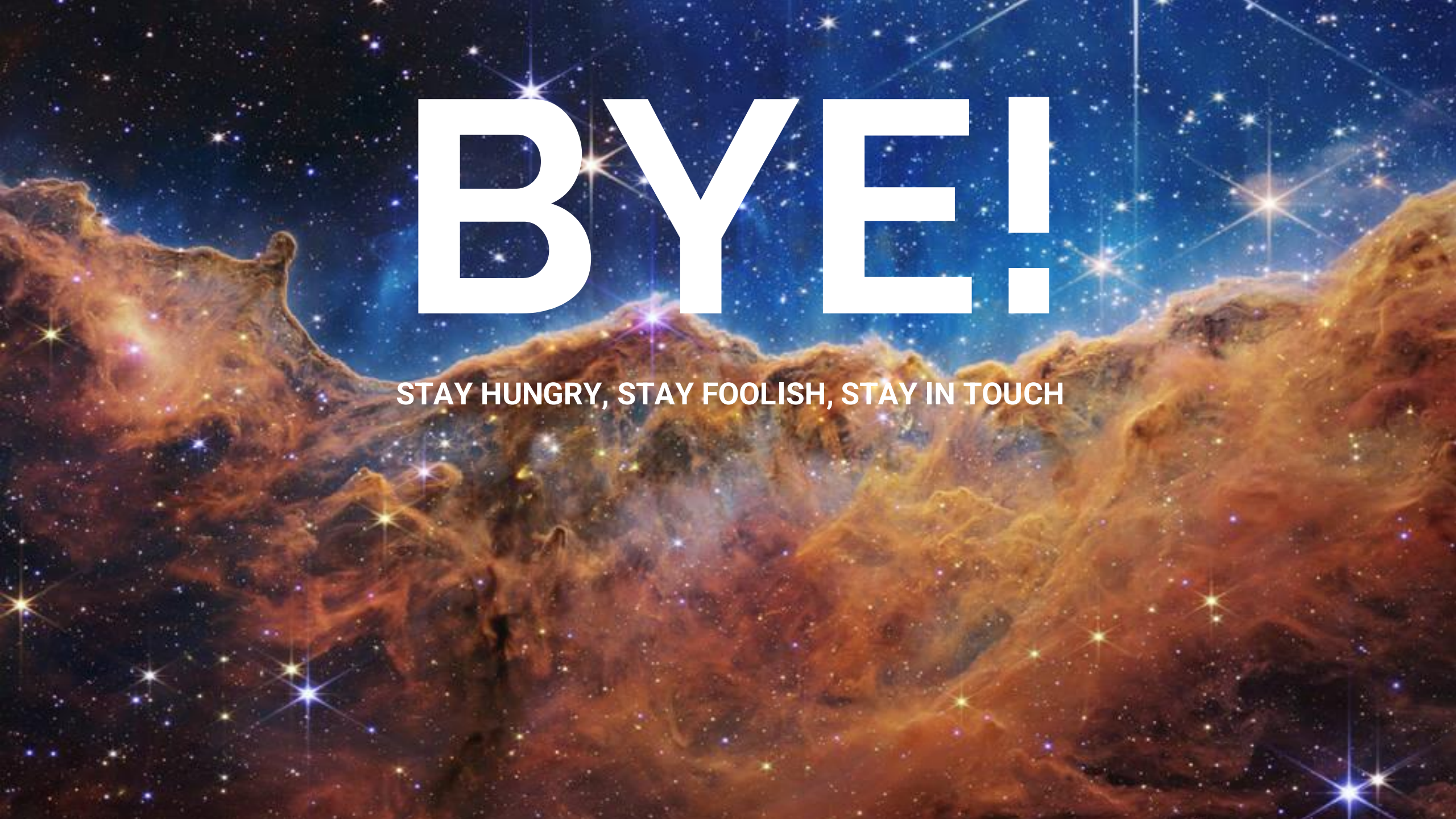
- Contact me at chenshu@cs.hku.hk for RAs/Interns/FYP/Startup ideas…
  - IF AND ONLY IF you are TRULY interested and motivated!

Many thanks for a great semester!

- Bye!

> The world is simple, but only when you truly understand it. Observe closely and deepen your understanding.

> There are always more problems than we expect—but fortunately, there are also more solutions than problems.


BYE!
STAY HUNGRY, STAY FOOLISH, STAY IN TOUCH