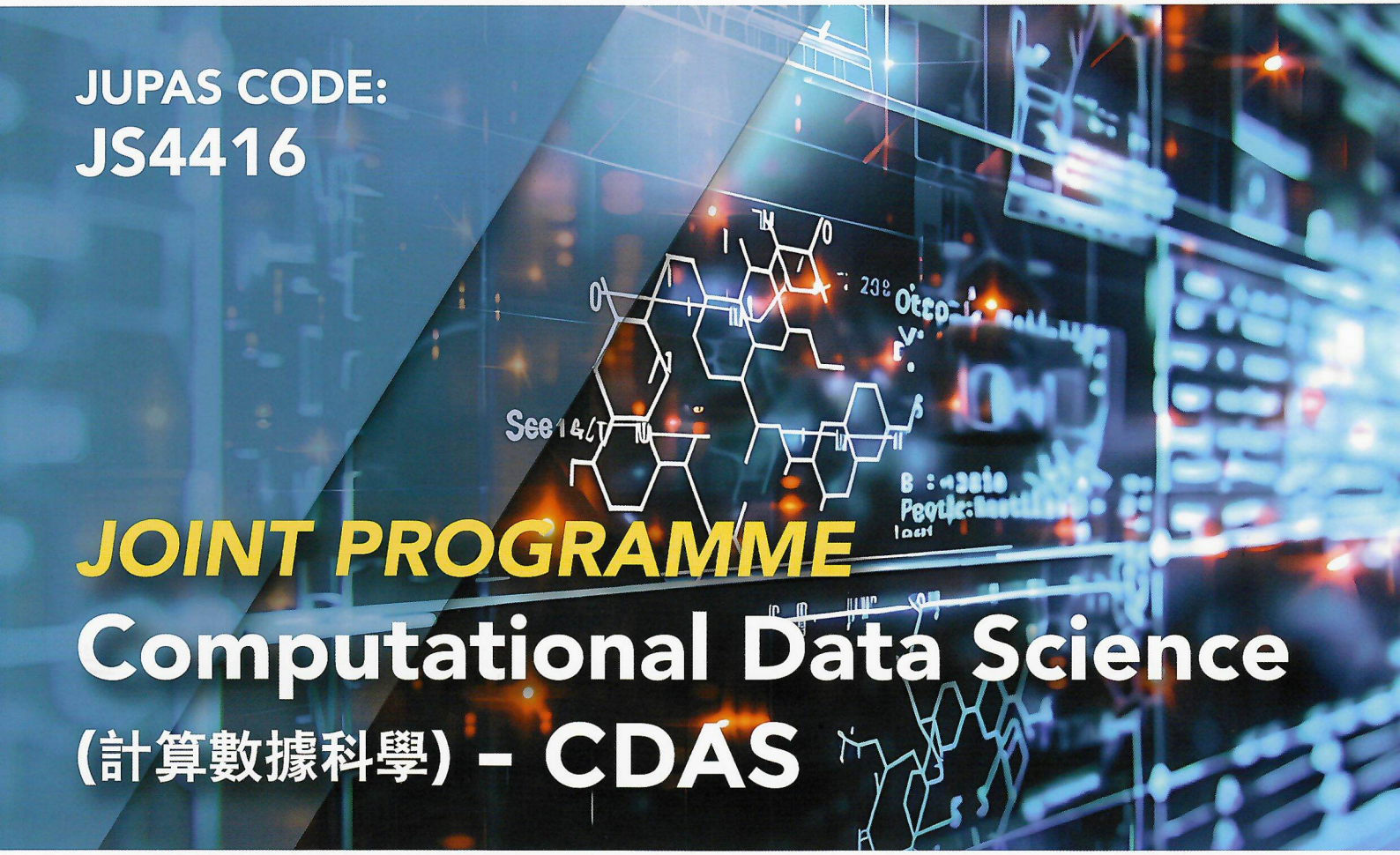
香港中文大學計算機科學與工程學系
Department of Computer Science and Engineering
The Chinese University of Hong Kong

香港中文大學統計與數據科學系
Department of Statistics and Data Science
THE CHINESE UNIVERSITY OF HONG KONG



**JUPAS CODE:**
**JS4416**

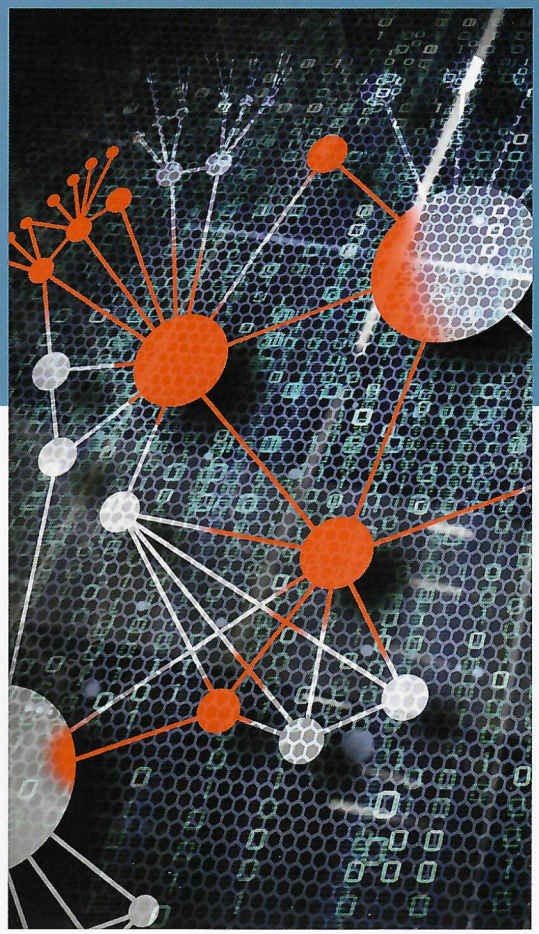
# *JOINT PROGRAMME*
# Computational Data Science
# (計算數據科學) - CDAS

- Algorithm
- Parallel Computing
- Distributed System
- Computer Science
- Deep Learning
- Statistics
- Sampling Methods
- Statistical Modeling
- High-dimensional Statistics
- Large-scale Inference
- Big Data
- Artificial Intelligence
- Computational Physics
- Computational Medicine
- Computational Social Science

***Offered by Department of Computer Science and Engineering and Department of Statistics and Data Science***

# BACKGROUND

The data-driven era creates strong interests and needs of analyzing, storing, distributing, and sharing massive amounts of data using sophisticated data analytics and machine learning algorithms and methodologies, with applications in multiple disciplines including science, social science, finance, public health, medicine, engineering, and telecommunications. Huge job demand of data analysts in both local and global employment markets has been witnessed.



# INTRODUCTION

This new programme focuses on in-depth academic training in the domain of computational data science.

It aims to equip students with the capabilities of applying both

**(1) high-performance parallel and distributed computing for big data manipulation, and**

**(2) data-driven statistical procedures, methodologies and theories for mining patterns, making predictions, and discovering sciences from large and complex datasets.**

Such capabilities enable students to develop cutting-edge massive data analytics and management solutions that are of practical interest to academics, industry, and society.

# SPECIAL FEATURES OF THE CURRICULUM

- Solid inter-disciplinary curriculum;
- "Computer Science/Statistics + X" programme;
- Several specializations (i.e., the X component) that apply the core knowledge of computational data science to different science, engineering, and medicine disciplines:
  (a) Computational Data Science;
  (b) Computational Physics;
  (c) Computational Medicine;
  (d) Computational Social Science

# UNDERGRADUATE RESEARCH TRAINING

All students of our programme are required to take a 6-unit research-driven project course to work with professors of the University Central Cluster on real-world interdisciplinary problems. Via the project, students will learn how to formulate scientific or industrial problems into data science problems and tackle them with computational and statistical methods. As a result, our graduates will be well-prepared to join the workforce to solve practical computational data science problems upon graduation.

| | CDAS |
|---|---|
| **Faculty Package** | Programming<br>Linear Algebra<br>Advanced Calculus |
| **Major Foundation** | Discrete Mathematics<br>Data Structure<br>Probability<br>Statistics<br>Python<br>R, SAS<br>C++ |
| **Required courses** | Algorithms & Computer Systems<br>Artificial Intelligence<br>Operating Systems<br>Machine Learning / Data Mining / Statistical Learning<br>Survey Methods / Statistical Computing / Bayesian Learning<br>Statistical Inference / Applied Regression Analysis<br>Nonparametric Statistics / Categorical Data Analysis |
| **Research Practicum** | Final Year Project |
| | **Stream** |
| **Elective courses** | Computational Data Science<br>Computational Physics<br>Computational Medicine<br>Computational Social Science<br>*Engineering Leadership, Innovation, Technology and Entrepreneurship (ELITE) Stream (Faculty of Engineering) |

# JUPAS ADMISSION REQUIREMENTS (2026 ENTRY) OF CDAS

| HKDSE SUBJECT | MINIMUM LEVEL | SUBJECT WEIGHTING |
|---|---|---|
| **HKDSE Core Subjects** | | |
| English Language | 4 | 1 |
| Chinese Language | 3 | 1 |
| Mathematics (Compulsory Part) | 4 | 2 |
| Citizenship and Social Development | A (Attained) | N/A |
| **HKDSE Elective Subjects** | | |
| Any two subjects | 3 | # |

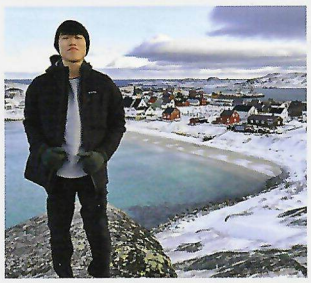
# The CDAS programme accepts any subject as elective, with a subject weighting of 2 for Mathematics Extended Module 1 or 2;
1.5 for Economics, Biology, Chemistry, Physics and Information and Communication Technology;
1 for any other subjects.
Selection is based on interview and the Best 5 HKDSE subjects with subject weighting applied.

# NON-JUPAS ADMISSIONS SCHEME

Students with non-HKDSE qualifications (e.g., public examinations such as the HKCEE, HKALE, IB, SAT, GCE, GCSE, Gaokao, etc.) and diploma/ sub-degree credentials are welcome to apply via the non-JUPAS admission scheme.

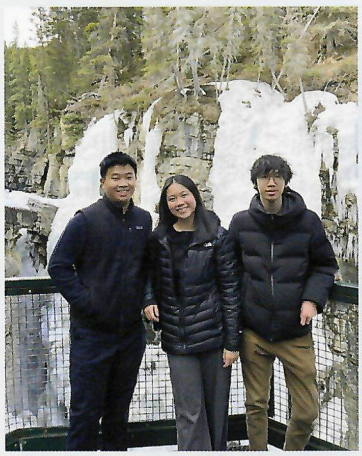
# EXCHANGE SHARING

## CHEUNG, CHUNG TIN
### University of Helsinki



Participating in the student exchange program was truly transformative. Living in Helsinki allowed me to immerse myself in a new culture, step out of my comfort zone, and build lasting friendships. Academically, I gained insights into data visualization, Bayesian inference, and even Finnish, which broadened my academic inspiration and enhanced my personal growth. Adapting to a drastically different lifestyle and unforeseen difficulties was one of the biggest challenges during my half-year journey, but it taught me resilience, and even embracing ups and downs in my life. This experience inspired me to be more open-minded to the world and be more robust and courageous while facing upcoming difficulties. I encourage everyone to embrace such life-changing opportunities.

## PIPATPAJONG, THAPAKORN
### University of Toronto



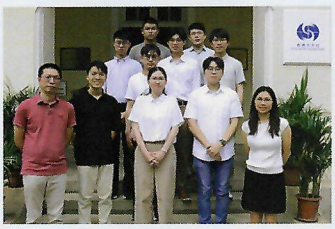
My exchange experience has been one of the most fruitful and adventurous moments in my life so far. Living in a foreign country has taught me how to quickly adjust to unusual places and remain strong in the time of hardship alone. I met a lot of new people, have fun with my friends, immerse in Canadian culture, and travel all over Canada. Looking back, I gained a lot of experience, more than I ever anticipated. Living in the new city, new teaching styles, and sometimes there are obstacles along the way, but these experiences made me grow into a better and more independent person.

## YU, TSZ HIN MERVIN
### University of Graz

I am grateful to have the opportunity to participate in an exchange programme at University of Graz in Austria from February to June 2025. Graz is the second largest city in Austria with a vibrant culture, relaxing vibe, and amazing scenery like the Schlossberg. I took four courses there, namely German, Marketing, Data Management, and Data Mining. It was a fulfilling learning experience, as I could be exposed to a new language, new topics, while also consolidating my knowledge in Computer Science and Statistics. Overall, this exchange was an eye-opening experience - expanding my global perspective, fostering international connections, and strengthening my independence. It remains a cherished and unforgettable memory of my university life.

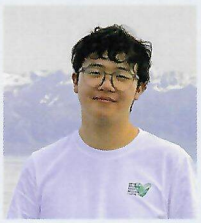
# INTERNSHIP SHARING

## CHEUNG, HOP CHEUNG
### Hong Kong Observatory



In the summer of 2025, I was glad to have had the opportunity to participate in the Hong Kong Observatory (HKO) Summer Placement Programme and work on wind chill temperature and heat index model building and verification for two months. This was an exciting opportunity for me to apply my knowledge from my studies to solve real-life challenges. This internship experience deepened my understanding of meteorological data analysis and model development. It allowed me to integrate different fields of theoretical knowledge and explore diverse analytical approaches to address practical challenges.

## DAI, DASEN
### Microsoft Research Lab

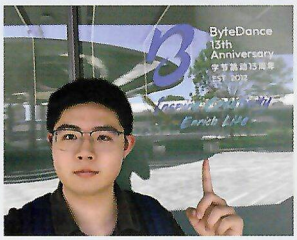


In 2025, I had the opportunity to collaborate with researchers at Microsoft Research Lab on a large language model project focused on multimodal capabilities and reinforcement learning. My Computational Data Science background provided a strong foundation in statistics and machine learning, along with prior NLP knowledge and a published paper in the related field, which helped me contribute meaningfully to the project. However, I discovered significant gaps between academic coursework and practical research applications, leading me to comprehensively relearn reinforcement learning concepts. Currently, our project is still in progress with promising breakthroughs achieved. We anticipate producing a complete research paper within the next few months. This collaborative experience has significantly enhanced my research capabilities and deepened my understanding of cutting-edge AI research.

## LI, SUM YI
### Hospital Authority

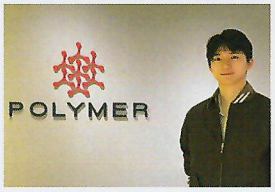

During my internship at the Hospital Authority's IT department, I had the opportunity to leverage artificial intelligence to develop agent tools that automate internal processes before software launches. Throughout my internship, discussions about the increasing use of AI tools were common in the team. I appreciated how my major's curriculum includes essential elements of AI and machine learning, which prepared me for this evolving landscape. It also offer diverse career paths, the industry we can possibly join is also diverse. This exposure to industry operations will help me plan my future. In conclusion, I am grateful for the opportunity to intern at the Hospital Authority. This experience, combined with my major studies, has significantly enhanced my understanding of the world and prepared me for my future career.

## LI, LIANGBANG
### ByteDance




In 2024, I interned with ByteDance's Commercialization Department on the Data Analysis team, where I supported monetization strategies for products like Douyin, Xigua Video, and Fanqie Fiction. My responsibilities spanned A/B testing, dashboard development, data monitoring, event tracking design, and funnel optimization. The CDAS programme focus on structured problem-solving was instrumental, it taught me to decompose new business challenges from both statistical and engineering perspectives, quickly identify bottlenecks, and propose actionable solutions. I also learned the value of clear communication and teamwork when sharing insights across different teams. I am grateful to CDAS for preparing me to deliver impactful insights in a fast-paced environment and contribute directly to business growth.

## WU, TSZ FUNG
### Polymer Capital




In 2025, I spent my time as a trading intern at Polymer Capital, a hedge fund. I see how traders react quickly with market-oriented decisions. When I watched how they worked, it was like seeing chess grandmasters while you're still learning how the pieces move. Algorithms like POV, VWAP, and TWAP, in my understanding should be just execution tools. However, when my mentor explained how POV follows momentum during high-volume periods. I realized it's not just about price action anymore, it's about understanding the rationale behind strategies under specific circumstances. Overall, their patience when explaining the dynamics of markets made me realize that curiosity is valued in a hedge fund. These people are brilliant, but they are willing to share their knowledge. That's what I believe how a good trader is like. It is not just about individual performance; it's about contributing to a collective intelligence that reads markets better than any of us could alone.

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