



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

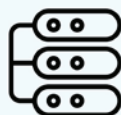
JOINT PROGRAMME

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

JUPAS ADMISSION REQUIREMENTS (2027 ENTRY)

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

BAO, JINGKE University of Washington



The exchange substantially advanced my technical competence in algorithms, database systems, and artificial intelligence, while simultaneously cultivating essential transferable skills: cross-cultural communication, academic adaptability, and intellectual confidence. Living independently within an unfamiliar academic system broadened my global perspective and strengthened my resilience. Overall, my time at UW was a genuinely formative chapter, which has sharpened both my scholarly capabilities and my readiness to engage with the complexities of an interconnected world. I am deeply grateful for the opportunity and remain committed to applying what I have learned to future academic and professional endeavours.

KONG, YILIN École Polytechnique Fédérale de Lausanne

During the 2025–26 academic year, I spent one year on exchange at the École Polytechnique Fédérale de Lausanne (EPFL) in Switzerland. This exchange became an important part of my undergraduate experience. My year at EPFL gave me a clearer academic direction while also changing the way I think about personal growth. I returned with a stronger interest in theoretical research and a broader perspective on how I approach new experiences. I believe these changes will continue to influence the choices I make in my future studies.



LEE, SHUN LONG LUISS Guido Carli



My exchange programme at LUISS University was an unforgettable experience. The intellectual stimulation of rigorous courses in economics and business, combined with rich cultural interactions in one of the world's most historic cities, broadened my worldview and enhanced my personal and academic development. I return not only with new knowledge and skills but also with cherished memories and lasting friendships. I am deeply grateful for this opportunity and strongly encourage others to take part in such a life-changing journey.

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 offers 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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