



Department of Computer Science

香港城市大學
City University of Hong Kong

COMPUTER SCIENCE COLLOQUIUM

From Single Agent Evolution to Multi-Agent Synergy

SPEAKER Prof. Bang Liu

Associate Professor
University of Montreal

DATE 31 Jul, 2026 (Fri)

TIME 10:00 AM - 11:00 AM

VENUE CS Seminar Room, Y6405, 6th Floor,
Yellow Zone, Yeung Kin Man Academic
Building, City University of Hong Kong, 83
Tat Chee Avenue, Kowloon Tong

ABSTRACT

This talk explores how agentic intelligence can improve along two axes: evolving a single agent and coordinating multiple agents. First, I introduce Programmatic Skill Networks, a framework in which agents continually acquire, repair, stabilize, and refactor reusable skills, turning a static skill library into an evolving structure for long-horizon learning. Second, I examine when multi-agent systems are actually preferable to scaling up a single agent under the same budget. The key message is that scale-out only helps when communication is reliable, shared failures are low, and the organization gains exceed single-agent compute scaling. These results suggest that future agents should be not only larger, but self-improving, reusable, and principled in how they coordinate.

BIOGRAPHY

Bang Liu is an Associate Professor in the Department of Computer Science and Operations Research (DIRO) at the University of Montreal (UdeM). He is a member of the RALI laboratory (Applied Research in Computer Linguistics) of DIRO, a member of Institut Courtois of UdeM, an associate member of Mila – Quebec Artificial Intelligence Institute, and a Canada CIFAR AI (CCAI) Chair. He received his B.Engr. degree in 2013 from University of Science and Technology of China (USTC), as well as his M.S. degree and Ph.D. degree from University of Alberta in 2015 and 2020, respectively. His research interests primarily lie in the areas of natural language processing, multimodal & embodied learning, theory and techniques for AGI (e.g., understanding and improving large language models), and AI for science (e.g., health, material science, XR).

All are welcome!



In case of questions, please contact Prof MA Chen at chenma@cityu.edu.hk, or visit the CS Departmental Seminar Web at <https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums>.