

Proposed Research Visit Statement

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Proposed visit duration: 4 months, flexible based on host availability and project needs.

Research area: AI-assisted congestion control, data center networks, OVS/Linux testbeds, and NUM/RL-based resource allocation.

Motivation. My PhD work focuses on congestion control in data center networks, especially class-aware active queue management and AI-assisted congestion management for heterogeneous traffic. I am currently extending prior in-switch AQM work into more comprehensive OVS/Linux implementations and exploring Network Utility Maximization (NUM) and reinforcement learning for resource allocation.

Possible collaboration topics.

- Design and evaluation of AI-assisted congestion control mechanisms for heterogeneous data center traffic.
- OVS/Linux-kernel implementation and reproducible testbed evaluation of congestion-management algorithms.
- NUM/RL formulations for resource allocation, traffic prioritization, and congestion-control policy design.
- Joint paper development around class-aware or multi-class congestion control in data center networks.

Expected outcomes.

- A concrete research plan aligned with the host group's expertise.
- Experimental results using OVS/Linux testbeds and/or simulation/emulation environments.
- A joint manuscript submission to a networking conference or journal.
- Knowledge exchange with the host group through meetings, seminars, and technical discussions.

Funding. I am preparing to apply for HKUST's Global Research Award for PhD students, which supports approved research attachments abroad. I am also coordinating with my department regarding travel-related support, subject to university rules and approvals.