AI-enabled Experience-driven Networking: Vision, State-of-the-Art and Future Directions

It is very hard to model, predict and control modern communication networks since they have become very complicated and highly dynamic. We aim to develop a novel experience-driven approach, which can learn the best way to control a communication network from its own experience rather than any mathematical model (such as queueing or interference models), just as a human learns a new skill (such as cooking, swimming and driving). We propose to leverage emerging deep learning techniques for enabling experience-driven model-free control in communication networks. In this talk, I will first describe our vision about AI-enabled experience-driven networking. Then I will introduce a few representative works on this topic, including our recent work on Deep Reinforcement Learning (DRL) based network resource allocation. At last, I will point out some future research directions.