Department of Computer Science

Machine Learning Assisted Network Slicing for Wireless Edge Computing System

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Hosted by Guiling Wang

Date: Wednesday, December 8, 2021
Refreshments: 2:15 PM – 2:30 PM
Seminar: 2:30 PM – 3:30 PM
Location: GITC 4402 (4th Floor Seminar Lecture Hall)
WebEx : https://njit.webex.com/njit/j.php?MTID=ma80dcdc3ff65cbc82bec9da9ffa2b03b

https://cs.njit.edu/seminars

Abstract:

5G and edge computing will serve various emerging use cases that have diverse requirements for multiple resources, e.g., radio, transportation, and computing. Network slicing is a promising technology for creating virtual networks that can be customized according to the requirements of different use cases. Provisioning network slices requires end-to-end resource orchestration which is challenging. This talk will discuss the challenges of end-to-end network slicing in wireless edge computing systems and present machine learning assisted network slicing solutions. First, the design of a new decentralized cross-domain resource orchestration solution will be presented. This solution optimizes the cross-domain resource orchestration while providing the performance and functional isolations among network slices. Second, a decentralized deep reinforcement learning algorithm will be designed to dynamically orchestrate resources for end-to-end network slicing. The system implementation and testbed design of the end-to-end network slicing system will also be discussed. Finally, future research directions in designing end-to-end network slicing solutions with machine learning will be shared.

Bio:

Tao Han (M'15-SM'20) is an Associate Professor in the Department of Electrical and Computer Engineering at New Jersey Institute of Technology (NJIT) and an IEEE Senior Member. Before joining NJIT, Dr. Han was an Assistant Professor in the Department of Electrical and Computer Engineering at the University of North Carolina at Charlotte. Dr. Han received his Ph.D. in Electrical Engineering from NJIT in 2015 and is the recipient of NSF CAREER Award 2021, Newark College of Engineering Outstanding Dissertation Award 2016, NJIT Hashimoto Prize 2015, and New Jersey Inventors Hall of Fame Graduate Student Award 2014. His papers win IEEE International Conference on Communications (ICC) Best Paper Award 2019 and IEEE Communications Society's Transmission, Access, and Optical Systems (TAOS) Best Paper Award 2019. His research interest includes mobile edge computing, machine learning, mobile X reality, 5G system, Internet of Things, and smart grid.

WebEx information:
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Wednesday, Dec 8, 2021 2:30 pm | 1 hour | (UTC-05:00) Eastern Time (US & Canada)

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