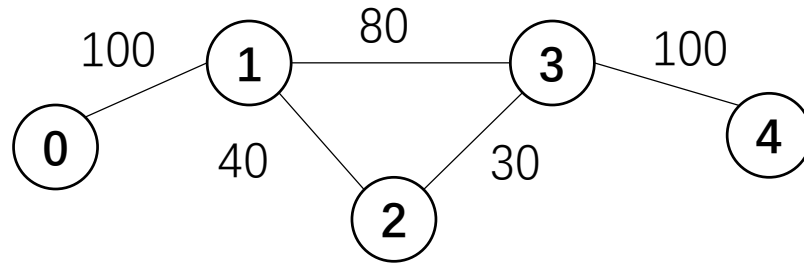


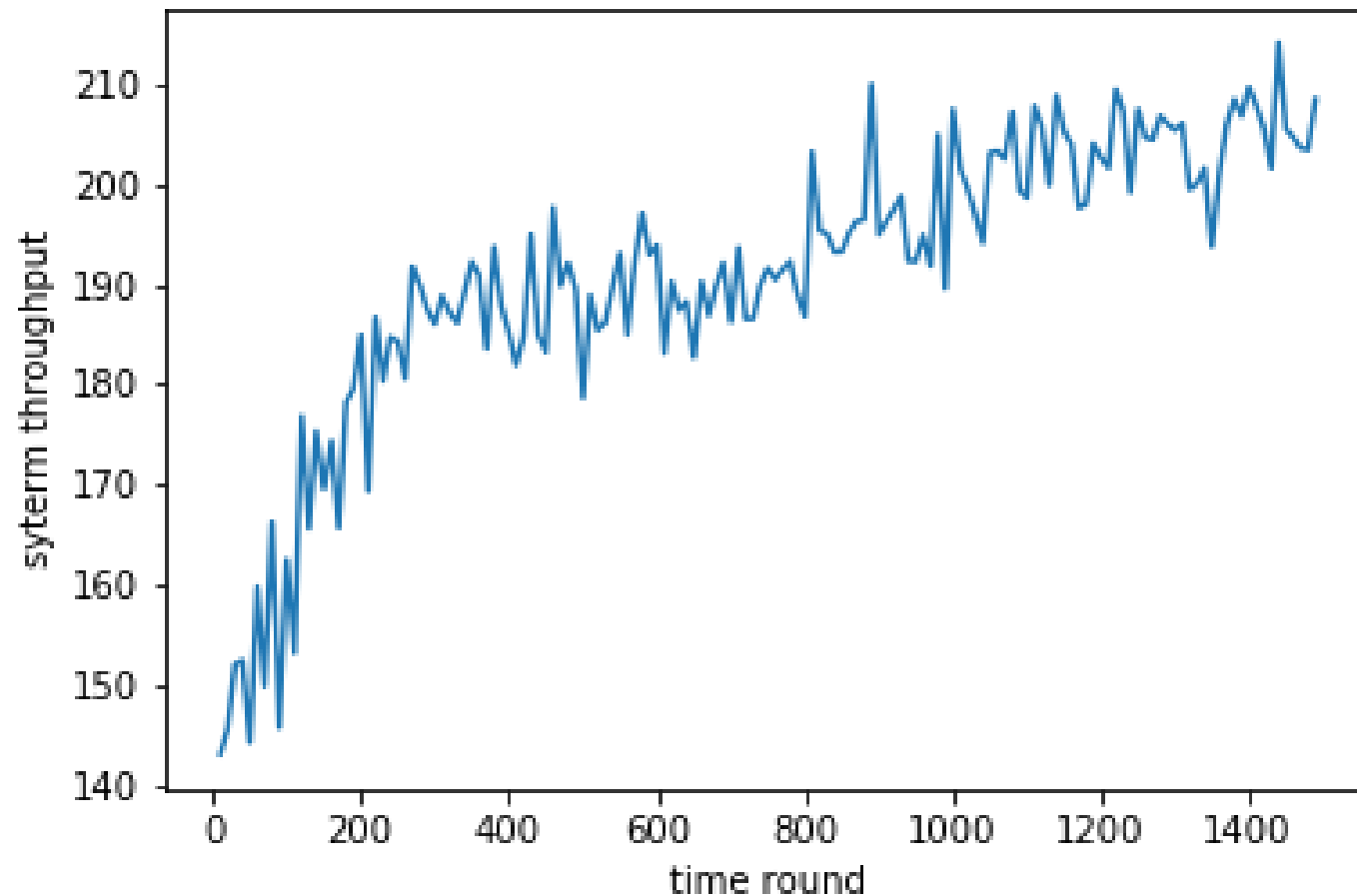
Simulation Experiment

2018 10.31

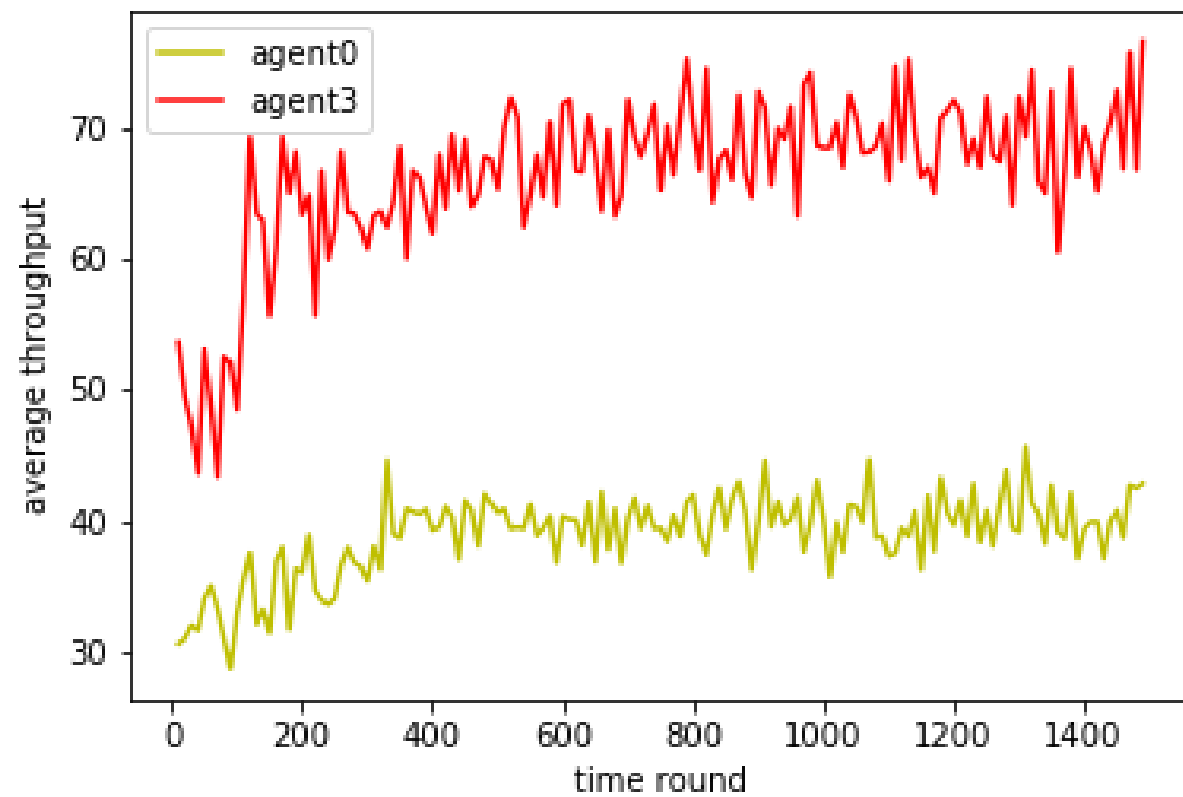
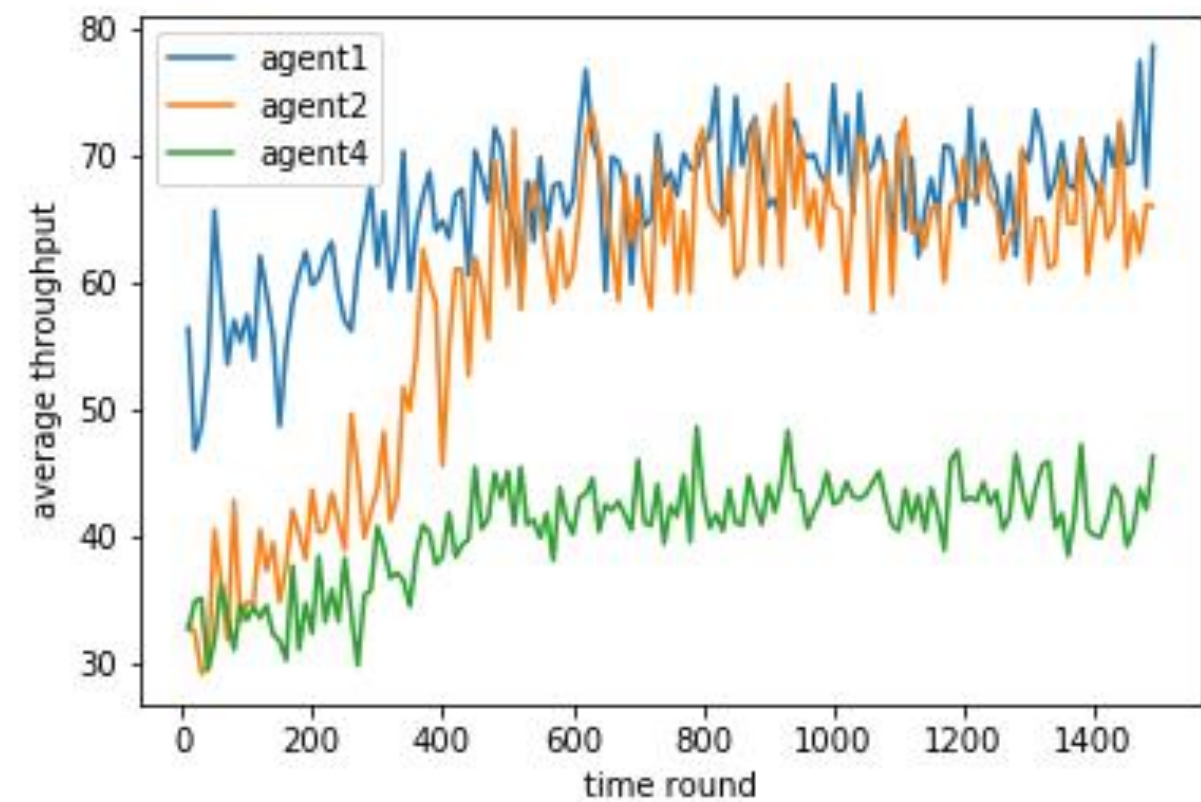


- 5 agents represent AS domains, 5 links connect agents
- Every link has the capacity, carrying flows from domains
- Every agent decentralized learning with Actor-Critic:
 - has several flows with different source-destination
 - has a local observation with neighbor link throughput, obtainable end-to-end throughput
 - takes an action to determine how to forward flows with different destinations
 - get local reward: computed average throughput

- System Performance:
 - measure with the sum of end-to-end throughput (can represent the processing ability of network system)
 - Every agent is selfish, maximizing their own reward



- Agent Performance:



- According to Agent Performance:
 - agent2** has the most obvious performance enhancement:
 - the network is too small, other agents have limited action set
 - **agent2** can reflect the behavior of AS domain in a relatively larger network environment.
- Next step,
 1. Feed agent with global information, and compare the performance. However, because of the limited network scale, global state may not exceed local state too much.
 2. Carefully considering the parameters in neural network for each agent.