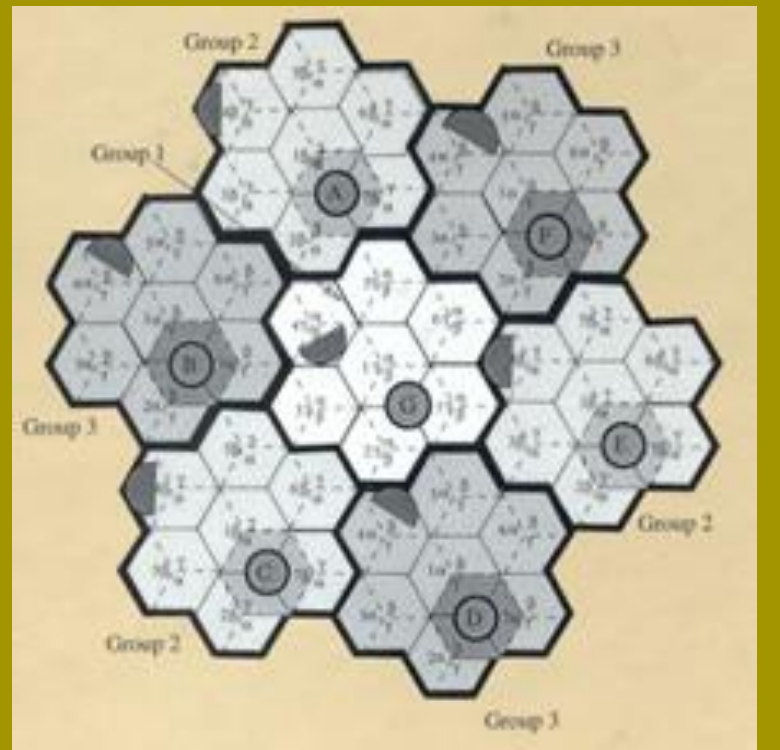


통신 및 머신러닝 연구실

Communications and Machine learning Laboratory

지도교수 : 이 정 우 교수님



Lab. Information

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연구실

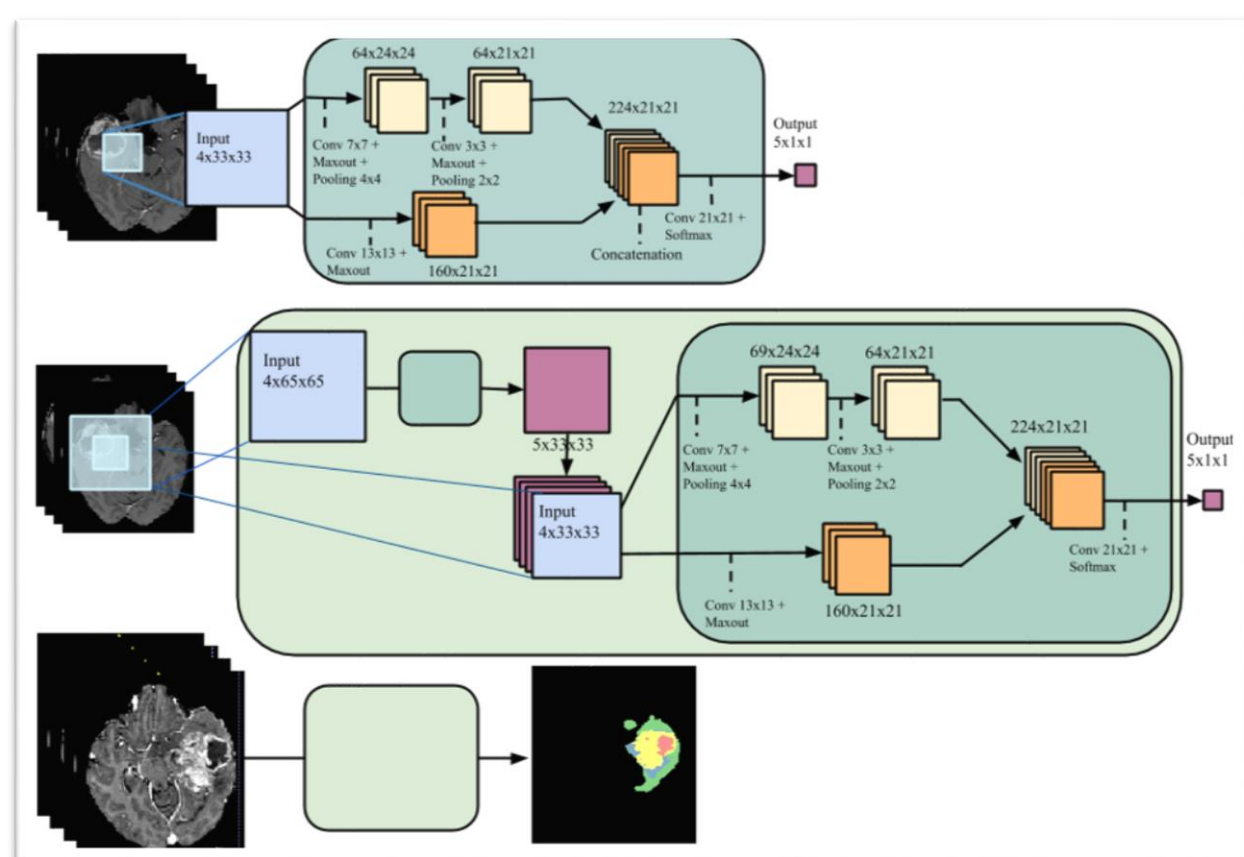
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Research

- Machine Learning
- Reinforcement Learning
- Distributed computing and storage

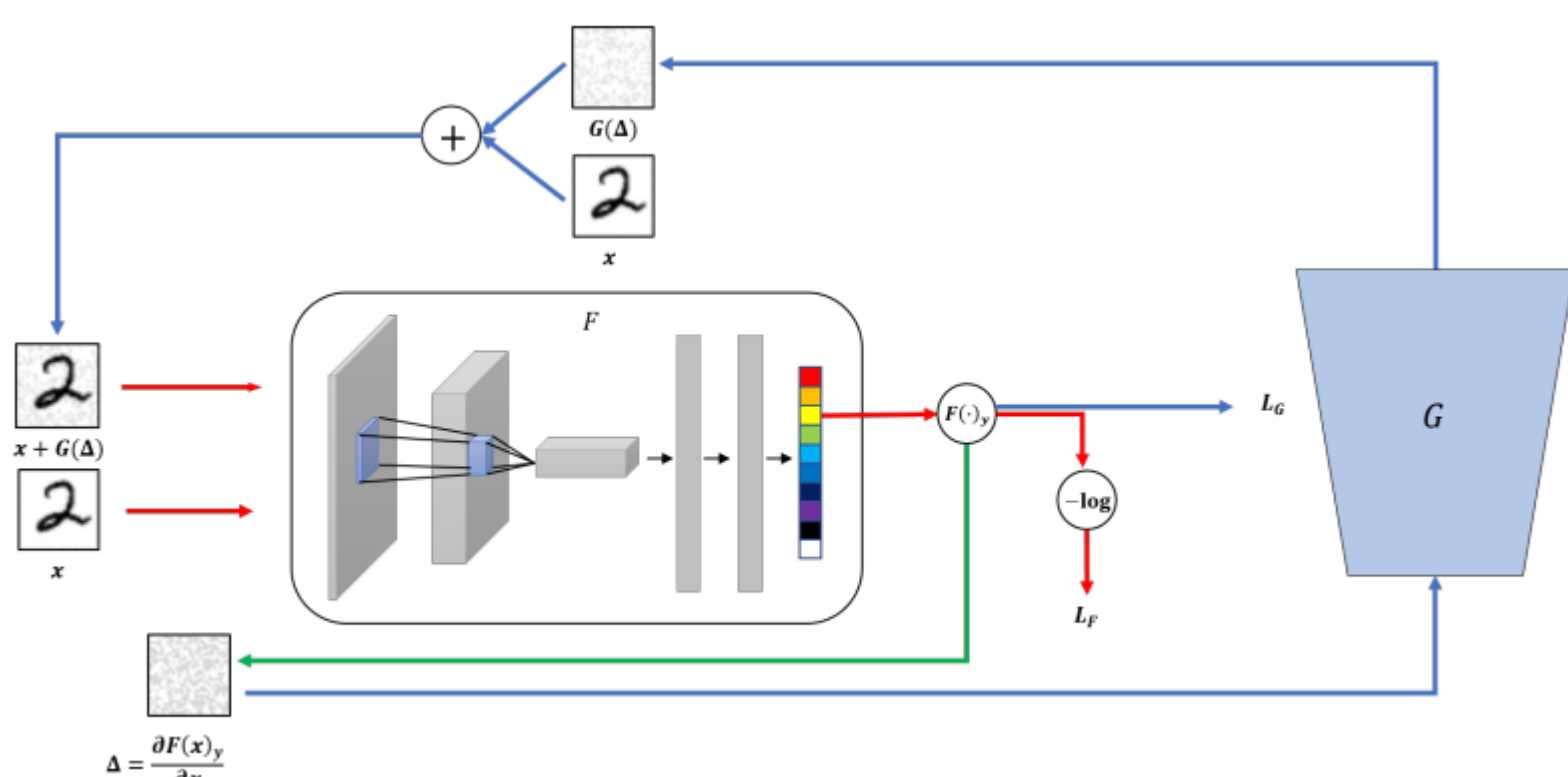
Machine learning

❖ Deep learning based diagnosis system



- Based on the fully convolutional neural network, we designed the state of the art segmentation network of brain tumors.
- Segmentation network detects core tumor, edema, necrosis.
- We cowork with the college of medicine SNU

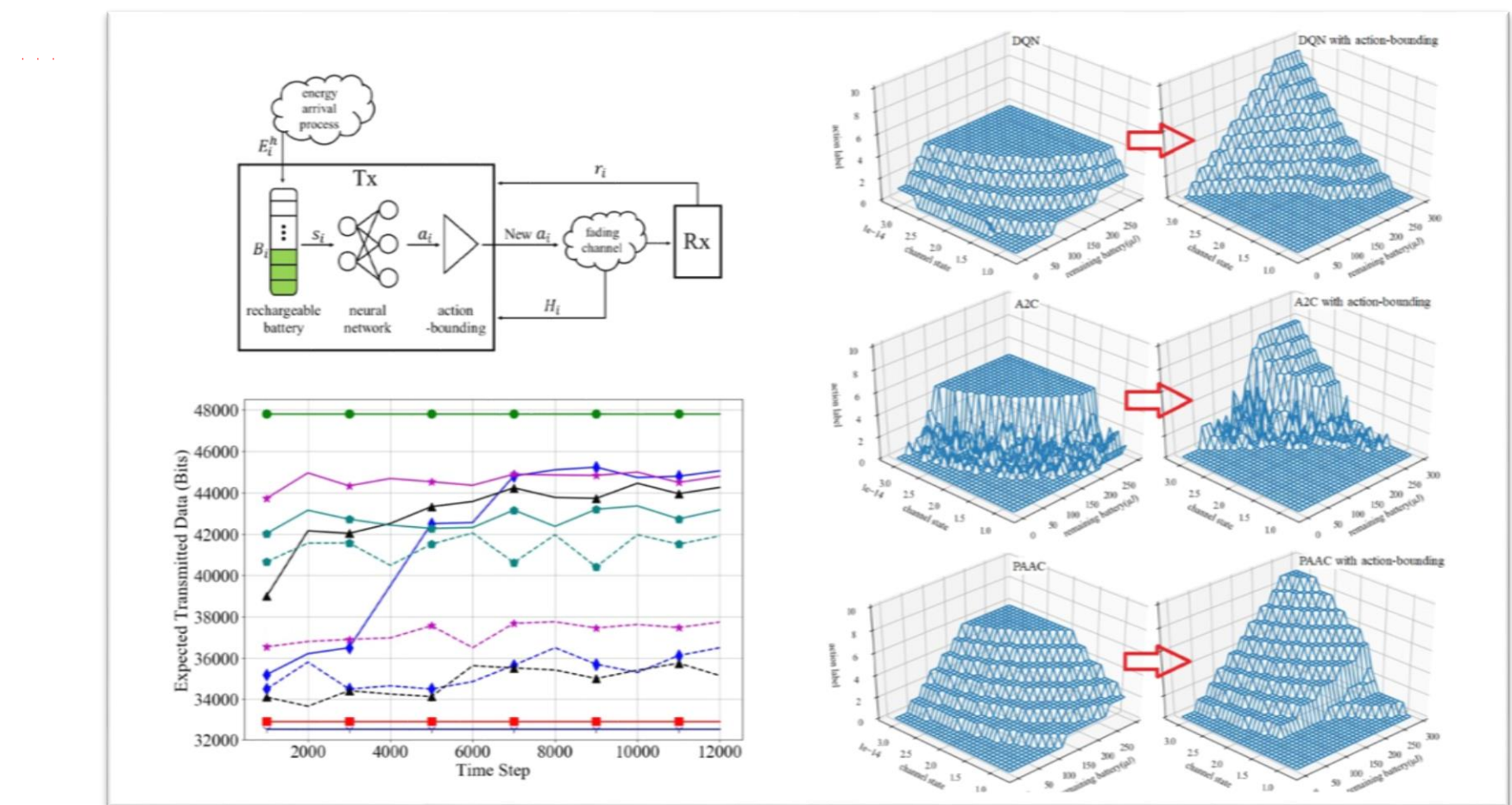
❖ Adversarial Training (Generative Adversarial Trainer)



- make neural network robust to adversarial examples based on a generative adversarial network
- our adversarial training framework efficiently reduces overfitting and outperforms other regularization methods such as Dropout

Reinforcement Learning

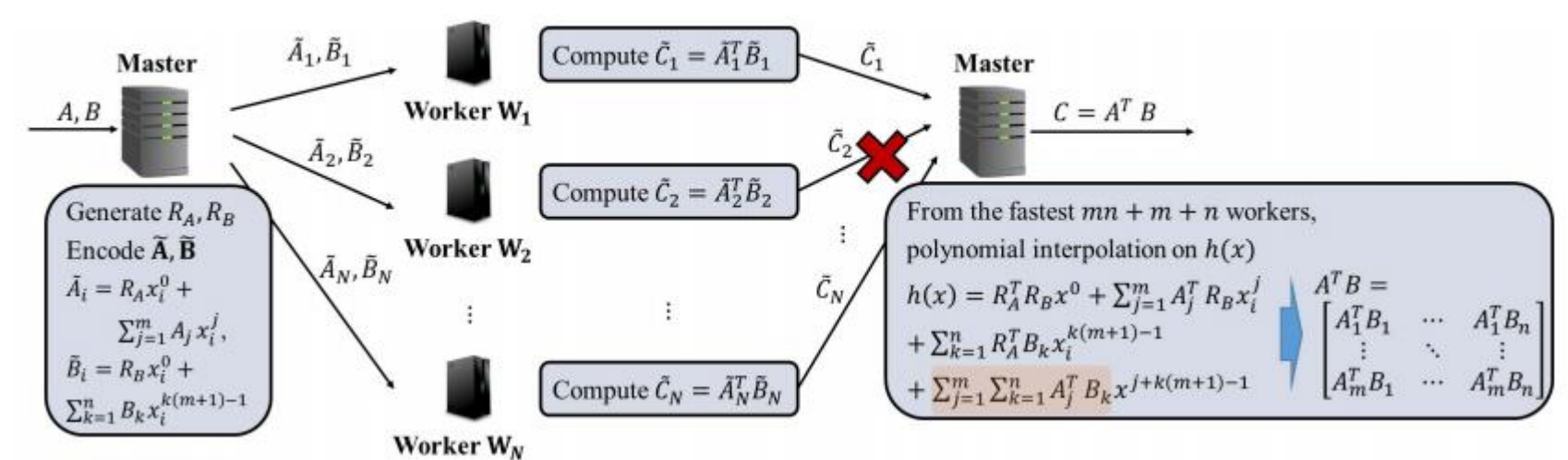
❖ Reinforcement learning based Energy Harvesting



- By increasing the market of IoT, the energy alignment of the low power system becomes more important.
- Optimization of energy harvesting system
- Deep reinforcement learning based energy harvesting (GLOBECOM 18)

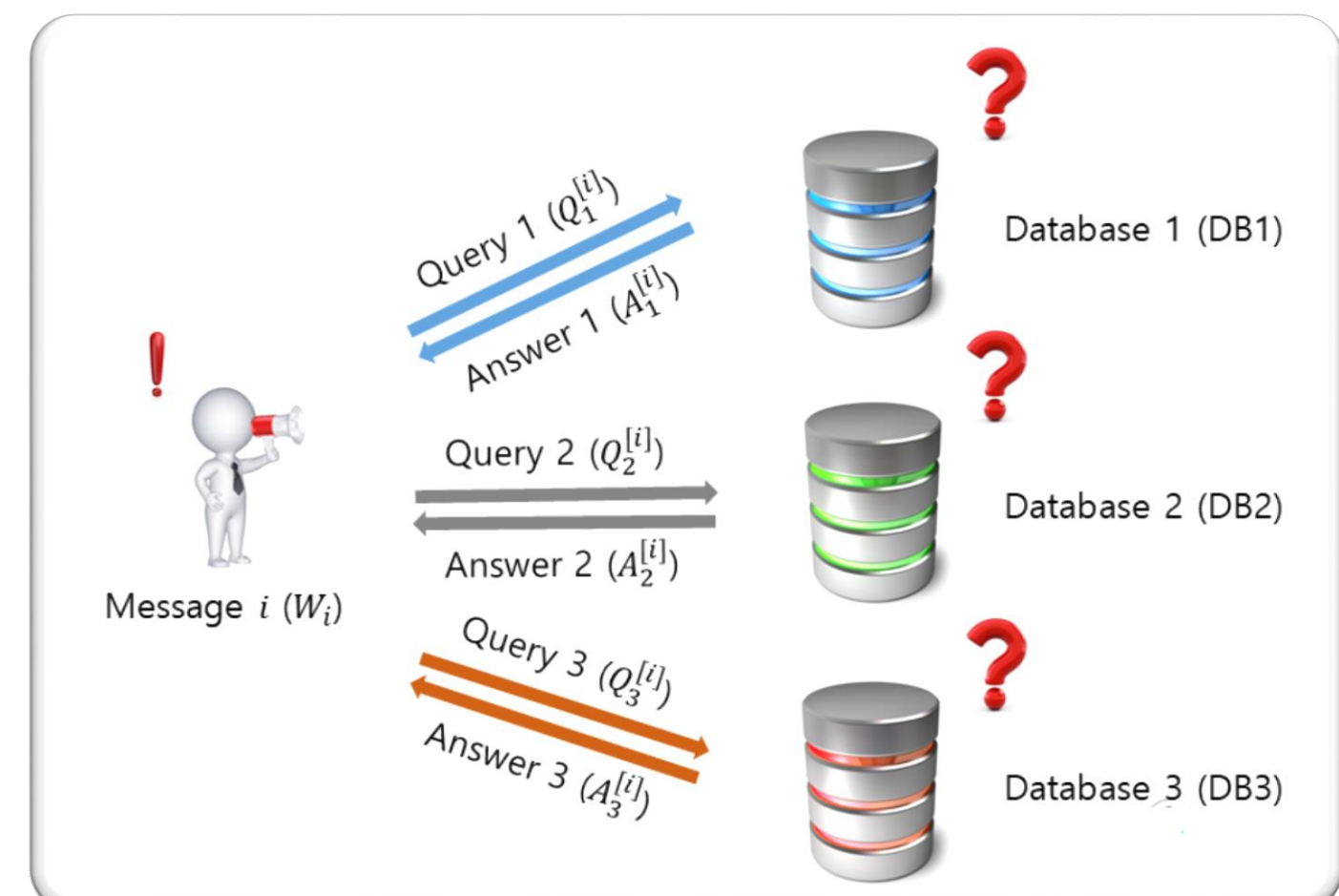
Distributed Computing

❖ Secure Distributed Computing



- A master wants to perform computation of confidential inputs with multiple workers in parallel.
- Cope with straggling effects by applying polynomial codes on sub-tasks assigned to workers
- Order-optimal to the number of workers

❖ Private Information Retrieval



- To protect the private information of users from the data servers
- 1 User, K files in N database
- A user should download the K-1 redundant files from one server
- PIR reduces the amount of the redundant files

In the Communications and Machine Learning lab., we conduct wide research on machine learning and communication systems. Besides the above topics, we study Natural Language Processing, Reinforcement Learning, Channel/Source Code, Energy Harvesting. If you want more information, you can contact us by web-page or e-mail.