Yajie (Lesley) Zhou

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RESEARCH INTERESTS

Networking and **Machine Learning**

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) *Aug. 2020*
M.S. in Electrical Engineering

- Advisors: Prof. Yung Yi, Prof. Dongsu Han

XIDIAN UNIVERSITY *Jul. 2018*
B.E. in Computer Science and Technology

- Bachelor Dissertation Award: Top 1% in CS Dept.

BOSTON UNIVERSITY *Jul. 2017 - Aug. 2017*
Exchange student for Future STEM Leaders (with full scholarship)

- 1st Prize for Research Poster Presentation

NETWORKING EXPERIENCE

Generalizability of DL based Networking Systems *Sep. 2020 - Present*
Research with Prof. Junchen Jiang (UChicago), Dr. Francis. Yan (MSR)
Motivation: How well do existing solutions generalize? Can we improve robustness and generalizability?

- Analyzing the robustness and generalizability of deep learning based networking algorithms: Pensieve, Decima, PCC-RL etc.
- Experimenting on networking simulators to identify principles for simulator/environment design to ground solutions from sim to real.
- Proposing new approaches for improving the generalizability of existing networking models.

Video Streaming QoE improvement *Oct. 2019 - Aug. 2020*
Research with Prof. Dongsu Han, Prof. Yung Yi (KAIST)
Motivation: How to adapt to various end user preferences in video streaming?

- Proposed a Multi-Objective Reinforcement Learning based adaptive-bitrate framework to optimize QoE for various user preferences.
- Demonstrated a whole Pareto-frontier solution for adaptive user preferences, without the need for hyperparameter tuning or model retraining.
- Implemented the framework to systematically handle both video-on-demand and live video streaming.

Virtual Network Embedding *Feb. 2019 - Feb. 2020*

Project supported by the Korean government

- Implemented distributed virtual network embedding systems with coordinated node and link mapping.
- Designed and improved node mapping, link mapping and bandwidth allocation algorithms.
- Evaluated deep learning algorithms for dynamic resource management in virtual network embedding systems.

MACHINE LEARNING EXPERIENCE

Reinforcement Learning *Sep. 2019 - Feb. 2020*

M.S. Researcher (KAIST)

- Ran experiments to demonstrate theoretical convergence on the convex coverage set of multiple Multi-Objective Reinforcement Learning algorithms.
- Improved applied Multi-Objective Reinforcement Learning with an action-inference module, aiding the RL model to infer a policy without knowing prior objective preferences.
- Implemented a communication scheme for Cooperative Multi-Agent Reinforcement Learning in the StarCraft environment.

Data Mining *Feb. 2017 - Jun. 2018*

Undergraduate Researcher (Xidian University)

- Algorithm implementation and evaluation for on direct group-linked communities analysis in the Social Networking field.

PATENT

- Zhou, Y. 2020. "Method and Apparatus for Transmitting Video Data." Korean Patent Application 10-2020-0141018, filed October 2020. *Patent pending*

INTERNSHIP

Tencent Corp. Academy *Jun. 2016 - Aug. 2016*

Internship Software Engineer

- Built mobile application on iOS and Android platforms.
- Designed back-end and front-end for a mobile chatting app with Tencent offered APIs, tested among university internet users.

HONORS AND AWARDS

- **First Prize in Shaanxi Province**, China Undergraduate Mathematical Contest in Modeling (CUMCM), 2017
- **Computer and Engineering Scholarship**, Shaanxi Province, 2017
- **Honorable Mention**, International Interdisciplinary Contest In Modeling, 2017

SKILLS Programming Languages: Python, C++, MATLAB, LaTeX.
Machine Learning Frameworks: PyTorch, Tensorflow, Keras.
Editor: Emacs, PyCharm, Visual Studio.