MUXING WANG

wang.muxin@northeastern.edu +1 8574689189

EDUCATION

Northeastern University, Boston **September 2023—Present**
PhD candidate in Computer Engineering **GPA: 4/4**

University of Edinburgh, the UK **September 2021—September 2022**
Master of Science in Statistics and Operational Research, with Distinction

University of Waterloo, Canada **September 2015—January 2020**
Bachelor of Computer Science
Awards:

- Dean's Honors List, the University of Waterloo, 2018
- Faculty of Mathematics Scholarship, the University of Waterloo, 2016-2017
- Rank ~100/14396 in Euclid Mathematics Contest, 2015

PUBLICATIONS

ACCEPTED:

1. On the Convergence Rates of Federated Q-Learning across Heterogeneous Environments
   Muxing Wang, Pengkun Yang, Lili Su
   [FL@FM-NeurIPS'24] *International Workshop on Federated Foundation Models in Conjunction with NeurIPS 2024*

UNDER REVIEW:

1. On the Convergence Rates of Federated Q-Learning across Heterogeneous Environments | OpenReview
   Muxing Wang, Pengkun Yang, Lili Su
   [TMLR] *Transactions on Machine Learning Research*

ONGOING:

1. Personalized policies of single-timescale Federated Actor Critic with shared feature representations
   Muxing Wang, Lili Su

ACADEMIC SERVICES

Served as a reviewer for ICML ARLET 2024.

RESEARCH INTERESTS

My research focuses on:
Federated Reinforcement Learning. I provide theoretical convergence guarantees for RL algorithms, e.g., Fed-Q-Learning, Fed-Actor-Critic-Learning, etc., especially in heterogenous environments.

PROJECTS

PREDICTING BASKETBALL GAMES USING INTEGRATED NESTED LAPLACE APPROXIMATION, Edinburgh **May 2022 – August 2022**

- Poisson class models and logistic class models were fit using the Bayesian approach to predict the scores and outcomes of playoffs of NBA and then the models were mainly compared based on ranked probability score (RPS)
- Models with random effects outperformed the models without random effects; Logistic models had better performance than Poisson models and the best model achieved an RPS of 0.2145
- The thesis can be found here

REINFORCEMENT LEARNING COURSEWORK, Edinburgh **Feb 2022 – Apr 2022**

- Implemented Value Iteration, DQN, REINFORCE, DDPG, and joint action learning

PRE-DOC INDUSTRY EXPERIENCE

JIANGSU XINWANG SOFTWARE TECHNOLOGY CO., LTD., Nanjing **Aug 2020 – June 2021**
Data Scientist Intern

- Implemented kernel density smoothing algorithm to smooth the traffic trajectories; Wrote spark codes to preprocess the trajectories, including dealing with the drifting and bouncing points
- Implemented Map Matching Algorithm for the urban computing project that maps the coordinates of pedestrians onto the road network to form a reasonable trajectory; it is based on Hidden Markov Model and Viterbi Algorithm

BIOINFORMATICS SOLUTIONS INC., Waterloo **May 2019 – Aug 2019**
Software Developer Intern

- Responsible for Peaks Studio's maintenance and development, GUI maintenance and development, and code debugging

SKILLS

- Proficient in Python, R, SQL; Experienced in Scala, C++, MATLAB
- Language: Chinese – Native; English – IELTS 8.0