Hongda Wu

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RESEARCH INTERESTS

Internship: Machine/federated learning, or deep reinforcement learning for the applications, including Computer Vision, Speech Technologies, and other NLP tasks

Ph.D. stage: Theoretical (federated) machine learning, and reinforcement learning, and their applications for wireless network, mobile computing and internet of things

SKILLS

Languages & Software: MATLAB, Python, C, MySQL
DL Library: Tensorflow, PyTorch, Keras, PySyft, Numpy, Scipy, Scikit-learn, Pandas

EDUCATION

York University, Toronto, ON, Canada
Ph.D. in Electrical Engineering & Computer Science — Sept. 2019 -
Supervisor: Prof. Ping Wang (IEEE Fellow)
GPA: 3.9/4.0

Communication University of China, Beijing, China
M.A.Sc. in Electrical Engineering — June, 2019
GPA: 3.91/4
Ranked 1/206 in first academic year and won **National Scholarship**

Inner Mongolia University, Hohhot, China
B.Eng. in Electrical Engineering (major) — June, 2016
B.Man. in Administration Management (minor)

PUBLICATION

Journal Papers

[J1] **Hongda Wu**, Ali Nasehzadeh, Ping Wang, A Deep Reinforcement Learning-Based Caching Strategy For IoT Networks With Transient Data.
submitted to *IEEE Transactions on Vehicular Technology*, 2022

[J2] **Hongda Wu**, Ping Wang, Node Selection Toward Faster Convergence for Federated Learning on Non-IID Data. *IEEE Transactions on Network Science and Engineering*, Early Access, 2022

[J3] **Hongda Wu**, Ping Wang, Fast-Convergent Federated Learning with Adaptive Weighting. *IEEE Transactions on Cognitive Communications and Networking*, vol.7, no.4, pp. 1078-1088, 2021

[J4] Shufeng Li, Mingyu Cai, Libiao Jin, Yao Sun, **Hongda Wu**, Ping Wang, An Ultra-Reliable Low-Latency Non-Binary Polar Coded SCMA Scheme.
accepted to *IEEE Transactions on Vehicular Technology*, 2022

[J5] Shufeng Li, **Hongda Wu***, Libiao Jin, Codebook-aided DOA Estimation Algorithm for Massive MIMO System. *Electronics*, 8(1), 26, 2019

[J6] Shufeng Li, Guangjing Cao, Libiao Jin, **Hongda Wu** Channel Estimation Based on The PSS-MUSIC for Millimeter-wave MIMO Systems Equipped with Co-prime Arrays. *EURASIP Journal on Wireless Communications and Networking*, 17, 2020

[J7] Shufeng Li, Baoxin Su, Libiao Jin, Mingyu Cai, **Hongda Wu** Joint Measure Matrix and Channel Estimation for Millimeter-Wave Massive MIMO with Hybrid

Precoding. *EURASIP Journal on Wireless Communications and Networking*, 293, 2019

Conference Papers

[C1] **Hongda Wu**, Ping Wang, Probabilistic Node Selection for Federated Learning with Heterogeneous Data in Mobile Edge, *IEEE Wireless Communications and Networking Conference* (**WCNC**), 2022
- **The Best Paper Awards WCNC 2022**

[C2] **Hongda Wu**, Ping Wang, Fast-convergent Federated Learning with Adaptive Weighting. *IEEE Conference on Communication* (**ICC**), 2021

Conference Presentations

[P1] Probabilistic Node Selection for Federated Learning with Heterogeneous Data in Mobile Edge.
IEEE International Conference on Communications (**WCNC**) Austin, 2022

[P2] Fast-Convergent Federated Learning with Adaptive Weighting.
IEEE International Conference on Communications (**ICC**) Montreal, 2021

[P3] An Iterative Adaptive Dictionary Learning Approach for Multiple Snapshot DOA Estimation. *IEEE Conference on Signal Processing* (**ICSP**) Beijing, 2018

[P4] Construction of Compressed Sensing Matrix Based on Complementary Sequence.
IEEE Conference on Communication Technology (**ICCT**) Chengdu, 2017

Workshop

[W1] Canadian Student Reading Group on Data Science, UBC Virtual, 2021

[W2] Communication & Information Theory, Xidian University Xi' an, 2018

HONOURS AWARDS

- **IEEE WCNC 2022 Best Paper Awards** IEEE ComSoc, 2022
- Academic Excellence Fund Faculty of Graduate Studies, 2022
- CUPE International Bursary Canadian Union of Public Employees, 2022
- YU Graduate Fellowship-Doctoral York University, 2019 - 2023
- York Graduate Scholarship York University, 2019 - 2023
- **National Scholarship** (*Top 2%*) Ministry of Education, China, 2017
- **Outstanding Graduate Thesis** (Master Degree) CUC, 2019
- **Outstanding Graduates** CUC, 2019
- Merit Graduates (*Top 10%*) CUC, 2019
- **May 4th Youth Medal** (*Top 0.08%, 13/15000*)
The Communist Youth League, CUC & Beijing, 2019
- **Innovation Scholarship for Graduate** (*Top 0.2%, 6/≈ 3000*) CUC, 2018
- Merit Graduate Student (*Top 10%*) CUC, 2017, 2018
- First-Class Academic Scholarship (*Top 10%*) CUC, 2017, 2018
- Second-Class Academic Scholarship CUC, 2016
- **Outstanding Graduate Thesis** (Minor Degree of Bachelor) IMU, 2016

TEACHING EXPERIENCE

York University (*Ph.D. Stage*)

- EECS 4215: Mobile Communications — Winter 2021 & 2022
- EECS 4214: Digital Communications — Fall 2021
- EECS 3214: Communication Networks — Fall 2020
- EECS 3213: Computer Network Protocols and Applications — Fall 2020

Research Camp

- *Wireless Communications System Design* — Sept. 2019 - now
  Prof. Danijela Cabric, University of California, Los Angles (IEEE Fellow)
- *Understanding Transistors and the Microelectronics Industry* — August, 2019
  Prof. Ya-Hong Xie, University of California, Los Angles
- Information Dissemination and Aggregation for the Next Decade — January, 2019
  Prof. Bernhard Haeupler, Carnegie Mellon University

Communication University of China (*Master Stage*)

- *Computer Network* — Spring 2019
- *Stochastic Process* (Graduate Course) — Fall 2018
- *Electronic Circuit* — Fall 2017

PROFESSIONAL ACTIVITY

Technical Reviewer

- IEEE Transaction on Wireless Communication
- IEEE Transaction on Mobile Computing
- IEEE Transactions on Cognitive Communications and Networking
- IEEE Communications Letters
- IEEE Network Magazine
- IEEE conference proceedings, e.g., ICC, GLOBECOM, WCNC, VTC