Min Dong, PhD

Associate Professor, Faculty of Engineering and Applied Sciences at University of Ontario Institute of Technology
Oshawa, ON, CA

Best-in-class researcher explores energy efficient technologies to sustain wireless communications and storage solutions for energy systems

Description

Wireless communication has exploded in recent years, allowing anytime, anywhere access to an abundance of resources, and transforming global communication. According to a recent study, mobile data traffic is expected to grow 700 per cent from 2014 to 2019 in Canada alone, a compound annual growth rate of 46 per cent, putting unprecedented demands on energy resources to support wireless communications systems and networks. Min Dong, PhD, Associate Professor in the Faculty of Engineering and Applied Science, is focused on developing new technologies to improve energy efficiency and storage in this burgeoning industry.

An award-winning leader in her field, Dr. Dong's research is highly tapped into the development of statistical signal processing algorithms and techniques for communication networks, cooperative communications and networking techniques, and stochastic network optimization in dynamic networks and systems. Generating these advanced communications technologies will bring significant scientific, economic and social benefits to Canada across the information and communication technology (ICT) sector to emerging applications such as Smart Grid, healthcare monitoring, and cloud computing.

Dr. Dong gained industry expertise as a systems engineer within the Corporate Research and Development Division of Qualcomm Inc. in San Diego, California before joining UOIT as an assistant professor in July 2008. She now heads UOITâ€™s Women in Engineering Project in partnership with Hydro One, inspiring female students to pursue technology and engineering. Additionally, she holds a status-only associate professorship in the Department of Electrical and Computer Engineering at the University of Toronto.

Her aptitude for designing algorithms to solve engineering problems bolstered her interest in wireless communications. In 1998, Dr. Dong received her Bachelor of Engineering from Tsinghua University in China, and in 2004, she earned her Doctorate in Electrical Engineering at Cornell University in Ithaca, New York.

A beacon for success, Dr. Dong received one of only two Ontario Ministry of Research and Innovation Early Researcher Awards in her field in 2012; Best Paper Award at the IEEE International Conference on Communications in 2012; and the 2004 IEEE Signal Processing Society Best Paper Award.

Industry Expertise

Computer Networking, Education/Learning, Research, Electrical Engineering

Topics

Adaptive Signal Processing for Communications, Wireless Communication Systems and Networks, Stochastic Network Optimization in Dynamic Networks and Systems, Statistical Signal Processing Algorithms and Techniques

Affiliations

Professional Engineers Ontario, Institute of Electrical and Electronics Engineers (IEEE), IEEE Communications Society, IEEE Signal Processing Society

---

Past Talks

Multi-Antenna Relay Network Beamforming Design for Multiuser Peer-to-Peer Communications
IEEE International Conference on Acoustics Speech and Signal Processing

Channel-Aware Distributed Dynamic Spectrum Access via Learning-Based Heterogeneous Multichannel Auction
IEEE International Conference on Acoustics Speech and Signal Processing

Optimal Power Allocation and Network Beamforming for OFDM-Based Relay Networks
IEEE International Conference on Acoustics Speech and Signal Processing

Real-Time Energy Storage Management with Renewable Energy of Arbitrary Generation Dynamics
47th Asilomar Conference on Signals, Systems and Computers

Distributed Regulation Allocation with Aggregator Co-ordinated Electric Vehicles
IEEE International Conference on Smart Grid Communications

SNR-Based Channel Pairing for MABC-Based Two-Way Relaying
14th IEEE International Workshop on Signal Processing Advances in Wireless Communications

Learning-Stage Based Decentralized Adaptive Access Policy for Dynamic Spectrum Access
IEEE International Conference on Acoustics Speech and Signal Processing

Online Control for Energy Storage Management with Renewable Energy Integration
IEEE International Conference on Acoustics Speech and Signal Processing

Cooperative Relaying Optimization From Multichannel Resource Assignment to Multi-Antenna Processing Design
Invited Seminar

Resource Assignment and its Optimization in Multichannel Cooperative Relaying
Invited Seminar

Education

Cornell University
PhD Electrical and Computer Engineering

Tsinghua University
BEng Automation (Electrical Engineering)

Accomplishments

Best Paper Award, IEEE ICCC
Recipient of the Best Paper Award at the IEEE International Conference on Communications in China for her co-authored paper: On Codebook Design for Distributed Relay Beamforming Network.

Ontario Ministry of Research and Innovation Early Researcher Award
One of only two recipients in the field of communications provincewide, Dr. Dong received the ERA for her research entitled: Building Green Communications Through Cooperation: Fundamental Limits and Practical Techniques. She is developing theories and technologies which will lead to new wireless solutions and infrastructures to improve energy efficiency and conservation while increasing the reliability, speed and range of communications.

Senior Member, IEEE
Dr. Dong has made significant contributions to the society in her field. Since 2013, she has been an elected member of the IEEE Signal Processing Society, and Signal Processing for Communications and Networking Technical Committee. Previously, she served as associate editor for IEEE Transactions on Signal Processing, a top-tier, flagship journal in the field of signal processing, as well as associate editor for IEEE Signal Processing Letters.

Best Paper Award, 2004 IEEE Signal Processing Society
Awarded for her co-authored paper: Optimal Design and Placement of Pilot Symbols for Channel Estimation, published in IEEE Transactions on Signal Processing, vol. 50, pp. 3055-3069, December 2002.
