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Formal Education

Ph.D.	2005	Northeastern University <i>Boston, MA</i> (Electrical Engineering) Advisor: Prof. A. Bruce McDonald Dissertation: <i>The Deferral Set Framework: A Novel Methodology for the Performance Analysis of Multi-hop Wireless Networks</i>
M.S.	1999	Tsinghua University <i>Beijing, People's Republic of China</i> (Electrical Engineering)
B.S.	1997	Tsinghua University <i>Beijing, People's Republic of China</i> (Electrical Engineering)

Relevant Professional Experience

2005-Present	<ul style="list-style-type: none">Senior Software Engineer <i>Paralogic Corporation, Sterling VA</i>
2004-2005	<ul style="list-style-type: none">Research Intern <i>Mitsubishi Electric Research Laboratories, Cambridge MA</i> <i>IEEE 802.11n Standardization Group</i>
2002-2004	<ul style="list-style-type: none">Research Assistant <i>Northeastern University, Boston MA</i> <i>Re-Configurable Wireless Networking and Communications Lab</i> Research Supervisor: Prof. A. Bruce McDonald <i>Dept. of Electrical and Computer Engineering</i>
2001-2002	<ul style="list-style-type: none">Teaching Assistant <i>Northeastern University, Boston MA</i>
2000-2001	<ul style="list-style-type: none">Research Assistant <i>Northeastern University, Boston MA</i> <i>Detection and Parameter Estimation of Class A Noise</i> Research Supervisor: Prof. David Brady <i>Dept. of Electrical and Computer Engineering</i>
1999-2000	<ul style="list-style-type: none">Teaching Assistant <i>Northeastern University, Boston MA</i>
1997-1999	<ul style="list-style-type: none">Hardware Design Engineer <i>Huahuan Electronics, Beijing People's Republic of China</i> <i>Circuit Design and Telecommunications Equipment Test Group</i>
1996-1997	<ul style="list-style-type: none">Research Assistant <i>Tsinghua University, Beijing People's Republic of China</i> <i>National Lab of Microwave and Digital Communications</i>

Patents in Wireless Communications

- Fang, Y., Gu, D. and Zhang, J., *Two-Level Carrier Sensing in Overlapping Basic Service Sets (BSSs)*,” MERL, Patent-Pending.
- Fang, Y., Gu, D. and Zhang, J., *A Novel Solution to the Hidden Terminal Problem in Contention-Based Multi-Polling Mechanism — The ACK/Restart Counting Scheme.*” MERL, Patent No. 1670.

Archival Journal Submissions

- Fang, Y. and McDonald, A.B., *“The Deferral Set Framework Part One: Modeling and Analysis of MAC-layer Wireless Channel Capacity.”* Submitting for Peer Review to **IEEE Transactions on Wireless Communications**, (In Final Preparation).
- Fang, Y. and McDonald, A.B., *“The Deferral Set Framework Part Two: Modeling and Analysis of MAC-layer Wireless Network Capacity.”* Submitting for Peer Review to **IEEE Transactions on Wireless Communications**, (In Final Preparation).

Refereed Conference Proceedings

- Fang, Y., Gu, D., McDonald, A.B. and Zhang, J., *“On the Performance Enhancement of Wireless LANs — a Multipolling Mechanism with Hidden Terminal Solution”*, To Appear in **Proceedings of IEEE Global Telecommunications Conference (GLOBECOM’05)**. St. Louis, MO., November 28 - December 2. 2005.
- Fang, Y., Gu D., McDonald, A.B. and Zhang, J., *“A Two-level Carrier Sensing Mechanism for the Overlapping BSS Problem in Wireless LANs”*, **Proceedings of 14th IEEE Workshop of Local and Metropolitan Area Networks (LANMAN’05)**. Crete, Sept. 18-21.
- Fang, Y. and McDonald, A.B., *“Theoretical Network Capacity of Multi-hop Wireless Ad Hoc Networks.”* **Proceedings of The Sixth IEEE Conference on Mobile and Wireless Communications Networks (MWCN’04)**, Paris, France, October 25-27, 2004, pp. 311-322.
- Fang, Y. and McDonald, A.B., *“Dynamic Codeword Routing (DCR): A Cross-Layer Approach for Performance Enhancement of General Ad Hoc Routing.”* **Proceedings of The First IEEE International Conference of Sensor and Ad Hoc Communications Networks (SECON’04)**, Santa Clara, CA, October 4-7, 2004, pp. 255-263.
- Fang, Y. and McDonald, A.B., *“Theoretical Channel Capacity in Multi-hop Ad Hoc Networks.”* **Proceedings of the 13th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN’04)**, San Francisco, CA, April 25-28, 2004, pp. 181-186.
- Fang, Y. and McDonald, A.B., *“Performance Analysis of Multi-hop Wireless Ad Hoc Networks using IEEE 802.11 DCF.”* **Proceedings of the 23rd IEEE International Performance, Computing, and Communications Conference , Workshop on Multihop Wireless Networks (MWN’04)** Phoenix, AZ, April 15-17, 2004, pp. 321-322.
- Fang, Y. and McDonald, A.B., *“Cross-layer Performance Effects of Path-Coupling in Wireless Ad Hoc Networks: Implications for Throughput, Power and Scalability.”* **Proceedings of The 21st Annual IEEE International Performance, Computing and Communications Conference (IPCCC’02)**, Phoenix AZ, April 3-5 2002, pp. 281-290.

Professional and Academic Presentations

- *"Moving Toward Higher Throughput: An Analysis of MAC Proposals to the IEEE 802.11n W.G"*, Mitsubishi Electric Research Laboratories (MERL), Cambridge MA.
- *"A New Multipolling Mechanism for Wireless Communications Networks"*, Mitsubishi Electric Research Laboratories (MERL), Cambridge MA.
- *"MAC-Layer Proposal for IEEE 802.11n W.G. — HCCA with Solution to the Overlapping BSS Problem"*, Mitsubishi Electric Research Laboratories (MERL), Cambridge MA.
- *"On the Performance Enhancement of Wireless Networks: A Multipolling Mechanism with solutions to the Hidden Terminal and Overlapping BSS Problems"*, Poster Presentation at the 16th Annual CDSP Research Workshop, Northeastern University, Boston MA.
- *"On the Performance of Multi-hop Wireless Ad Hoc Networks: A Novel Framework for Theoretical Analysis"*, Poster Presentation at the 15th Annual CDSP Research Workshop, Northeastern University, Boston MA.
- *"Achieving Higher Capacity in Ad Hoc Networks"*, Poster Presentation at the 14th Annual CDSP Research Workshop, Northeastern University, Boston MA.
- *"Questioning the Layered Communications Paradigm: On Cross-Layer Interaction and Optimization in Reconfigurable Wireless Networks"*, Featured Presentation at the 13th Annual CDSP Research Workshop, Northeastern University, Boston MA.
- *"Cross-Layer Interaction in Wireless Ad Hoc Networks — Challenges, Impacts and Potential Solutions"*, Poster Presentation at the 13th Annual CDSP Research Workshop, Northeastern University, Boston MA.