Morteza Banagar

PERSONAL INFORMATION

470 Durham Hall
Department of Electrical and Computer Engineering
Virginia Tech, Blacksburg, VA, USA
Marital Status: Married
Permanent Resident of the United States

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WORK EXPERIENCE

Qualcomm Technologies, Inc.
Role: *Senior Engineer*
Manager: Jun Hu — May 2022 – Present

- Current Project: 5G NR Uplink

Qualcomm Technologies, Inc.
Role: *System Engineering Intern*
Manager: Robert Wilson — May 2021 – Aug. 2021

- Project: PA forward modeling and DPD kernel char

Manager: Christos Komninakis — May 2020 – Aug. 2020

- Project: PA linearization using DPD techniques (ILA and DLA)

SOFTWARE SKILLS

Programming: MATLAB, Python
Applications: LaTeX, Microsoft Word/PowerPoint/Excel/Visio

RESEARCH INTERESTS

5G NR, Wireless Communications, UAV Channel Modeling, Stochastic Geometry

EDUCATION

Virginia Tech, Blacksburg, VA, USA

Doctor of Philosophy in Electrical Engineering — Jan. 2018 – May 2022

- Dissertation: "Drone Cellular Networks: Fundamentals, Modeling, and Analysis"
- Advisor: Harpreet S. Dhillon

University of Tehran, Tehran, Iran

Master of Science in Electrical Engineering – Communication Systems — Sep. 2012 – Sep. 2014

- Thesis: "A Stochastic Geometric Approach for the Analysis and Design of Cognitive Device-to-Device Networks"
- Advisor: Behrouz Maham

University of Tehran, Tehran, Iran

Bachelor of Science in Electrical Engineering – Telecommunications — Sep. 2008 – Sep. 2012

- Project: "Carrier and Symbol Synchronization Techniques"
- Advisor: Ali Olfat

BOOK CHAPTERS

[BC1] **M. Banagar**, V. V. Chetlur, and H. S. Dhillon, "Stochastic geometry-based performance analysis of drone cellular networks," in *UAV Communications for 5G and Beyond*, New York: Wiley, Dec. 2020, ch. 9, pp. 231-254.

JOURNAL PUBLICATIONS

[J6] **M. Banagar** and H. S. Dhillon, "Fundamentals of wobbling and hardware impairments-aware air-to-ground channel model," submitted to *IEEE Trans. Wireless Commun.*, May 2022.

[J5] **M. Banagar** and H. S. Dhillon, "3D two-hop cellular networks with wireless backhauled UAVs: Modeling and fundamentals," *IEEE Trans. Wireless Commun.*, vol. 21, no. 8, pp. 6417-6433, Aug. 2022.

[J4] **M. Banagar**, H. S. Dhillon, and A. F. Molisch, "Impact of UAV wobbling on the air-to-ground wireless channel," *IEEE Trans. Veh. Technol.*, vol. 69, no. 11, pp. 14025-14030, Nov. 2020.

[J3] **M. Banagar** and H. S. Dhillon, "Performance characterization of canonical mobility models in drone cellular networks," *IEEE Trans. Wireless Commun.*, vol. 19, no. 7, pp. 4994-5009, July 2020.

[J2] **M. Banagar**, V. V. Chetlur, and H. S. Dhillon, "Handover probability in drone cellular networks," *IEEE Wireless Commun. Lett.*, vol. 9, no. 7, pp. 933-937, July 2020.

[J1] **M. Banagar**, B. Maham, P. Popovski, and F. Pantisano, "Power distribution of device-to-device communications in underlaid cellular networks," *IEEE Wireless Commun. Lett.*, vol. 5, no. 2, pp. 204-207, Apr. 2016.

Conference Publications

[C7] **M. Banagar** and H. S. Dhillon, "Wobbling and impairments-aware channel model and its implications on high-frequency UAV links," in *IEEE Global Commun. Conf. (Globecom)*, Rio de Janeiro, Brazil, Dec. 2022, pp. 5983-5988.

[C6] **M. Banagar** and H. S. Dhillon, "Fundamentals of 3D two-hop cellular networks analysis with wireless backhauled UAVs," in *IEEE Global Commun. Conf. (Globecom)*, Madrid, Spain, Dec. 2021, pp. 1-6.

[C5] **M. Banagar** and H. S. Dhillon, "Fundamentals of drone cellular network analysis under random waypoint mobility model," in *IEEE Global Commun. Conf. (Globecom)*, Waikoloa Village, HI, USA, Dec. 2019, pp. 1-6.

[C4] **M. Banagar** and H. S. Dhillon, "3GPP-inspired stochastic geometry-based mobility model for a drone cellular network," in *IEEE Global Commun. Conf. (Globecom)*, Waikoloa Village, HI, USA, Dec. 2019, pp. 1-6.

[C3] **M. Banagar**, B. Maham, and V. Shah-Mansouri, "Bounds on the coverage probability of heterogeneous cellular networks," in *IEEE Int. Conf. Commun. (ICC) Workshops*, Kuala-Lampur, Malaysia, May 2016, pp. 755-759.

[C2] A. Eshraghi, B. Maham, Z. Han, and **M. Banagar**, "Efficiency and coverage improvement of active RFID two-hop relay systems," in *IEEE Wireless Commun. Netw. Conf. (WCNC)*, Istanbul, Turkey, Apr. 2014, pp. 2002-2007.

[C1] N. Zarmehi, **M. Banagar**, and M. A. Akhaee, "Optimum decoder for an additive video watermarking with Laplacian noise in H.264," in *IEEE Int. Conf. Inform. Security Cryptology*, Yazd, Iran, Aug. 2013, pp. 1-5.

Teaching Experience

Stochastic Signals and Systems
Role: *Teaching Assistant*
Instructor: Harpreet S. Dhillon — Fall 2018

Signals and Systems
Role: *Teaching Assistant*
Instructor: Ting-Chung Poon — Spring 2018
Instructor: Mohammad Ali Akhaee — Spring & Fall 2012, Spring 2013

Communication Systems I
Role: *Teaching Assistant*
Instructor: Ali Olfat — Spring 2013
Instructor: Vahid Shah-Mansouri — Fall 2013

Engineering Probability and Statistics
Role: *Teaching Assistant*
Instructor: Amir Masoud Rabiei — Fall 2011