

# Morteza Banagar

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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	E-mails: mbanagar@vt.edu mbanagar@qti.qualcomm.com Mobile: +1 (540) 257-2357 Zoom ID: 355 814 2857 Web: <a href="https://mbanagar.github.io">https://mbanagar.github.io</a>
WORK EXPERIENCE	<b>Qualcomm Technologies, Inc.</b> Role: <i>Senior Engineer</i> Manager: Jun Hu • Current Project: 5G NR Uplink	May 2022 – Present
	<b>Qualcomm Technologies, Inc.</b> Role: <i>System Engineering Intern</i> Manager: Robert Wilson • Project: PA forward modeling and DPD kernel char	May 2021 – Aug. 2021
	Manager: Christos Komninakis • Project: PA linearization using DPD techniques (ILA and DLA)	May 2020 – Aug. 2020
SOFTWARE SKILLS	Programming: MATLAB, Python Applications: L <sup>A</sup> T <sub>E</sub> X, Microsoft Word/PowerPoint/Excel/Visio	
RESEARCH INTERESTS	5G NR, Wireless Communications, UAV Channel Modeling, Stochastic Geometry	
EDUCATION	<b>Virginia Tech</b> , Blacksburg, VA, USA <i>Doctor of Philosophy in Electrical Engineering</i> • Dissertation: “Drone Cellular Networks: Fundamentals, Modeling, and Analysis” • Advisor: Harpreet S. Dhillon	Jan. 2018 – May 2022
	<b>University of Tehran</b> , Tehran, Iran <i>Master of Science in Electrical Engineering – Communication Systems</i> • Thesis: “A Stochastic Geometric Approach for the Analysis and Design of Cognitive Device-to-Device Networks” • Advisor: Behrouz Maham	Sep. 2012 – Sep. 2014
	<b>University of Tehran</b> , Tehran, Iran <i>Bachelor of Science in Electrical Engineering – Telecommunications</i> • Project: “Carrier and Symbol Synchronization Techniques” • Advisor: Ali Olfat	Sep. 2008 – Sep. 2012
BOOK CHAPTERS	[BC1] <b>M. Banagar</b> , V. V. Chetlur, and H. S. Dhillon, “Stochastic geometry-based performance analysis of drone cellular networks,” in <i>UAV Communications for 5G and Beyond</i> , New York: Wiley, Dec. 2020, ch. 9, pp. 231-254.	
JOURNAL PUBLICATIONS	[J6] <b>M. Banagar</b> and H. S. Dhillon, “Fundamentals of wobbling and hardware impairments-aware air-to-ground channel model,” submitted to <i>IEEE Trans. Wireless Commun.</i> , May 2022. [J5] <b>M. Banagar</b> and H. S. Dhillon, “3D two-hop cellular networks with wireless backhauled UAVs: Modeling and fundamentals,” <i>IEEE Trans. Wireless Commun.</i> , vol. 21, no. 8, pp. 6417-6433, Aug. 2022. [J4] <b>M. Banagar</b> , H. S. Dhillon, and A. F. Molisch, “Impact of UAV wobbling on the air-to-ground wireless channel,” <i>IEEE Trans. Veh. Technol.</i> , vol. 69, no. 11, pp. 14025-14030, Nov. 2020. [J3] <b>M. Banagar</b> and H. S. Dhillon, “Performance characterization of canonical mobility models in drone cellular networks,” <i>IEEE Trans. Wireless Commun.</i> , 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. 1-6.

[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

Instructor: Mohammad Ali Akhaee

Spring 2018

Spring & Fall 2012, Spring 2013

**Communication Systems I**

Role: *Teaching Assistant*

Instructor: Ali Olfat

Instructor: Vahid Shah-Mansouri

Spring 2013

Fall 2013

**Engineering Probability and Statistics**

Role: *Teaching Assistant*

Instructor: Amir Masoud Rabiei

Fall 2011