Morteza Banagar

PERSONAL
INFORMATION

San Diego, CA, USA
Permanent Resident of the United States

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WORK
EXPERIENCE

Qualcomm Technologies, Inc.

Title: Senior Engineer   May 2022 – Present

5G NR Uplink Systems and Timeline; *Collaborated with RF, SW, HW, Power, and Clock team*s

- Triaging, bring up, and commercialization support, along with debugging UL systems issues for multiple generations of Qualcomm modems
- Design and support of multiple RSRP-based antenna switching algorithms (*filed two patents*)
- Design and support of Rel. 16 and Rel. 17 UL Tx switching (*filed one patent*)
- Rel. 17 SRS carrier switching
- Development of Qualcomm's Python-based modem timeline simulator
- Development of a Python-based RRC parser
- Mentorship of new hires

Title: System Engineering Intern   Summers 2020 & 2021

DPD Algorithms

- PA forward modeling and DPD kernel char
- PA linearization using DPD techniques, such as ILA and DLA

SOFTWARE
SKILLS

Python • MATLAB • Git • LaTeX • 5G NR Proprietary Log/IQ Analysis

RESEARCH
INTERESTS

5G NR • MIMO Networks • Non-Terrestrial Networks and UAVs • 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" (in Farsi)
- Advisor: Behrouz Maham

Bachelor of Science in Electrical Engineering – Telecommunications   Sep. 2008 – Sep. 2012
- Project: "Carrier and Symbol Synchronization Techniques" (in Farsi)
- Advisor: Ali Olfat

SELECTED
PUBLICATIONS

(PLEASE SEE MY
GOOGLE SCHOLAR
FOR A FULL LIST)

M. Banagar and H. S. Dhillon, "Fundamentals of wobbling and hardware impairments-aware air-to-ground channel model," *IEEE Trans. Veh. Technol.*, vol. 73, no. 12, pp. 17946-17962, Dec. 2024.

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.

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.

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.

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.