

Dennis Ogbe

Education

- May 2020 Ph.D., Purdue University
Dissertation title: Adaptive Beamforming and Coding for Multi-node Wireless Networks
- May 2014 B.S.E.E., Tennessee Technological University

Professional Experience

- Mar. 2021–present Signal Analysis Engineer
NASA Jet Propulsion Laboratory, California Institute of Technology,
Pasadena, CA
- Nov. 2020–Mar. 2021 Telecom Software and SDR Engineer
Lynk, Falls Church, VA
- Jun. 2020–Nov. 2020 Postdoctoral Associate
Virginia Tech, Bradley Department of Electrical and Computer Engineering,
Arlington, VA
- 2015–2020 Graduate Research Assistant
Purdue University, Elmore Family School of Electrical and Computer
Engineering, West Lafayette, IN
- May 2016–Aug. 2016 R&D Summer Trainee
Nokia Bell Labs, Small Cell Research Group, Arlington Heights, IL
- 2014–2015 Graduate Teaching Assistant
Purdue University, Elmore Family School of Electrical and Computer
Engineering, West Lafayette, IN

Teaching Experience

University Courses

- 2014–2015 Advanced C Programming (Purdue University, Teaching Assistant)

Workshops

- 2018 Intro to git (Purdue University, Instructor)
2016–2020 Intro to L^AT_EX (Purdue University, Instructor)
2014–2016 Intro to C, C++ debugging (Purdue University, Instructor)

Publications and Scholarly Work

Conference Talks and Proceedings

1. M. M. Kobayashi, Z. Towfic, C. Spurgers, M. Kilzer, S. Haque, M. Ciminera, J. Gayle, I. Botvinnik, J. Steinert, S. Holmes, **D. Ogbe**, J. Miller, S. Rahimizadeh, D. Hawkins, A. Jongeling, M. Pugh, and I. Kuperman, “UST-Lite direct waveform sampling software-defined radio for spaceflight applications,” in *2023 IEEE Aerospace Conference (AERO)*, Mar. 2023, pp. 1–18. DOI: 10.1109/AER055745.2023.10115551.
2. **D. Ogbe** and M. I. Ferguson, “Passive positioning, navigation, and timing (PPNT) in cislunar space using earth-based transmitters,” in *2023 IEEE Aerospace Conference (AERO)*, **Track 04 Best Paper Award**, Mar. 2023, pp. 1–9. DOI: 10.1109/AER055745.2023.10115811.

3. B. Wallace, S. Palo, P. Axelrad, J. Marino, N. Rainville, R. Kingsbury, J. DiTomas, M. Shihabi, and **D. Ogbe**, "Development of a lunar surface navigation pseudolite testbed," in *Proceedings of the 36th International Technical Meeting of the Satellite Division of The Institute of Navigation (ION GNSS+ 2023)*, Sep. 2023, pp. 3612–3630. DOI: 10.33012/2023.19275.
4. Z. Towfic, **D. Ogbe**, J. Sauvageau, D. Sheldon, A. Jongeling, S. Chien, F. Mirza, E. Dunkel, J. Swope, M. Ogut, V. Cretu, and C. Pagnotta, "Benchmarking and testing of Qualcomm Snapdragon system-on-chip for JPL space applications and missions," in *2022 IEEE Aerospace Conference (AERO)*, Mar. 2022, pp. 1–12. DOI: 10.1109/AERO53065.2022.9843518.
5. G. Naik, **D. Ogbe**, and J.-M. Park, "Can Wi-Fi 7 support real-time applications? On the impact of multi link aggregation on latency," in *ICC 2021 - IEEE International Conference on Communications*, Jun. 2021. DOI: 10.1109/ICC42927.2021.9500256.
6. **D. Ogbe**, C.-C. Wang, and D. J. Love, "Backhauling many devices: Relay schemes for massive random access networks," in *GLOBECOM 2020 - 2020 IEEE Global Communications Conference*, Dec. 2020. DOI: 10.1109/GLOBECOM42002.2020.9322431.
7. —, "On the optimal delay amplification factor of multi-hop relay channels," in *2019 IEEE International Symposium on Information Theory (ISIT)*, Jul. 2019. DOI: 10.1109/ISIT.2019.8849611.
8. **D. Ogbe**, V. Raghavan, and D. J. Love, "Characterizing and adapting to the structure of millimeter wave channel covariance matrices," in *2018 52nd Asilomar Conference on Signals, Systems, and Computers*, Oct. 2018, pp. 567–571. DOI: 10.1109/ACSSC.2018.8645188.
9. **D. Ogbe**, D. J. Love, and V. Raghavan, "Iterative beam alignment algorithms for TDD MIMO systems," in *2017 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Mar. 2017, pp. 3469–3473. DOI: 10.1109/ICASSP.2017.7952801.
10. C.-C. Wang, D. J. Love, and **D. Ogbe**, "Transcoding: A new strategy for relay channels," in *55th Annual Allerton Conference on Communication, Control and Computing*, Oct. 2017. DOI: 10.1109/ALLERTON.2017.8262772.
11. S. Goguri, **D. Ogbe**, R. Mudumbai, D. Love, S. Dasgupta, and P. Bidigare, "Maximizing wireless power transfer using distributed beamforming," in *2016 50th Asilomar Conference on Signals, Systems and Computers*, Nov. 2016, pp. 1775–1779. DOI: 10.1109/ACSSC.2016.7869688.

Serial Journal Articles

1. **D. Ogbe**, C.-C. Wang, and D. J. Love, "On the optimal delay growth rate of multi-hop line networks: Asymptotically delay-optimal designs and the corresponding error exponents," *IEEE Transactions on Information Theory*, vol. 69, no. 10, pp. 6167–6193, 2023. DOI: 10.1109/TIT.2023.3283802.
2. M. Zhang, J. Song, D. J. Love, **D. Ogbe**, A. Ghosh, and B. Peleato, "Increasing throughput in wireless communications by grouping similar quality bits," *IEEE Communications Letters*, vol. 24, no. 11, pp. 2450–2453, Jul. 2020. DOI: 10.1109/LCOMM.2020.3008716.
3. **D. Ogbe**, D. J. Love, M. Rebholz, and T. P. Bidigare, "Efficient channel estimation for aerial wireless communications," *IEEE Transactions on Aerospace and Electronic Systems*, vol. 55, no. 6, pp. 2774–2785, Dec. 2019. DOI: 10.1109/TAES.2019.2894892.
4. S. Goguri, **D. Ogbe**, S. Dasgupta, R. Mudumbai, D. R. Brown, D. J. Love, and U. Madhow, "Optimal precoder design for distributed transmit beamforming over frequency-selective channels," *IEEE Transactions on Wireless Communications*, vol. 17, no. 11, pp. 7759–7773, Nov. 2018. DOI: 10.1109/TWC.2018.2870649.
5. **D. Ogbe**, D. J. Love, and V. Raghavan, "Noisy beam alignment techniques for reciprocal MIMO channels," *IEEE Transactions on Signal Processing*, vol. 65, no. 19, pp. 5092–5107, Oct. 2017. DOI: 10.1109/TSP.2017.2715001.

US and International Patents

1. T. A. Thomas, **D. Ogbe**, K. Venugopal, and A. Ghosh, "Frequency-domain transmitters and receivers which adapt to different subcarrier spacing configurations," United States Patent US10917278B2, Feb. 9, 2021.

Invited Talks and Posters

1. **D. Ogbe**, M. Chase, and Z. Towfic, "Anomaly and interference detection for space radios and Iris," presented at the 2022 Interplanetary Small Satellite Conference (ISSC) (talk only), May 2022.
2. **D. Ogbe**, "BAM! Radio: A flexible software-defined radio platform for rapid prototyping of multi-hop wireless ad-hoc networks," presented at Facebook Connectivity Lab Research Workshop Summer 2019 (poster only), Jul. 2019.
3. **D. Ogbe**, C.-C. Wang, and D. J. Love, "On the optimal delay amplification factor of multi-hop relay channels," presented at the 2019 North American School of Information Theory (poster only), Jul. 2019.
4. **D. Ogbe**, "DARPA spectrum collaboration challenge: The convergence of communication, computation, and collaboration," presented at the 2018 Information Theory and Applications Workshop in San Diego (talk only), Feb. 2018.
5. C.-C. Wang, D. J. Love, and **D. Ogbe**, "Transcoding: A new strategy for relay channels," presented at IEEE Communication Theory Workshop, Miramar Beach, FL (poster only, also presented at the 2018 North American School of Information Theory), May 2018.
6. **D. Ogbe**, D. J. Love, and V. Raghavan, "Noisy beam alignment techniques for reciprocal MIMO channels," presented at the 2017 North American School of Information Theory (poster only), May 2017.
7. **D. Ogbe** and D. J. Love, "Distributed MIMO for communications and sensing," presented at the Purdue Symposium on Global Security and Defense Innovation (poster only), Dec. 2016.

Professional Service and Activities

Professional and Honorary Society Memberships

2020–present	Institute of Electrical and Electronics Engineers (IEEE) <i>Member</i>
2013–2020	<i>Student Member</i>
2015–2017	Eta Kappa Nu (HKN) <i>President (Beta Chapter)</i>
2015	<i>Recording Secretary (Beta Chapter)</i>
2013	<i>Member (Epsilon Rho Chapter)</i>
2013	Tau Beta Pi <i>Member (Tennessee Gamma Chapter)</i>

Organizing Committee Member

2017	Co-Chair, IEEE-HKN Student Leadership Conference Organizing Committee
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Peer Reviewer

2016–2020	Military Communications Conference (MILCOM)
2020	Asilomar Conference on Signals, Systems, and Computers
2020	IEEE Journal on Selected Areas in Communications
2020	IEEE Transactions on Signal Processing
2019	IEEE Open Journal of Signal Processing

2016–2019 IEEE Wireless Communications Letters
2016–2019 IEEE Transactions on Communications
2016 IEEE Transactions on Microwave Theory and Techniques
2016 IEEE Vehicular Technology Conference

TPC Member

2021 IEEE International Conference on Communications
2020–2021 Military Communications Conference (MILCOM)
2020 IEEE/CIC International Conference on Communications in China (ICCC)

Session Chairman

2018 Session Co-Chairman, IEEE Asilomar Conference on Signals, Systems, and Computers, “MP1b: mmWave Communications I”

Department Committee Activities

2017–2019 Member, ECE Graduate Committee

Honors and Accomplishments

2020 Georgia Tech FOCUS Fellow
2019 IEEE Wireless Communications Letters Exemplary Reviewer
2019 NSF Student Travel Grant for ISIT
2019 Purdue College of Engineering Outstanding Graduate Student Service Scholarship
2016–2019 DARPA Spectrum Collaboration Challenge: phase 1 prize: \$750,000, phase 2 prize: \$375,000, phase 3 finalist
2015 Purdue ECE Magoon Award for Excellence in Teaching
2014 CoSIDA Academic All-America Team
2014 Tennessee Tech Athletics Man of the Year