

Dr. DIMITRIE C. POPESCU

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CONTACT INFORMATION

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EDUCATION

- **Rutgers University, New Brunswick, New Jersey** PhD 2002
Electrical and Computer Engineering
- **POLITEHNICA University of Bucharest, Romania** 1994-1996
doctoral level coursework in Systems and Control
- **Polytechnic Institute of Bucharest, Romania** Engineering Diploma 1991
Control Engineering and Computers (5 year program with thesis defense)

EXPERTISE

- General areas: Wireless systems, communication and information theory, digital signal processing.
- Performance evaluation and case studies for specific systems/scenarios (W-CDMA, LTE/WiMAX)
 - Transmitter/receiver optimization in wireless communication systems
 - Waveform design for adaptive radar systems
 - Spectrum sensing for cognitive radios systems
 - Blind modulation classification for signal intelligence (SIGINT)
 - Efficient utilization of the frequency spectrum and dynamic spectrum access
 - Vehicular ad-hoc networks (VANETs) and intelligent transportation systems (ITS)
 - Multiple antennas and beamforming for MIMO systems
 - Interference mitigation
 - Kalman and Wiener filtering
 - Adaptive algorithms (gradient/steepest descent, recursive least-squares, etc.)
 - Spectral estimation

EMPLOYMENT AND WORK EXPERIENCE

- **Old Dominion University, ECE Department:** since 09/2006, current position Professor (tenured and promoted to Associate Professor in 2012, promoted to Professor in 2020).
ECE Graduate Program Director 02/2014-05/2017.
Teaching ECE courses; advising undergraduate students on senior design and research projects; advising graduate students on research for master theses and doctoral dissertations.
Working on sponsored research projects in the areas of space systems and wireless communications.
- **Naval Surface Warfare Center – Carderock:** ONR Summer Research Faculty Fellow (2021), USV Autonomy Lab and Integration Center, Norfolk, VA. Working on RF testing of USVs using SDRs and COTS components.
- **Naval Surface Warfare Center – Dahlgren Division:** ONR Summer Research Faculty Fellow (2019, 2018), Dam Neck Activity Fleet Integration and Readiness (FIRE) lab, Virginia Beach, VA. Working on RF instrumentation for spectrum monitoring using National Instruments hardware.
- **University of Texas at San Antonio, ECE Department:** Assistant Professor (09/2002-09/2006).
Teaching ECE courses; advising undergraduate students on senior design and research projects; advising graduate students on research for master theses and doctoral dissertations.
Working on sponsored research projects in the area of wireless communications and networking.
- **Telcordia Technologies:** Member of Technical Staff, Applied Research Division, Red Bank, NJ (07-09/2000). Working on simulation studies and performance evaluation for W-CDMA systems.
- **AT&T Labs Research:** Member of Technical Staff, Signal and Image Processing Services group, Florham Park, NJ (06-08/1997). Working on signal processing algorithms for speech enhancement.
- **Rutgers University, ECE Department:** Graduate Assistant (09/1996-09/2002).
Teaching and grading for ECE laboratory courses and recitations.
Working in the Wireless Information Network Laboratory (WINLAB) on sponsored research projects.

- **University Politehnica of Bucharest, Romania**, Department of Control Engineering and Computers: Assistant Lecturer (03/1992-09/1996).
Teaching undergraduate courses and recitations in control systems theory.
Working on research projects in the area of control systems.
- **Institute for Research and Technological Design in Transportation** (Bucharest, Romania), Dept. of Information Technology: Research & Development Engineer (06/1991-03/1992).
Working on development of a software interface for an integrated system for measurement of railway parameters contracted by the Romania Railways National Society.

HONORS AND LEADERSHIP

- Fulbright US Scholar award, April 2021, for research and teaching visit at Budapest University of Technology and Economics, Hungary, during Spring 2022 semester.
- Graduate Program Director for the ECE Department at Old Dominion University, overseeing the activity of well over 100 graduate students enrolled in three graduate ECE degrees: a research intensive PhD degree, a research focused Master of Science (MS) degree, and a course-based Master of Engineering (ME) degree. Responsibilities included student admission to the graduate program, managing tuition waiver allocation for the department, recommending graduate teaching and research assistant appointments, active student recruiting, program presentations and reporting.
- Established successful research groups on wireless communications and networking, coordinating research projects and involving graduate and undergraduate students in research. Advised and mentored 32 graduate students on dissertations and theses (14 PhD and 18 MS students) and over 40 undergraduate students who completed degrees at ODU and UTSA.
- Faculty advisor for the IEEE student branch at Old Dominion University for 6 years, energizing students and leading the branch to being featured in the *IEEE Potentials Magazine* for its activities.

GRANTS

- \$249,578 – Department of the Navy, *Engineering Support for Naval Station Norfolk 5G Architecture Ashore and Afloat*. Duration 1/2022 – 5/2023, co-PI. Note: Funds allocated through two subcontracts from Booz Allen Hamilton for fiscal years 2023 (\$138,432) and 2022 (\$111,146).
- \$129,206 – ONR Naval Surface Warfare Center Dahlgren Division, *Engineering Support for Active Spectrum Monitoring and the US Navy Tactical Remote Sensor System*. Duration 8/2018 – 4/2019. Role on project: PI/co-PI. Note: Funds allocated through two subcontracts from WR Systems, Ltd., for Fall 2018 (\$74,121) and Spring 2019 (\$55,085).
- \$323,000 – National Aeronautics and Space Administration (NASA) and Virginia Space Grant Consortium (VSGC): *Virginia Cubesat Constellation*, a multi-university collaborative project (University of Virginia, Old Dominion University, Virginia Tech, and Hampton University). Duration: 6/2016 – 5/2019. Role on project co-PI.
- \$50,000 – Texas Higher Education Coordinating Board – Advanced Research Program 010115-0013-2006: *Multilayer Design of Wireless Ad-Hoc Networks*. Duration: May 2006 – Apr. 2008. Role on project: PI between May 2006 – January 2007. After relocation to ODU grant was transferred to UTSA collaborators and I continued as outside collaborator until project completion.
- \$63,000 – Texas Higher Education Coordinating Board – Advanced Technology Program 000512-0261-2003: *Design of High-Performance Architectures for Efficient Reception of Ultra Wideband Signals*. Duration Jan. 2004 – Aug. 2006. Role on project: PI.
- \$150,000 – National Science Foundation CCR-0312323: *ITR: Computationally Efficient Methods for Power Control in Wireless Systems*. Duration: Aug. 2003 – Jul. 2006. Role on project: co-PI.

PROFESSIONAL ACTIVITIES

- Senior Member of the Institute of Electrical and Electronics Engineers – IEEE, and member of the IEEE Communications and Signal Processing Societies.
 - Associate Editor for IEEE Sensors Letters and IEEE Open Journal of ComSoc, and past editor for IEEE Transactions on Wireless Communications, and IEEE Communications Letters.
 - Regular participation in IEEE conference organizing and technical program committees.
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SELECTED PUBLICATIONS

BOOK CONTRIBUTION (out of 8)

- D. C. Popescu, S. Ulukus, C. Rose, and R. Yates, “Interference Avoidance for CDMA Systems”, in *Advances in Multiuser Detection* (ISBN: 0-471-77971-1), pp. 365-416, M. Honig editor, Wiley-IEEE Press, May 2009.

JOURNAL PAPERS (out of 45)

- D. C. Popescu and R. Vida, “A Primer on Software Defined Radios”, *Infocommunications Journal*, vol. 14, no. 3, pp 16-27, September 2022.
- R. E. Litts, D. C. Popescu, and O. Popescu, “Authentication Protocol for Enhanced Security of the Automated Identification System”, *Naval Engineers Journal*, vol. 133, no. 4, pp. 127-138, December 2021.
- C. Rogers and D. C. Popescu, “Compressed Sensing MIMO Radar Waveform Design for Extended Target Detection”, *IEEE Systems Journal*, vol. 15, no. 1, pp. 1381-1389, Mar. 2021.
- O. Popescu, J. Musson, and D. C. Popescu, “Empirical Characterization of Man-Made Impulsive Noise Using Open-Source Software Defined Radio Platforms”, *IEEE Electromagnetic Compatibility Magazine*, vol. 9, no. 4, pp. 54-61, Quarter 4, 2020.
- S. Bakşı and D. C. Popescu, “Secret Key Generation Using Precoded MIMO Channel State Information”, *IEEE Transactions on Wireless Communications*, vol. 18, no. 6, pp. 3104-3112, Jun. 2019.
- S. MacDonald, D. C. Popescu, and O. Popescu, “Analyzing the Performance of Spectrum Sensing in Cognitive Radio Systems with Dynamic Primary User Activity”, *IEEE Communications Letters*, vol. 21, no. 9, pp. 2037-2040, Sep. 2017.
- O. Popescu and D. C. Popescu, “On the Performance of Sub-Band Precoded OFDM in the Presence of Narrowband Co-Channel Interference”, *IEEE Transactions on Broadcasting*, vol. 62, no. 3, pp. 736-743, Sep. 2016.
- S. El-Tawab, A. Alhafidhi, D. Treeumnuk, D. C. Popescu, and S. Olariu, “Physical Layer Aspects of Information Exchange in the NOTICE Architecture”, *IEEE Intelligent Transportation Systems Magazine*, vol. 7, no. 1, pp. 8-18, Spring 2015.
- A. Al-Habashna, O. A. Dobre, R. Venkatesan, and D. C. Popescu, “Second-Order Cyclostationarity of Mobile WiMAX and LTE Signals and Application to Spectrum Awareness in Cognitive Radio Systems”, *IEEE Journal on Selected Topics in Signal Proc.*, pp. 26-42, Feb. 2012.
- D. B. Rawat, D. C. Popescu, G. Yan, and S. Olariu, “Enhancing VANET Performance by Joint Adaptation of Transmission Power and Contention Window Size”, *IEEE Transactions on Parallel and Distributed Systems*, vol. 22, no. 9, pp. 1528-1535, Sep. 2011.

CONFERENCE PAPERS (out of 129)

- J. A. Snoap, J. Latshaw, D. C. Popescu, and C. M. Spooner, “Robust Classification of Digitally Modulated Signals Using Capsule Networks and Cyclic Cumulant Features”, *Proceedings 2022 IEEE Military Communications Conference – MILCOM*, November 2022, Rockville, MD.
- J. A. Snoap, D. C. Popescu, and C. M. Spooner, “On Deep Learning Classification of Digitally Modulated Signals Using Raw I/Q Data”, *Proceedings 2022 IEEE Consumer Communications and Networking Conference – CCNC*, pp. 441-444, January 2022.
- S. MacDonald, D. C. Popescu, and O. Popescu, “Incremental Expectation Maximization for Estimating Dynamic Primary User Activity in Cognitive Radio”, *Proc. 13th IEEE Intl. Communications Conference – COMM 2020*, pp. 215-220, Jun. 2020, Bucharest, Romania.
- A. Cappiello, D. C. Popescu, J. Harris, and O. Popescu, “Radio Link Design for CubeSat-to-Ground Station Communications Using An Experimental License”, *Proc. 14th IEEE Intl. Symposium on Signals, Circuits, and Systems – ISSCS 2019*, Jul. 2019, Iaşi, Romania.
- S. L. MacDonald, D. J. Krusienski, and D. C. Popescu, “Cyclostationary-Based Detection of Steady-State Visually Evoked Potential Signals Recorded from EEG”, *Proc. 41st IEEE Intl. Conf. on Acoustics, Speech, and Signal Proc. – ICASSP 2016*, pp. 764-768, Shanghai, China, Mar. 2016.