Dr. DIMITRIE C. POPESCU
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CONTACT INFORMATION

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- Google scholar profile: `https://scholar.google.com/citations?user=bU6GOrgAAAAJ&hl=en`.

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.

- Software defined radio platforms for implementing versatile communication systems.
- Blind signal detection/classification for signal intelligence (SIGINT) and spectrum sensing in cognitive radio systems using signal processing and machine learning.
- Waveform and receiver filter design for interference mitigation, efficient spectrum utilization, and dynamic spectrum access in wireless communication systems.
- Internet of Things (IoT) and cyber-physical systems (CPS), designing IoT gateways and roadside units for vehicular ad-hoc networks (VANETs) and intelligent transportation systems (ITS), integration of cyber- and physical components for small size spacecraft systems (CubeSats, sounding rocket payloads, etc.).
- Multiple antennas/MIMO systems, beamforming, distributed antenna systems (DAS).
- Algorithms for signal processing and spectrum estimation (Kalman/Wiener filtering, gradient/steepest descent, recursive least-squares, array signal processing, compressive sensing, etc.).

EMPLOYMENT AND WORK EXPERIENCE

- **Old Dominion University, ECE Department**: since 09/2006, current position Full Professor (tenured and promoted to Associate Professor in 2012, promoted to Full 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 area of wireless communications and networking.
- **Office of Naval Research**: ONR Summer Research Faculty Fellow, Naval Surface Warfare Center Dahlgren (summer 2024, 2023, 2019, 2018) and Naval Surface Warfare Center Carderock (2021).
  Working on software defined radios and RF instrumentation for spectrum monitoring, signal intelligence, and perception systems for USVs.
- **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 for project "5G Wireless Networks for Sensors and IoT Device Communications", Budapest University of Technology and Economics, Hungary, academic year 2021-22.
- 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.

SELECTED GRANT PROJECTS

- $378,578 – Department of the Navy, *Engineering Support for Naval Station Norfolk 5G Architecture Ashore and Afloat.* Duration 1/2022 – 6/2024. Note: Funds allocated through subcontracts from Booz Allen Hamilton for fiscal years 2024 ($126,000), 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. Note: Funds allocated through 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.
- $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.
  Note: PI from May 2006 to Jan. 2007; continued as outside collaborator until project completion after relocation to ODU when grant was transferred to UTSA collaborators.
- $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.
- $150,000 – National Science Foundation CCR-0312323: *ITR: Computationally Efficient Methods for Power Control in Wireless Systems.* Duration: Aug. 2003 – Jul. 2006.

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 past editor for IEEE Transactions on Wireless Communications, IEEE Communications Letters, and IEEE Open Journal of ComSoc.
- Regular participation in IEEE conference organizing and technical program committees.

SELECTED PUBLICATIONS

JOURNAL PAPERS (out of 50)

- O. M. K. Al-Dulaimi, C. Vlădeanu, A. Marţian, and D. C. Popescu, "Average Energy Detection with Adaptive Threshold for Spectrum Sensing in Cognitive Radio Systems", *IEEE Transactions on Vehicular Technology*, vol. 73, no. 11, pp. 17222-17230, Nov. 2024.
- J. A. Snoap, D. C. Popescu, and C. M. Spooner, "Deep-Learning-Based Classifier with Custom Feature-Extraction Layers for Digitally Modulated Signals", *IEEE Transactions on Broadcasting*, vol. 70, no. 3, pp. 763-773, Sep. 2024.
- J. A. Snoap, J. Latshaw, D. C. Popescu, and C. M. Spooner, "Deep Learning-Based Classification of Digitally Modulated Signals Using Capsule Networks and Cyclic Cumulants", *Sensors*, vol 23, no. 12, article no. 5735, 20 pages, Jun. 2023.
- D. C. Popescu and R. Vida, "A Primer on Software Defined Radios", *Infocommunications Journal*, vol. 14, no. 3, pp 16-27, Sep. 2022.
- 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. Bakşi 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.
- S. El-Tawab, A. Alhafdhi, 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.

CONFERENCE PAPERS (out of 134)

- O. Popescu, A. Grow, D. C. Popescu, and M. Kuzlu, "Prototyping a 5G-Enabled IoT Gateway Using Off-the-Shelf Components and Open Source Software", *Proc.* 15^{th} *IEEE International Communications Conference* – COMM 2024, Bucharest, Romania, Oct. 2024.
- J. Latshaw and D. C. Popescu, "On the FPGA Implementation of Capsule Networks", *Proc.* 16^{th} *IEEE Intl. Symposium on Signals, Circuits, and Systems* – ISSCS 2023, Jul. 2023, Iaşi, Romania.
- 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.
- R. E. Litts, D. C. Popescu, and O. Popescu, "Authentication Protocol for Enhanced Security of the Automated Identification System", *Proc.* 9^{th} *IEEE International Black Sea Conference on Communications and Networking* – BlackSeaCom, May 2021, pp. 26-31, Bucharest, Romania.
- S. MacDonald,D. C. Popescu, and O. Popescu, "Incremental Expectation Maxmization for Estimating Dynamic Primary User Activity in Cognitive Radio", *Proc.* 13^{th} *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.* 14^{th} *IEEE Intl. Symposium on Signals, Circuits, and Systems* – ISSCS 2019, Jul. 2019, Iaşi, Romania.
- M. W. O'Brien, J. Harris, O. Popescu, and D. C. Popescu, "An Experimental Study of the Transmit Power for a USRP Software-Defined Radio", *Proc.* 12^{th} *IEEE Intl. Communications Conference* – COMM 2018, pp. 377-380, June 2018, Bucharest, 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.* 41^{st} *IEEE Intl. Conf. on Acoustics, Speech, and Signal Proc.* – ICASSP 2016, pp. 764-768, Shanghai, China, Mar. 2016.