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**: Associate Professor (since 09/2012, tenured), Assistant Professor (09/2006-09/2012), ECE Graduate Program Director from Feb. 2014 to May 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.
- **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.

LEADERSHIP

- 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 at Old Dominion University (ODU) and at the University of Texas at San Antonio (UTSA), coordinating research projects and involving undergraduate and graduate students in research.
- Mentored numerous graduate students by advising them on doctoral dissertations and master theses, as well as on professional development and career options. To date I have directly advised 22 graduate students (11 PhD and 11 MS) who have completed their degrees at ODU and UTSA and are successfully employed in industry or academia.
- Faculty advisor for the IEEE student branch at Old Dominion University for 6 years (Jan. 2009 – Dec. 2014) energizing them and leading the branch to being featured in the *IEEE Potentials Magazine* (vol. 33, no. 1, Jan./Feb. 2014) for its activities.

GRANTS

- $63,000 – National Aeronautics and Space Administration – Undergraduate Student Instrument Project (USIP) program: *Virginia Cubesat Constellation.* Role: co-PI, with PI Bob Ash, Mechanical and Aerospace Engineering Dept., ODU. Duration: June 2016 – May 2018.
- $6,500 – Virginia Space Grant Consortium, *Upgrade and Maintenance for Old Dominion University Satellite Ground Station.* Duration: Sep. 2015– May 2016. Role on project: PI.
- $10,000 – Virginia Space Grant Consortium: *Development of a Laboratory for Small Satellite Technologies at Old Dominion University.* Duration: Nov. 2011– Dec. 2012. Role on project: 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 when the grant was transferred to UTSA collaborators due to relocation outside the State of Texas. 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 along with PI Anthony Chronopoulos of the Computer Science Department, UTSA.

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 Transactions on Wireless Communications (since 2014) and past editor for IEEE Communications Letters (2010-2014).
- Regular participation in IEEE conference organizing and technical program committees.

SELECTED PUBLICATIONS

BOOK CONTRIBUTION (out of 7)

- 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 35)

- S. Bakşi and D. C. Popescu, "Distributed Power Allocation for Spectrum Sharing in Mutually Interfering Wireless Systems", *Physical Communications*, vol. 22, pp. 42-48, March 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.
- D. Treeumnuk and D. C. Popescu, "Enhanced Spectrum Utilization in Dynamic Cognitive Radios with Adaptive Sensing", *IET Signal Processing*, vol. 8, no. 4, pp. 339-346, Jun. 2014.
- D. Treeumnuk and D. C. Popescu, "Using Hidden Markov Models to Evaluate Performance of Cooperative Spectrum Sensing", *IET Communications*, vol. 7, no. 17, pp. 1969-1973, Nov. 2013.
- 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.
- M. R. Musku, A. T. Chronopoulos, D. C. Popescu, and A. Stefanescu, "A Game-Theoretic Approach to Joint Rate and Power Control for Uplink CDMA Communications", *IEEE Transactions on Comm.*, vol. 58, no. 3, pp. 923-932, Mar. 2010.
- F. Hameed, O. A. Dobre, and D. C. Popescu, "On the Likelihood-Based Approach to Modulation Classification", *IEEE Transactions on Wireless Comm.*, vol. 8, no. 12, pp. 5884-5892, Dec. 2009.

CONFERENCE PAPERS (out of 114)

- S. Bakşi, J. Snoap, and D. C. Popescu, "Secret Key Generation Using One-Bit Quantized Channel State Information", *Proc. 2017 IEEE Wireless Communications and Networking Conference* – WCNC, March 2017, San Francisco, CA.
- 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.
- S. Bakşi and D. C. Popescu, "Distributed Power Allocation for Rate Maximization in Cognitive Radio Networks with Horizontal Spectrum Sharing", *Proc. 2015 IEEE Wireless Communications and Networking Conference* – WCNC, pp. 950-954, Mar. 2015, New Orleans, LA.
- A. Daniel and D. C. Popescu, "MIMO Radar Waveform Design for Multiple Extended Targets Using Compressed Sensing", *Proc. 2014 IEEE Radar Conf.* pp. 567-572, May 2014, Cincinnati, OH.
- S. L. MacDonald and D. C. Popescu, "Impact of Primary User Activity on the Performance of Energy-Based Spectrum Sensing in Cognitive Radio Systems", *Proc. 2013 IEEE Global Telecommunications Conference* – Globecom, Atlanta, GA, pp. 3224-3228, Dec. 2013.
- D. Treeumnuk and D. C. Popescu, "Energy Detector with Adaptive Sensing Window for Improved Spectrum Utilization in Dynamic Cognitive Radio Systems", *Proc. 2012 IEEE International Conference on Communications* – ICC'12, pp. 1528-1532, June 2012, Ottawa, Canada.
- D. B. Rawat, D. Treeumnuk, and D. C. Popescu, "Predictive Vector Quantization for Transmitter Adaptation with Limited Feedback", *Proc.* 36^{th} *IEEE Int. Conf. on Acoustics, Speech, and Signal Proc.* – ICASSP 2011, pp. 3408-3411, May 2011, Prague, Czech Republic.
- A. Al-Habashna, O. A. Dobre, R. Venkatesan, and D. C. Popescu, "WiMAX Signal Detection Algorithm based on Preamble-Induced Second-Order Cyclostationarity", *Proc. 2010 IEEE Global Telecommunications Conference* – Globecom'10, December 2010, Miami, Florida.