

PUBLICATIONS AND RESEARCH PROJECTS

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PhD THESIS (T)

- [T1] *A. Marțian*, “Efficient Use of Spectrum based on the Cognitive Radio Technology”, University POLITEHNICA of Bucharest, 2013, PhD Theses in the domain Electronics and Telecommunications Engineering, Magna cum Laude Distinction; PhD Supervisor: Prof. Dr. Ing. Ion Marghescu.

BOOKS (B)

- [B1] *A. Marțian*, “Utilizarea eficientă a spectrului de radiofrecvență. Evaluarea stadiului actual și perspective”, Ed. Politehnica Press, Bucharest, Romania, 2017. (ISBN 978-606-515-781-1)
- [B2] *I. Marcu, C. Oprea, A. Marțian, O. Fratu, I. Marghescu*, “Comunicații mobile: aspect teoretice și experimentale”, Ed. Politehnica Press, București, România, 2018. (ISBN 978-606-515-837-5)

BOOK CHAPTERS (BC)

- [BC1] *C.V. Năstase, O. Fratu, A. Marțian, I. Marghescu*, “Performance Analysis of MUSIC and Capon DOA Estimation Algorithms in Cognitive Radio Networks”, in book: Future Access Enablers for Ubiquitous and Intelligent Infrastructures, Publisher: Springer International Publishing, Editors: Atanasovski, Vladimir and Leon-Garcia, Alberto, pp.142-148, ISSN: 1867-8211, DOI: 10.1007/978-3-319-27072-2_10 (Accession Number WOS:000380529200018, SpringerLink)

JOURNAL PAPERS

- [J1] *A. Marțian, C. Vlădeanu, I. Marcu, I. Marghescu*, “Evaluation of Spectrum Occupancy in an Urban Environment in a Cognitive Radio Context”, în International Journal On Advances in Telecommunications, published by IARIA, ISSN 1942-2601, vol. 3 no. 3&4, 2010, pp 172-181. (Thinkmind, <http://www.iariajournals.org/telecommunications>)
- [J2] *A. Marțian*, “Evaluation of Spectrum Occupancy in Urban and Rural Environments of Romania”, în Revue Roumaine des Sciences Techniques - Serie Electrotechnique et Energetique, year 2014, issue 1, pp 87-96. (Accession Number WOS:000333440000009, ISSN: 0035-4066)
- [J3] *A. Marțian, R. Crăciunescu, A. Vulpe, G. Suciu, O. Fratu* “Access to RF White Spaces in Romania: Present and Future”, în Wireless Personal Communications, vol. 86, issue 3, pp. 693-702, Springer, April 2016. (Accession Number WOS:000372271400007, SpringerLink, ISSN: 0929-6212, DOI: 10.1007/s11277-015-2638-1)
- [J4] *G. Suciu, A. Vulpe, A. Marțian, S. Halunga, D.N. Vizireanu*, “Big Data Processing for Renewable Energy Telemetry Using a Decentralized Cloud M2M System”, în Wireless Personal Communications, vol. 86, issue 3, pp. 1113-1128, Springer, April 2016. (Accession Number WOS:000372271400027, SpringerLink, ISSN: 0929-6212, DOI: 10.1007/s11277-015-2527-7)
- [J5] *G. Suciu, V. Suciu, A. Marțian, R. Crăciunescu, A. Vulpe, I. Marcu, S. Halunga, O. Fratu*, “Big Data, Internet of Things and Cloud Convergence - An Architecture for Secure E-Health Applications”, în Journal of Medical Systems, vol. 39, no. 11, pp. 1-8, Springer, September 2015. (Accession Number WOS:000363557500011, ISSN: 1573-689X, DOI: 10.1007/s10916-015-0327-y)
- [J6] *C. Vlădeanu, C.V. Năstase, A. Marțian*, “Energy Detection Algorithm for Spectrum Sensing Using Three Consecutive Sensing Events”, în IEEE Wireless Communications Letters, vol. 5, issue 3, pp. 284-287, June 2016. (Accession Number WOS:000379693200015, ISSN: 2162-2337, DOI: 10.1109/LWC.2016.2543723)
- [J7] *A. Marțian*, “Real-time spectrum sensing using software defined radio platforms”, in Telecommunication Systems, Volume 64, Issue 4, pp 749–761, Springer, April 2017. (Accession Number WOS:000395622000014, ISSN: 1018-4864, DOI: 10.1007/s11235-016-0205-z)
- [J8] *I. Marcu, S. Halunga, I. Pirnog, A. Marțian, C. Oprea*, “Convolutional Turbo Encoding Improvements for Different Multiuser Detection Algorithms in Unperfect Reception Conditions”, Scientific Bulletin UPB, Seria C, vol.73, issue 4, pp.181-196, 2011, ISSN 1454-234x. (Inspec)

- [J9] *F. Almajanu, C.V. Năstase, A. Marțian, I. Marghescu*, “Radio Coverage Analysis for Mobile Communication Networks using ICS Telecom”, Scientific Bulletin UPB, Seria C, vol.78, issue 2, pp.177-190, 2016, ISSN 2286-3540. (Accession Number, WOS:000388733300016, Inspec)
- [J10] *A. M. Crisan, A. Marțian, R. Cacoveanu, D. Coltuc*, “Angle-of-Arrival Estimation in Formation Flying Satellites: Concept and Demonstration,” in IEEE Access, vol. 7, pp. 114116-114130, 2019, DOI: 10.1109/ACCESS.2019.2935620, Accession Number: WOS:000483022100060, ISSN: 2169-3536.
- [J11] *A. M. Crisan, A. Marțian, R. Cacoveanu, D. Coltuc*, “Distance Estimation in OFDM Inter-Satellite Links”, in Measurement, 2020, Pre-proof 107479, ISSN 0263-2241.

CONFERENCE PROCEEDINGS PAPERS

- [CP1] *A. Marțian, I. Marcu, I. Marghescu*, “Spectrum Occupancy in an Urban Environment: A Cognitive Radio Approach”, în Proc. 6th Advanced International Conference on Telecommunications, AICT 2010, ISBN 978-1-4244-6748-8, Barcelona, Spain, Mai 2010, pp 25-29. (IEEE Xplore)
- [CP2] *A. Marțian, A. Achim, O. Fratu, I. Marghescu*, “Analysis of frequency spectrum usage from a cognitive radio perspective”, în Proc. 3rd International Workshop on Cognitive Radio and Advanced Spectrum Management, COGART 2010, ISBN 978-1-4244-8131-6, Roma, Italia, Noiembrie 2010. (IEEE Xplore)
- [CP3] *O. Fratu, S. Halunga, C. Perju, A. Marțian, I. M. Marcu*, “On the Availability of CDMA Channels for Secondary Users”, in Proc. 3rd International Workshop on Cognitive Radio and Advanced Spectrum Management, COGART 2010, ISBN 978-1-4244-8131-6, Rome, Italy, November 2010. (IEEE Xplore)
- [CP4] *A.F. Păun, C. Vlădeanu, I. Marghescu, S. El Assad, A. Marțian*, “On the QAM Parallel Turbo-TCM Schemes using Recursive Convolutional GF(2N) Encoders”, in Proc. 18th European Signal Proc. Conf., EUSIPCO 2010, Aalborg, Denmark, August 2010. (Accession Number WOS:000349999100287, ISSN: 2076-1465, EURASIP)
- [CP5] *C. Vlădeanu, A. Marțian, S. El Assad*, “EXIT Charts Analysis for Turbo-TCM Schemes Using Non-Binary RSC Encoders”, in Proc. 8th Advanced International Conference on Telecommunications (AICT 2012), Stuttgart, Germany, May 2012, pp. 150-155, ISBN: 978-1-61208-199-1. (Accession Number WOS:000395858500027)
- [CP6] *C. Vlădeanu, A. Marțian, A.F. Păun, S. El Assad*, “A New ML Detector for Trellis-Coded Spatial Modulation Using Hard and Soft Estimates”, în Proc. 10th International Symposium on Electronics and Telecommunications (ISETC12), Timișoara, Noiembrie 2012, pp. 143-147, ISBN: 978-1-4673-1175-5. (Accession Number WOS:000318702700033, ISBN:978-1-4673-1176-2, IEEE Xplore)
- [CP7] *E. Zăinea, A. Marțian, I. Marcu, O. Fratu*, “Transition from Analog to Digital Broadcasting: A spectral efficiency review”, în Proc. 10th International Symposium on Electronics and Telecommunications (ISETC12), Timișoara, November 2012, pp. 171-175, ISBN: 978-1-4673-1175-5. (Accession Number WOS:000318702700040, ISBN:978-1-4673-1176-2, IEEE Xplore)
- [CP8] *A. Marțian, C. Vlădeanu, O. Fratu, I. Marghescu, S. El Assad*, “Spectral Occupancy Measurements in Rural and Urban Environments: Analysis and Comparison”, în Proc. 9th Advanced International Conference on Telecommunications, AICT 2013, ISBN 978-1-61208-279-0, Rome, Italy, June 2013, pp 78-83. (ThinkMind, *Premiul Best Paper*)
- [CP9] *A. Marțian, R. Crăciunescu, A. Vulpe, O. Fratu, I. Marghescu*, “Perspectives on Dynamic Spectrum Access Procedures in TV White Spaces”, în Global Wireless Summit (GWS), 2013 - Special Session on Recent Advances in Spectrum Measurements and Modelling towards Flexible Spectrum Usage, ISBN 978-87-92982-52-0, Atlantic City, New Jersey, USA, June 2013, pp 1-5. (Accession Number WOS:000332186700090, ISSN: 1347-6890, IEEE Xplore)
- [CP10] *A. Marțian, L. Petrică, O. Radu*, “Cognitive radio testing framework based on USRP”, in Proc. 21st Telecommunications Forum (TELFOR) 2013, ISBN 978-1-4799-1419-7, INSPEC 14044037, Belgrade, Serbia, November 2013, pp.212-215. (Accession Number WOS:000349857500052, ISBN:978-1-4799-1420-3, IEEE Xplore)
- [CP11] *G. Suci, C. Voicu, G. Todoran, A. Marțian, S. Halunga, C. Butca*, “Network Cloud simulator for modelling trust in Cognitive Radio applications”, in Proc. 21st Telecommunications Forum (TELFOR) 2013, ISBN 978-1-4799-1419-7, INSPEC 14043991, Belgrade, Serbia, November 2013, pp.345-348. (Accession Number WOS:000349857500081, ISBN:978-1-4799-1420-3, IEEE Xplore)
- [CP12] *A. Marțian*, “Real-time Spectrum Sensor based on USRP”, in Proc. 10th International Conference on Communications COMM2014, Bucharest, Romania, May 2014, pp 429-432. (Accession Number WOS:000345844600072, ISBN:978-1-4799-2385-4, IEEE Xplore)
- [CP13] *V.C. Stanciu, A. Marțian, C. Socoteanu, I. Marghescu*, “Data Collection for Spectrum Sensing Algorithms based on USRP”, in Proc. 10th International Conference on Communications COMM2014,

- Bucharest, Romania, May 2014, pp 403-406. (Accession Number WOS:000345844600083, ISBN:978-1-4799-2385-4, IEEE Xplore)
- [CP14] **A. Marțian**, *B.T. Sandu, O. Fratu, I. Marghescu, R. Crăciunescu*, "Spectrum Sensing based on Spectral Correlation for Cognitive Radio Systems", in Proc. Global Wireless Summit WirelessVita2014, Aalborg, Denmark, May 2014, pp.1-4. (Accession Number WOS:000363907300053, IEEE Xplore)
- [CP15] *C.V. Năstase, A. Marțian, C. Vlădeanu, I. Marghescu*, "An Accurate Average Energy Detection Algorithm for Spectrum Sensing in Cognitive Radio Systems", in Proc. 11th International Symposium on Electronics and Telecommunications (ISETC14), Timișoara, November 2014, pp.131-134. (Accession Number WOS:000366633300031, ISBN:978-1-4799-7267-8, IEEE Xplore)
- [CP16] *O. Fratu, A. Marțian, R. Crăciunescu, A. Vulpe, S. Halunga, P. Lazaridis, Z. Zaharis, S. Kasampalis*, "Comparative study of Radio Mobile and ICS Telecom propagation prediction models for DVB-T", in Proc. 10th IEEE International Symposium on Broadband Multimedia Systems and Broadcasting (BMSB 2015), Ghent, Belgium, June 2015. (Accession Number WOS:000369105500076, ISSN: 2155-5044, DOI: 10.1109/BMSB.2015.7177260, IEEE Xplore)
- [CP17] *E.I. Dobre, A. Marțian, C. Vlădeanu*, "USRP-based Experimental Platform for Energy Detection in Cognitive Radio Systems", in Proc. 11th International Conference on Communications COMM2016, pp. 191-194, Bucharest, Romania, June 2016. (Accession Number WOS:000383221900039, DOI: 10.1109/ICComm.2016.7528275, ISBN: 978-1-4673-8197-0)
- [CP18] *AM. Crișan, A. Marțian, R. Cacoveanu, D. Coltuc*, "Evaluation of Synchronization Techniques for Inter-satellite Links", in Proc. 11th International Conference on Communications COMM2016, pp. 475-480, Bucharest, Romania, June 2016. (Accession Number WOS:000383221900094, DOI: 10.1109/ICComm.2016.7528259, ISBN: 978-1-4673-8197-0)
- [CP19] **A. Martian**, *C. Vlădeanu*, "On the Compromise between Delay and Performance of the Three-Event Energy Detection Algorithm in Cognitive Radio Systems" in Proc. 12th International Symposium on Electronics and Telecommunications (ISETC16), pp. 111-115, Timișoara, October 2016.(Accession Number WOS:000390717800026, DOI: 10.1109/ISETC.2016.7781069, ISBN: 978-1-5090-3748-3, IEEE Xplore)
- [CP20] **A. Marțian**, *C. Vlădeanu, I. Marghescu*, "RF Transceiver Architecture in Cognitive Radio Systems", in Proc. 7th International Conference COMMUNICATIONS 2008, Cognitive Radio Technology and Reconfigurable Communication Systems Workshop, Bucharest, June 2008, pp. 17-20.
- [CP21] *C. Vlădeanu, A. Marțian*, "Spectrum Sensing Algorithms Used in Cognitive Radio Systems – An Overview", in Proc. 7th International Conference COMMUNICATIONS 2008, Cognitive Radio Technology and Reconfigurable Communication Systems Workshop, Bucharest, June 2008, pp. 21-26.
- [CP22] *M. G. Banciu; N. Militaru; A. Martian; I. Nicolaescu; L. Tuta; D. C. Geambasu; L. Nedelcu; L. Trupina; R. Ramer.*, "Microwave antenna array using new dielectric resonator antenna elements," in Proc. 2017 International Semiconductor Conference (CAS), Sinaia, Romania, 2017, pp. 129-132. (Accession Number WOS:000425844500026, IEEE Xplore, DOI: 10.1109/SMICND.2017.8101177).
- [CP23] *A. M. Crisan, A. Martian and D. Coltuc*, "Relative orientation estimation in formation flying satellites," in Proc. 2017 International Symposium on Signals, Circuits and Systems (ISSCS), Iasi, 2017, pp. 1-4. (Accession Number WOS:000425211500065, IEEE Xplore, DOI: 10.1109/ISSCS.2017.8034927).
- [CP24] **A. Martian**, *M. Dambeanu, C. Oprea, C. Vlădeanu and I. Marghescu*, "DVB-T2 radio coverage analysis in Romania," in Proc. 25th Telecommunication Forum (TELFOR2017), Belgrade, Serbia, 2017, pp. 1-4. (Accession Number WOS:000427782600039, IEEE Xplore, DOI: 10.1109/TELFOR.2017.8249310).
- [CP25] *G. Suci, A. Ganaside, L. Bezdedeanu, R. Coanca, S. Secu, C. Nădrag, A. Marțian*, "Pesticide Telemetry Using Potentiostat". In: Fratu O., Militaru N., Halunga S. (eds) Future Access Enablers for Ubiquitous and Intelligent Infrastructures. FABULOUS 2017. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 241, 2018, Springer (Springerlink, DOI: https://doi.org/10.1007/978-3-319-92213-3_9)
- [CP26] *M. J. Ahmad Al Sammarraie, A. Martian and C. Vlădeanu*, "Adaptive IED Spectrum Sensing Algorithm for Different Duty Cycle Values," 2018 International Conference on Communications (COMM), Bucharest, 2018, pp. 51-54. (IEEE Xplore, doi: 10.1109/ICComm.2018.8484767)
- [CP27] *C. Năstase, A. Marțian, C. Vlădeanu and I. Marghescu*, "Spectrum Sensing Based on Energy Detection Algorithms Using GNU Radio and USRP for Cognitive Radio," 2018 International Conference on Communications (COMM), Bucharest, 2018, pp. 381-384. (IEEE Xplore, doi: 10.1109/ICComm.2018.8484763)
- [CP28] *A. M. Crisan, A. Martian, D. Coltuc*, "Inter-Satellite Radio Frequency Ranging in a Hybrid OFDM Communication-Metrology System", in Proc. IEEE 15th Workshop on Positioning, Navigation and

- Communications (WPNC'18), Bremen, Germany, 2018, pp.1-5 (Accession Number WOS:000460539800018, IEEE Xplore).
- [CP29] *M. J. Ahmad Al Sammarraie, A. Marțian and C. Vlădeanu*, "A Modified 3EED Spectrum Sensing Algorithm Using an Adaptive Decision Threshold", in Proc. 13th International Symposium on Electronics and Telecommunications (ISETC 2018), Timisoara, Romania, 2018, pp. 1-4 (Accession Number WOS:0004630315000, IEEE Xplore).
- [CP30] *A. Marțian, C. Vlădeanu, M.J. Ahmad Al Sammarraie*, "On the introduction of 5G networks in Romania", in Proc. 14th International Conference on Digital Telecommunications ICDT 2019, ISBN: 978-1-61208-693-4, Valencia, Spain, March 2019, pp 8-11. (ThinkMind, Best Paper Award).
- [CP31] *C. Vlădeanu, M. J. Ahmad Al Sammarraie, A. Marțian*, "An Amplify-and-Forward Cooperative Spectrum Sensing Algorithm Using Three Secondary Users for Cognitive Radio", in Proc. 14-th International Symposium on Signals, Circuits and Systems. (ISSCS 2019), Iași, România, pp. 1-4, July 2019. (Accession Number WOS:000503459500084, IEEE Xplore).

POSTERS AND PRESENTATIONS

- [PP1] *A. Marțian, R. Crăciunescu, B.T. Sandu, O. Fratu*, "UHF Broadcasting in Romania", 3rd IEEE BTSGOLD WORKSHOP, 19-20 May 2014, Brașov, România.
- [PP2] *A. Marțian, R. Crăciunescu, A. Vulpe, O. Fratu*, "Access to RF White Spaces in Romania: Present and Future", 3rd Annual CTIF-SEE Meeting, 11-12 September 2014, Bucharest, Romania.
- [PP3] *A. Marțian*, "Prototyping of a system for synchronization, positioning and communication of two satellites that fly in formation", NIDays, October 2016, Bucharest, Romania
- [PP4] *A. Rusu-Casandra, A. Paun, B. Mocanu, R. Tapu, A. Marțian, C. Stanciu, R. Badea*, "Comparison of software-defined Galileo E1 receiver architectures", 6th International Colloquium - Scientific and Fundamental Aspects of GNSS / Galileo, 25-27 October 2017, Valencia, Spain.

RESEARCH PROJECTS

- [RP1] "Cognitive Radio Technology and the efficient use of RF spectrum," CNCSIS-UEFISCSU research project, PN-II-IDEI, no. 116/01.10.2007, project manager Ion Marghescu (2007-2010);
- [RP2] "Evolution, implementation and transition arrangements for DVB digital broadcasting in terms of efficient use of the frequency spectrum (DVB)," Reference Terms contract no. 106/08.08.2011, project manager Octavian Fratu (2011-2014).
- [RP3] "New convolutional coding schemes with reduced complexity operating over higher order Galois fields for channel error correction," proiect de cercetare CNCSIS-UEFISCSU, PN-II-RU-TE, no. 18/12.08.2010, project manager Călin Vlădeanu (2010-2013);
- [RP4] "Hybrid wireless access system with unique addressing (SAWHAU)," PNCDI II Partnerships research project no. 12-126/01.10.2008, project manager Octavian Fratu (2008-2011);
- [RP5] "Detection systems for cosmic radiation using new technologies (DETCOS)," UEFISCDI PNCDI II contract no. 82-104/01.10.2008, project manager Octavian Fratu (2008-2011);
- [RP6] "Advanced antennas for space communications (ADANSPACE)," CDI research project no. 240-2013 financed by the Romanian Space Agency (ROSA), project manager Mihai Banciu (2013-2015).
- [RP7] "Scalable Radio Transceiver for Instrumental Wireless Sensor Networks (SaRaT-IWSN)," PCCA UEFISCDI research project, project manager Simona Halunga (2012-2016);
- [RP8] "HYBRID NAVCOM - Modeling hybrid communication-navigation systems for formation flying satellites," CDI research project financed by the Romanian Space Agency (ROSA), project manager Remus Cacoveanu (2014-2016);
- [RP9] "eWall for Active Long Living (eWALL)," FP7 project no. 610658, financed by the European Commission, project manager: Ramjee Prasad (2013-2016);
- [RP10] "Galileo Vector Processing for Difficult Signal Conditions (GavPro)," ESA EGEP programme, project manager Alexandru Rusu (2015-2016);
- [RP11] "Platforma Software integrata pentru analiza malware a terminalelor mobile (ToR-SIM)" - contract PN3 tip "Solutii" nr. 5Sol/2017, project manager Prof. Octavian Fratu (2017-2020);
- [RP12] "RF spectrum detection system (DET-RF)," UPB internal grant UPB-GEX2017, nr. 34/25.09.2017, project manager **Alexandru MARȚIAN** (2017-2018);
- [RP13] "Sistem informatic integrat pentru managementul activităților (SIIMA)," Contract nr.8Sol/2018, Proiect UEFISCDI de tip Soluții, project manager Octavian Fratu (2018-2021);

- [RP14] “Platforma de sisteme inteligente multiagent pentru monitorizarea calitatii apei pe sectorul romanesc al Dunarii si Deltei Dunarii (MultiMonD2)”, Contract nr. 33PCCDI/2018, Proiect UEFISCDI de tip complex de CDI, proiect manager Octavian Fratu (2018-2020);
- [RP15] “SISTEM de TELEMETRIE pentru AGRICULTURA INTELIGENTĂ (SmartAgro)”, proiect POC 2014-2020 ”Ecosistem de cercetare, inovare și dezvoltare de produse și servicii TIC pentru o societate conectată la Internet of Things – NETIO”, proiect manager Ioana MARCU (2018-2020);
- [RP16] “RF spectrum occupancy evaluation system for the introduction of 5G networks (Spectrum-5G)”, UEFISCDI research project, PN-III P1-1.1-PD-2016, no. PD154/10.10.2018, proiect manager **Alexandru MARȚIAN** (2018-2020).