PUBLICAȚII ȘI PROIECTE DE CERCETARE
Marțian Alexandru
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TEZA DE DOCTORAT (T)

[T1]   **A. Marțian**, "Utilizarea eficientă a spectrului folosind tehnologia radio cognitiv", Universitatea POLITEHNICA din București, 2013, Teza de doctorat în domeniul Inginerie electronică și telecomunicații, calificativul Magna cum Laude; Conducător: Prof. Dr. Ing. Ion Marghescu.

CĂRȚI (B)

[B1]   **A. Marțian**, "Utilizarea eficientă a spectrului de radiofrecvență. Evaluarea stadiului actual și perspective", Ed. Politehnica Press, București, România, 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)

CAPITOLE DE CARTE (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 (ISI Web of Knowledge WOS:000380529200018, SpringerLink)

ARTICOLE ÎN REVISTE

[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. (ISI Thompson 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. (ISI Thompson 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. (ISI Thompson 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. (ISI Thompson 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. (ISI Thompson 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. (ISI Thompson 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 Unperferct Reception Conditions", Scientific Bulletin UPB, Seria C, vol.73, issue 4, pp.181-196, 2011, ISSN 1454-234x. (Revistă de specialitate de circulație internațională, cu evaluatori, citată 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. (ISI Thompson, WOS:000388733300016, Revistă de specialitate de circulaţie internaţională, cu evaluatori, citată 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. Martian**, R. Cacoveanu, D. Coltuc,* "Distance Estimation in OFDM Inter-Satellite Links", in Measurement, 2020, Pre-proof 107479, ISSN 0263-2241.

ARTICOLE ÎN VOLUMELE UNOR CONFERINȚE

[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, Spania, 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. (ISI Web of Knowledge 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. (ISI Web of Knowledge 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. (ISI Web of Knowledge WOS:000318702700033, ISBN:978-1-4673-1176-2, IEEE Xplore)

[CP7] *E. Zainea, **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. (ISI Web of Knowledge 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. (ISI Web of Knowledge 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. (ISI Web of Knowledge WOS:000349857500052, ISBN:978-1-4799-1420-3, IEEE Xplore)

[CP11] *G. Suciu, 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. (ISI Web of Knowledge 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. (ISI Web of Knowledge 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. (ISI Web of Knowledge WOS:000345844600083, ISBN:978-1-4799-2385-4, IEEE Xplore)

[CP14] *A. Marţian, B.T. Sandu, O. Fratu, I. Marghescu. R. Crăciunescu,* "Spectrum Sensing based on Spectral Correlation for Cognitive Radio Systems", in Proc. Global Wireless Summit WirelessVitae2014, Aalborg, Denmark, May 2014, pp.1-4. (ISI Web of Knowledge WOS:000363907300053, IEEE Xplore)

[CP15] *C.V. Năstase, A. Marţian, 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), Timişoara, November 2014, pp.131-134. (ISI Web of Knowledge WOS:000366633300031, ISBN:978-1-4799-7267-8, IEEE Xplore)

[CP16] *O. Fratu, A. Marţian, 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. (ISI Web of Knowledge WOS:000369105500076, ISSN: 2155-5044, DOI: 10.1109/BMSB.2015.7177260, IEEE Xplore)

[CP17] *E.I. Dobre, A. Marţian, 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. (ISI Web of Knowledge WOS:000383221900039, DOI: 10.1109/ICComm.2016.7528275, ISBN: 978-1-4673-8197-0)

[CP18] *AM. Crişan, A. Marţian, 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. (ISI Web of Knowledge WOS:000383221900094, DOI: 10.1109/ICComm.2016.7528259, ISBN: 978-1-4673-8197-0)

[CP19] *A. Martian, C. Vladeanu,* "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, Timişoara, October 2016.(ISI Web of Knowledge WOS:000390717800026, DOI: 10.1109/ISETC.2016.7781069, ISBN: 978-1-5090-3748-3, IEEE Xplore)

[CP20] *A. Marţian, 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. Marţian,* "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. (ISI Web of Knowledge 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. (ISI Web of Knowledge WOS:000425211500065, IEEE Xplore, DOI: 10.1109/ISSCS.2017.8034927).

[CP24] *A. Martian, M. Dambeanu, C. Oprea, C. Vladeanu and I. Marghescu,* "DVB-T2 radio coverage analysis in Romania," in Proc. 25th Telecommunication Forum (TELFOR2017), Belgrade, Serbia, 2017, pp. 1-4. (ISI Web of Knowledge WOS:000427782600039, IEEE Xplore, DOI: 10.1109/TELFOR.2017.8249310).

[CP25] *G. Suciu, A. Ganaside, L. Bezdedeanu, R. Coanca, S. Secu, C. Nădrag, A. Marţian,* "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. Marţian, 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. Martian** *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. Marţian**, *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. Marţian**, "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), Iaşi, România, pp. 1-4, July 2019. (Accession Number WOS:000503459500084, IEEEXplore).

POSTERE ŞI PREZENTĂRI

[PP1] **A. Marţian**, *R. Crăciunescu, B.T. Sandu, O. Fratu,* "UHF Broadcasting in Romania", 3rd IEEE BTSGOLD WORKSHOP, 19-20 May 2014, Braşov, România.

[PP2] **A. Marţian**, *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. Martian**, 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. Marţian**, *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.

PROIECTE DE CERCETARE

[RP1] "Cognitive Radio Technology and the efficient use of RF spectrum," CNCSIS-UEFISCSU research project, PN-II-IDEI, no. 116/01.10.2007, director de proiect 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, director de proiect 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, director de proiect Călin Vlădeanu (2010-2013);

[RP4] "Hybrid wireless access system with unique addressing (SAWHAU)," PNCDI II Partnerships research proiect no. 12-126/01.10.2008, director de proiect Octavian Fratu (2008-2011);

[RP5] "Detection systems for cosmic radiation using new technologies (DETCOS)," UEFISCDI PNCDI II contract no. 82-104/01.10.2008, director de proiect Octavian Fratu (2008-2011);

[RP6] *"*Advanced antennas for space communications (ADANSPACE)," CDI research project no. 240-2013 financed by the Romanian Space Agency (ROSA), director de proiect Mihai Banciu (2013-2015).

[RP7] "Scalable Radio Transceiver for Instrumental Wireless Sensor Networks (SaRaT-IWSN)," PCCA UEFISCDI research project, director de proiect 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), director de proiect Remus Cacoveanu (2014-2016);

[RP9] "eWall for Active Long Living (eWALL)", FP7 project no. 610658, financed by the Europian Comission, project manager: Ramjee Prasad (2013-2016);

[RP10] "Galileo Vector Processing for Difficult Signal Conditions (GavPro)", ESA EGEP programme, director de proiect Alexandru Rusu (2015-2016);

[RP11] "Platforma Software integrata pentru analiza malware a terminalelor mobile (ToR-SIM)" - contract PN3 tip "Solutii" nr. 5Sol/2017, director de proiect Prof. Octavian Fratu (2017-2020);

[RP12] "Sistem de detecţie spectru RF (DET-RF)", grant intern UPB-GEX2017, nr. 34/25.09.2017, director de proiect **Alexandru MARŢIAN** (2017-2018);

[RP13] "Sistem informatic integrat pentru managementul activităţilor (SIIMA)", Contract nr.8Sol/2018, Proiect UEFISCDI de tip Soluţii, director de proiect 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, director de proiect 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", responsabil de proiect din partea UPB Ioana Marcu (2018-2020);

[RP16] "Sistem de evaluare a gradului de utilizare a spectrului RF în vederea introducerii rețelelor 5G (Spectrum-5G)", Proiect UEFISCDI, PN-III P1-1.1-PD-2016, no. PD154/10.10.2018, director de proiect **Alexandru MARŢIAN** (2018-2020).