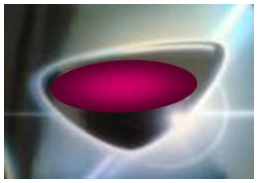
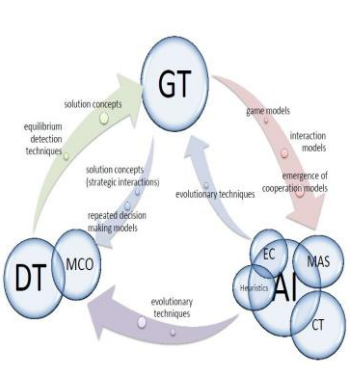
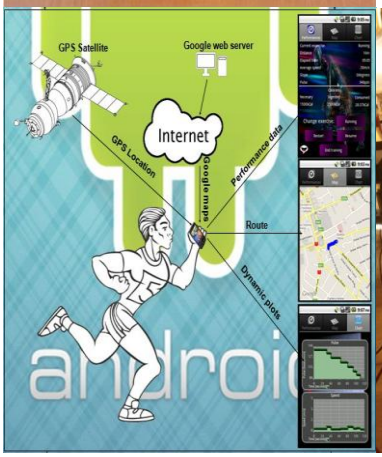
ADAPTIVE SYSTEMS LABORATORY

Contact details

Name	**Adaptive Systems Laboratory**
Acronym	**ASL**
Logo	
Site	http://asl.utcluj.ro/asl http://research.utcluj.ro/tl_files/research/Research%20Domain/ETTI/9_Cremene.pdf
Address	2, Observatorului street, room 2 Casa Radio, lab 406, Cluj-Napoca
Faculty Department	**Faculty of Electronics, Telecommunications, and Information Technology Department of Communications**
Telephone	+40 264 401913 mobile: +40 742 676404
Fax	+40 264 401917
Director	Assoc. Prof. Dr. Eng. Marcel Cremene
e-mail	cremene@com.utcluj.ro





Areas of expertise

Mobile Computing, Cognitive communications, Optimization methods and techniques for Telecommunications, Computational Game Theory applied to Telecommunications, Context-aware mobile computing, Web service composition and adaptation, Adaptive (smart) antennas, Microwave antennas and circuits, Affective computing

Team

Assoc. Prof. Dr. Eng. Marcel Cremene, Assoc. Prof. Dr. Nicolae Crișan, Assoc. Prof. Dr. Ligia Cremene, Assist. Prof. Dr. Iulian Bența.

Representative projects

CREW, **"Cognitive Radio Experimentation World, Game Theoretical Experiments on Interference Coordination in Cognitive Radio Environments (GAME-COG-NET)"**, European FP7 project, (2014)
ISM, **"Advanced Special Interest Group"**, COST Action IC0905 TERRA, (2013-2014)
"Energy efficient cognitive wireless networks", TUCN internal project, (2013- 2014)
"Distributed service composition and adaptation mechanisms, based on multi-criteria optimization", CNCSIS Grant TE, http://helios.utcluj.ro/te252/ (2010-2013)
"Integrated Adaptation Model for Complexity Management in Wireless Communications Systems", CNCSIS Grant PD, http://users.utcluj.ro/~cligia/PD_637/index.html/ (2010-2012)
„Autonomic adaptation platform based on a service-context meta-model", CNCSIS Grant PNCDI II-Idei, http://mercur.utcluj.ro/pn_II_idei_1062/ (2007-2010)
„Software platform for dynamical unanticipated service adaptation applied in mobile communications systems", CNCSIS Grant, http://194.102.64.7/GranturiFinalizate/ (2007-2008)
„Development of new adaptive strategies for broadband wireless systems", CNCSIS Grant, (2007)
"Towards a conceptual integration of Artificial Intelligence, Game Theory, and Decision Theory", John Templeton Foundation Grant, (2011-2012)

Significant results

The most representative publications of the past 5 years : (http://asl.utcluj.ro/refbase/index.php)

1. M. Cremene, M. Suciu, D. Pallez, D. Dumitrescu, "Comparative analysis of multi-objective evolutionary algorithms for QoS-aware web service composition", *Applied Soft Computing*, Vol. 39, pp. 124-139, 2016

2. K.-I. Benta, M.-F. Vaida, "Towards Real-Life Facial Expression Recognition Systems", *Advances in Electrical and Computer Engineering*, vol.15, no.2, pp.93-102, 2015
3. M. Cremene, D. Dumitrescu, L. Cremene, "A Strategic Interaction Model of Punishment Favoring Contagion of Honest Behavior", *PLoS One*, 2014
4. A. Medeisis, J. Sydor, L. Cremene, D. Wiecek, Y. Haddad, O. Holland, A. Anskaitis, T. Cuzanauskas, "ISM-Advanced band concept", book chapter in *Cognitive Radio Policy and Regulation Techno-Economic Studies to Facilitate Dynamic Spectrum Access,* Series: Signals and Communication Technology, pp. 383, 2014
5. C. Anton, A. Toma, Ligia Cremene, M. Mohorcic, C. Fortuna, "Power Allocation Game for Interference Mitigation in a Real-world Experimental Testbed", *IEEE ICC 2014 - International Conference on Communications, Cognitive Radio and Networks Symposium ('ICC'14 CRN')*, 2014
6. L. Cremene, N. Gasko, M. Cremene, D. Dumitrescu, "A Game Theoretical Perspective on Small-Cell, Open Capacity Sharing in Cognitive Radio Environments", in *13th Int. Conf. on Next Generation Wired/Wireless Advanced Networking*, NEW2AN 2013, St. Petersburg, Springer LNCS, 2013
7. L. Cremene, N. Crișan, "Cognitive Antenna System for Sustainable Adaptive Radio Interfaces", in *Innovations and Advances in Computer, Information, Systems Sciences, and Engineering Lecture Notes in Electrical Engineering*, vol. 152, pp 53-62, 2013
8. L. Cremene, D. Dumitrescu, R. Nagy, N. Gasko, "Cognitive Radio Simultaneous Spectrum Access/ One-shot Game Modelling", in I*EEE, IET International Symposium on Communication Systems, Networks and Digital Signal Processing - CSNDSP 2012*, Poznan, pp. 1-6, 2012
9. L. C. Cremene, D. Dumitrescu, "Analysis of Cognitive Radio Scenes Based on Non-cooperative Game Theoretical Modelling", in *IET Communications*, pp. 1876-1883, 2012
10. N. Crişan, L. Cremene, "Design and Simulation of a Flexible Beamforming Interface for MIMO Receivers Using a Butler Labyrinth", in *Int. J. of RF and Microwave Computer-Aided Engineering (RFMiCAE)*, vol. 21, no. 3, pp. 300-307, 2011
11. L. Cremene, D. Dumitrescu, R. Nagy, M. Cremene, „Game Theoretic Modelling for Dynamic Spectrum Access in TV Whitespace", in *6th International ICST Conference on Cognitive Radio Oriented Wireless Networks and Communications - CrownCom 2011*, Osaka, Japan, pp. 336 – 340, 2011
12. F.C. Pop, D. Pallez, M. Cremene, A. Tettamanzi, M.A. Suciu, M.F. Vaida, "QoS-based service optimization using differential evolution", in *GECCO2011*, pp. 1891-1898, 2011
13. L. Cremene, *Tehnici adaptive în sisteme de comunicaţii wireless*, Ed. Casa Cărţii de Stiinţă, Cluj-Napoca, 2010 - Romanian Academy Award in 2012
14. N. Crişan, L. Cremene, *Antene adaptive. Tehnici de reconfigurare şi fundamente matematice*, Ed. Casa Cărţii de Stiinţă, Cluj-Napoca, 2011

Patents:

1. L. Cremene, M. Cremene, "Adaptive method and device for the unified processing of signals for radio receivers", Patent nr. RO126731-A2, DIIDW .: 2011-Q12597, 2011
2. D. Dumitrescu, A. Bartha, M. Cremene, "Process for solving subset sum problem in the field of the theory of computational complexity", Patent nr. RO 128241-A2, DIIDW: 2013-F20991, 2013
3. M. Cremene, A. Bartha, D. Dumitrescu "Electronic device for solving a "subset-sum" np-complete problem by cascade system based on binary electric signals", Patent nr. RO128327-A2, DIIDW: 2013-G49306, 2013
4. A. Bartha, D. Dumitrescu, M. Cremene "Identification of the parts of the sum for np-complete problems of subset-sum type by using a digital device", Patent nr. RO128328-A2, DIIDW: 2013-G49304, 2013
5. L. Cremene, N. Crișan, "Selective reception method and device for preventing fading in mobile terminals", Patent nr. RO130286-A2, DIIDW: 2015-38362E, 2015
6. N. Crișan, L. Cremene, "Method and device for multi-path fading compensation for small size portable devices ", Patent nr. RO130190-A2, DIIDW: 2015-27381Q, 2015

The offer addressed to the economic environment

Research & development	Cognitive communications - resource sharing models, energy efficiency, Optimization models and algorithms for telecommunications, Experimental game theoretical models, Context-aware mobile computing, Smart antenna algorithms (including MIMO) Design and implementation of optimization algorithms for telecommunications, Resource access/ sharing models (e.g. unlicensed spectrum, energy efficiency), Decision making support analysis, Context-aware mobile computing, Smart antenna algorithms (including MIMO)
Consulting	Mobile computing, Artificial/Computational Intelligence applications, Decision making support, Game Theoretical analysis, Technical writing (technical specifications, project proposals, patents), Antenna design (including MIMO), Radio network planning (optimization methods), IEEE 802.22 cognitive radio wireless standard and other wireless standards, Software Defined Radio
Applied engineering services	Software engineering, Design patterns, Decision making support analysis, Antenna design, Radio measurements
Training	Mobile computing (Android, iOS, PhoneGap), Artificial/Computational Inteligence applications, Design and simulation software for wireless communications, including antennas: ADS- Advanced Design System, http://users.utcluj.ro/~ads și HFSS - High Frequency Structure Simulator.