

Andrea Fabio Cattoni – Curriculum Vitae

Genova, July 22nd, 2008

PERSONAL DATA

- **Date of Birth:** May 16, 1979, Genova, ITALY.
- **Address (home):** Via G.B. Gaulli, 12C/6, I-16143, Genova (Genova), ITALY.
- **Address (office):** Via Opera Pia 11a, I-16145 Genova, ITALY (Department of Biophysical and Electronic Engineering, DIBE – University of Genova).
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- **Phone (office):** +39 010 353 2774.
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ACTUAL POSITION

Research grant on “Study, definition and validation of design solutions for SOFDM systems based on WiMAX IEEE 802.16e-2005 standard and Wi-Fi in PmP and meshed networks in military bandwidths” c/o Department of Biophysical and Electronic Engineering, DIBE – University of Genova, ITALY, 2008-2009.

Responsible of the joint research laboratory between Selex Communications and University of Genova for the development of Meshed WiMAX systems in military bandwidths – Broadband Wireless Design Department.

EDUCATION

Philosophy Doctorate in Information and Communication Sciences and Technologies, curriculum in Space Sciences and Engineering received by the **Department of Biophysical and Electronic Engineering, DIBE – University of Genova, ITALY, 2005-2008.**

Laurea Degree (corresponding to the international **MSc**) in **Telecommunications Engineering** received by the University of Genova, ITALY, 2004, with a thesis concerning “Feature extraction techniques from hyperspectral remotely sensed data through synthesis of multispectral bands”, Tutor: Prof. S.B. Serpico, Department of Biophysical and Electronic Engineering, DIBE.

PUBLICATIONS

Journal Articles:

- M. Briasco, A.F. Cattoni, G. Oliveri, M. Ottonello, M. Raffetto e C.S. Regazzoni "Architettura Basata su Cognitività Embodied per Antenne Intelligenti di Prossima Generazione", Atti della Fondazione Ronchi, 2008.
- M. Gandetto, A.F. Cattoni, C.S. Regazzoni, A Distributed Wireless Sensor Network for Radio Scene Analysis, International Journal of Distributed Sensor Networks, Taylor & Francis Publishing, 2006.

Book contributions

- L. Bixio, A.F. Cattoni, C.S. Regazzoni, P.K. Varshney, Embodied Cognition based Distributed Spectrum Sensing for Autonomic Wireless Systems, in M.K. Denko, L.T. Yang, Y. Zhang, Autonomic Computing and Networking, Springer, USA (In Press).
- S.B. Serpico, G. Moser and A.F. Cattoni, Feature Reduction for Classification Purpose, in Chein-I Chang, Hyperspectral Data Exploitation: Theory and Applications, Wiley-Interscience.

International Conferences:

- A.F. Cattoni, I. Minetti, C.S. Regazzoni, Distributed Mode Classification in Embodied Cognitive Radio Terminals, IAPR Workshop on Cognitive Information Processing (CIP), June 9-10, 2008, Santorini, Greece.
- L. Bixio, A.F. Cattoni, G. Oliveri, M. Ottonello, M. Raffetto, C.S. Regazzoni, Information Processing Techniques for Cognitive Base Transceiver Stations, IEEE International Symposium on Wireless Pervasive Computing 2008, May 7-9, 2008, Santorini, Greece.
- Andrea F. Cattoni, Maristella Musso, Carlo S. Regazzoni, SDR Analog Front-End Architecture For Simultaneous Digitalization of Data Transmission and Navigation Signals, SDR Forum Technical Conference, November 5-9, 2007, Denver, CO, USA.
- Alessio Dore, Andrea F. Cattoni, Carlo S. Regazzoni, A Particle Filter-Based Fusion Framework for Video-Radio Tracking in Smart-Spaces, IEEE International Conference on Advanced Video and Signal-based Surveillance, September 5-7, 2007, London, UK
- Andrea F. Cattoni, Marina Ottonello, Mirco Raffetto, Carlo S. Regazzoni, HOS-Based Mode Classification for Infomobility Framework, ACM International Workshop on Cognitive Wireless Networks, August 14, 2007, Vancouver, British Columbia, Canada
- Andrea F. Cattoni, Marina Ottonello, Mirco Raffetto, Carlo S. Regazzoni, Neural Networks Mode Classification based on Frequency Distribution Features, IEEE International Conference on Cognitive Radio Oriented Wireless Networks and Communications, August 1-3, 2007, Orlando, FL, USA

- Andrea F. Cattoni, Alessio Dore, Carlo S. Regazzoni, Video-Radio Fusion Approach for Target Tracking, 10th International Conference on Information Fusion, July 9-12, 2007, Quebec City, Canada.
- A.F. Cattoni, A. Calbi, C. Bonamico, L. Marcenaro, F. Lavagetto and C.S. Regazzoni, Indoor/Outdoor Navigation Services Provision Through a Mixed Video/Radio Localization System, European Navigation Conference – Global Navigation Satellite Systems, May 28 – June 1, Geneva, Switzerland
- Andrea F. Cattoni, Maristella Musso and Carlo S. Regazzoni, Integration Between Navigation and Data-Transmission Systems in a Software Defined Radio Framework, European Navigation Conference – Global Navigation Satellite Systems, May 28 – June 1, Geneva, Switzerland
- M. Briasco, A.F. Cattoni, G. Oliveri, M. Ottonello, M. Raffetto and C.S. Regazzoni, Antenna Systems with Embodied Cognition for Next Generation Wireless Communications, IEEE Antennas and Propagation Society Symposium 2007, June 10-15, 2007, Honolulu, Hawaii, USA.
- A.F. Cattoni, I. Minetti, M. Gandetto, R. Niu, P.K. Varshney, C.S. Ragazzoni, A Spectrum Sensing Algorithm based on distributed cognitive models, SDR Forum Technical Conference, November 13-17, 2006, Orlando, FL, USA.
- M. Briasco, A.F. Cattoni, G. Oliveri, M. Raffetto and C.S. Ragazzoni, Sensorial Antennas for radio-features extraction in vehicular cognitive applications, SDR Forum Technical Conference, November 13-17, 2006, Orlando, FL, USA.
- M. Briasco, A.F. Cattoni, G. Oliveri, M. Raffetto and Carlo S. Regazzoni, Cognitive Antennas Architecture For Disitributed Sensor Networks, Second International Conference on Innovations and Real Time Applications for Distributed Sensor Networks, October 16-17, 2006, Washington D.C., USA
- Maristella Musso, Andrea F. Cattoni, Carlo S. Ragazzoni, A New Fine Tracking Algorithm for Binary Offset Carrier Modulated Signals, , Institute Of Navigation GNSS Technical Conference and Exhibition, September 26-29, 2006, Fort Worth, TX, USA.
- F. Parodi, M. Musso, A.F. Cattoni, C.S. Regazzoni, A hyerarchical Neural Network-based receiver for GNSS systems, European Navigation Conference – Global Navigation Satellite Systems, May 7-10, 2006, Manchester, United Kingdom.
- M. Musso, A.F. Cattoni, C.S. Regazzoni, Neural networks based approach for data fusion in multi-frequency navigation receivers, ION National Technical Meeting, January 18-20, 2006, Monterey, California USA.
- M. Gandetto, A. F. Cattoni, C. S. Regazzoni, A distributed approach to mode identification and spectrum monitoring for cognitive radios, SDR Forum Technical Conference, November 14-18, 2005, Orange County, California USA.
- M. Gandetto, A. Cattoni, M. Musso, C. Regazzoni, Distributed cooperative mode identification for cognitive radio applications, General Assembly of International Union of Radio Science (URSIGA), October 23-29, 2005, New Delhi, India.
- M. Gandetto, A. Cattoni, M. Musso, C. Regazzoni, A Distributed Wireless Sensor Network for Radio Scene Analysis, Innovations and Commercial Applications of Distributed Sensor Networks, October 18-19, 2005, Bethesda, Maryland USA.

- M. Musso, G. Gera, A.F. Cattoni, C.S. Regazzoni, GNSS Multifrequency receivers in urban environment: Theoretical analysis, Institute Of Navigation GNSS Technical Conference and Exhibition, September 13-16, 2005, Long Beach, California USA.
- L. Marchesotti, S. Piva, A.F. Cattoni, M. Musso, A reconfigurable multi-camera architecture for high resolution objects analysis, IEEE International Conference on Image Processing (ICIP), September 11-14, 2005, Genova, Italy.
- M. Musso, G. Gera, A. Cattoni, C. S. Regazzoni, Neural Networks Based Approach For Fine Tracking in Satellite Navigation Systems, IEEE Conference on Recent Advances in Aerospace Technologies (RAST), June 9-11, 2005, Istanbul, Turkey.

National Conference:

- M. Briasco, A.F. Cattoni, G. Oliveri, M. Ottonello, M. Raffetto, C.S. Regazzoni, Architettura basata su cognitiv a embodied per sistemi di antenne riconfigurabili di prossima generazione, XIII Giornata di Studio sull'Ingegneria delle Microonde, Microwave Engineering Center for Space Applications (MECSA), May 14-15, 2007, Salerno, Italy

FOREIGN LANGUAGES

- **English:** good.

SOFTWARE AND PROGRAMMING KNOWLEDGE

- **Programming Languages:** very good knowledge on MatLab and Simulink; basic knowledge C/C++.
- **Internet:** HTML, PHP
- **OS:** very good knowledge Windows9X/2000Professional XP, basic knowledge Linux, MAC OS X
- **Software packages:** very good knowledge Microsoft Office 2003, Photoshop, Cooledit Pro, Reason, Sonar Producer, Adobe Audition, LaTeX, basic knowledge Fireworks, Dreamweaver

RESEARCH CONTRACTS

Research Contract with the Department of Biophysical and Electronic Engineering, DIBE, ITALY:

"Definition and Development of a "Case study outdoor" for the use of a multimodal localization and tracking system for vehicles and persons" 01/03/07 – 31/12/07

Research Contract with the National Inter-University Consortium for Telecommunications (CNIT), ITALY:

"Study and development of heterogeneous radio/video data fusion algorithms for user localization and identification purposes within the VICOM WP2 demonstrator" 01/12/2005 – 30/04/2006

Research Contract with the National Inter-University Consortium for Telecommunications (CNIT), ITALY:

"Installation of the physical setup based on WLAN for the VICOM demonstrator in common between WP2 and WP3: the setup consists in the identification of the optimal position of the access points through a study about the propagation of the WiFi signal which will allow a verification of the signals coverage. Setup will be initialized by setting the access points with the parameters required for a correct functioning within the VICOM demonstrator in common between WP2 and WP3" 01/06/2005 – 31/10/2005

Research Contract with the National Inter-University Consortium for Telecommunications (CNIT), ITALY:

"Research will be composed by the following three phases: 1) Definition and formulization of a theoretical methodology for statistical localization; 2) Development and testing of a first simulator based on the previously defined method; 3) Development of a software tool to be integrated within the VICOM WP2 demonstrator based on the previously defined method: parameters optimization of the simulator developed and tested in phase 2)" 17/03/2005 – 14/07/2005

Research Contract with the Department of Biophysical and Electronic Engineering, DIBE, ITALY:

Study and definition of techniques for radio communication links for UAV platforms" 01/10/2004 – 31/12/2004

DIDACTIC EXPERIENCES

At University of Genova, SIIT consortium, Genova, ITALY

Teacher of the Master Course in "Advanced Technologies for Intelligent Integrated Systems"

- Localization and self-localization techniques

At the Italian Military Telecommunications School (STELMILIT), Chiavari, ITALY:

Teacher of the Master Course in “Electronic Defense”

- “Digital Signal Processing”
- “Theory and Techniques for RF Communication Systems”

Teacher of the Master Course in “Telecommunications”

- “Radio Systems”

At the University of Genova, ITALY:

Teaching Assistant for the course “Mobile Telecommunications Systems 1” (tenured Prof. C.S. Regazzoni, Prof. F. Lavagetto) 2007-2008.

Teaching Assistant for the course “Fixed and Mobile Transmission System and Techniques 1” (tenured Prof. C.S. Regazzoni) 2007-2008.

Teaching Assistant for the course “Mobile Communications 1” (tenured Prof. C.S. Regazzoni, Prof. F. Lavagetto) 2007-2008.

Teaching Assistant for the course “Telecommunication Systems 1” (tenured Prof. C.S. Regazzoni) 2007-2008, 2006-2007.

Co-advisor of the following MSc and BSc theses:

- F. Mazzarello, “Study and development of joint video/radio tracking methods of cooperative entities in an intelligent environment” advisor: Prof. C.S. Regazzoni, co-advisors: A.F. Cattoni, A. Dore, H. Sallam, MSc, 2008.
- D. Calbi, “Performance testing of the classification module within the P.S.A. (Panoramic Scene Analysis) automatic video-surveillance system” advisor: Prof. C.S. Regazzoni, co-advisors: Dott. C. Cohelo, Dr. A.F. Cattoni, A. Dore, BSc, 2007.
- F. Parodi, “Study and development of a hierarchical neural-network-based system for satellite navigation” advisor: Prof. C.S. Regazzoni, co-advisors: Dr. M. Musso, Dr. A.F. Cattoni, MSc, 2006.
- A. Carrea, R. Cavalleri “Study and development of Software-Defined Radio based techniques for the integration of data transmission and navigation systems” advisor: Prof. C.S. Regazzoni, co-advisors: Dr. A.F. Cattoni, Dr. M. Musso, MSc, 2006.
- I. Minetti, “Study and development of spectrum analysis and transmission modalità classification techniques based on distributed detection algorithms in cognitive radio systems” advisor: Prof. C.S. Regazzoni, co-advisors: Dr. A.F. Cattoni, Dr. M. Gandetto, MSc, 2006.
- S. Melis, “Study and development of video-radio data fusion techniques for localization of multiple objects in intelligent environments” advisor: Prof. C.S. Regazzoni, co-advisors: A.F. Cattoni, A. Dore, MSc, 2006

MEMBERSHIPS

- **“Member”** of the Institute of Electrical and Electronics Engineers (IEEE) 2008
- **“Student member”** of the Institute of Electrical and Electronics Engineers (IEEE) 2006-2007.
- Member of the National Inter-University Consortium for Telecommunications (CNIT) research unit at the University of Genova.

PARTECIPATION AT CONFERENCES

- IEEE International Conference on Recent Advances on Aerospace Technologies 2005 – RAST 2005, Giugno 9-11, 2005, Istanbul, Turchia
- IEEE International Conference on Image Processing 2005 – ICIP05, Settembre, 11-14, 2005, Genova, Italia
- International Conference on Innovations and Commercial Applications of Distributed Sensor Networks, October 18-19, 2005, Bethesda, Maryland USA
- European Navigation Conference – Global Navigation Satellite Systems, May 7-10, 2006, Manchester, United Kingdom
- SDR Forum Technical Conference, November 13-17, 2006, Orlando, FL, USA
- ETSI Software Defined Radio (SDR)/Cognitive Radio (CR) Workshop, February 9, 2007, Sophia Antipolis, France
- Time_Nav07 – European Navigation Conference, Global Navigation Satellite Systems, May 28 – June 1, 2007, Geneva, Switzerland.
- IEEE International Conference on Cognitive Radio Oriented Wireless Networks and Communications, August 1-3, 2007, Orlando, FL, USA.
- ACM International Workshop on Cognitive Wireless Networks, August 14, 2007, Vancouver, British Columbia, Canada.

Session Chairman:

- ACM International Workshop on Cognitive Wireless Networks, August 14, 2007, Vancouver, British Columbia, Canada.

REVIEWING ACTIVITY

Reviewer for the following International Journals:

- IEEE International conference on Image Processing
- EURASIP European Signal Processing Conference

- IEE Communications Magazine
- IEE Proceedings on Communications
- Pattern Recognition Letters
- IEEE Transactions on Neural Networks
- IEEE Transactions on Wireless Communications
- EURASIP Journal on Advances in Signal Processing
- IEE Electronic Letters

Technical Program Committee Member

- IEEE International conference on Image Processing 2005
- IEEE International conference on Image Processing 2006
- IEEE International conference on Image Processing 2007

ABROAD EXPERIENCES

Visiting Researcher at the “L.C. Smith College of Engineering and Computer Science” – Syracuse University, 6 Febbraio 2005 – 3 Marzo 2005

AWARDS

- **Best Paper Award**, International Conference on Innovations and Commercial Applications of Distributed Sensor Networks, October 18-19, 2005, Bethesda, Maryland USA
- **H Factor (Scopus+Google) = 1**