1) Personal Data

Current affiliation: Department of Information Engineering, Computer Science and Mathematics (DISIM) & Centre of Excellence Ex-EMERGE - University of L'Aquila - Italy

Degrees

- Laurea (five years) degree in Electronic Engineering from University of L'Aquila, achieved on March 31, 1989 - mark 110/110 summa cum laude;

- Doctoral degree in Electronic Engineering from University of L'Aquila - national dissertation on Sept. 29, 1994.

Academic positions

- Assistant professor in Telecommunications at the University of L'Aquila, Italy (1994 - 2002);

- Associate professor in Telecommunications at the University of L'Aquila, Italy (2002 - 2016);

- Achieved the Scientific National Habilitation (ASN) for full professor in Telecommunications in Italy (call of 2012);

- Professor in Telecommunications at the University of L'Aquila, Italy (2016 -).

Visiting positions and others

- Research Fellow at Istituto di Elettronica dello Stato Solido (IESS) - National Research Council (CNR) - Rome, from Feb. 1991 to Sept. 1992;

- Visiting researcher at University of Victoria, BC, Canada - Research Lab. on Wireless Communications lead by Prof. V.K. Bhargava, June 1996 - November 1996 and August 1997;

- Many short visits have been exchanged with KTH since 2003, other visits with CNRS-Supelec Paris, Technical University of Berlin, University of California at Berkeley, Mid-Sweden University, UPC in Barcelona, etc.;

- Junior Engineer at Selenia Spazio Spa, Ground Systems Division in Rome - from May to August 1989;

- Lieutenant Engineer in the Technical Corp of Aviation Army, Division of Telecommunications and Air Traffic Control, from Sept. 1989 to December 1990.

2) Research activities

Research activities have been almost devoted to radiocommunications and wireless systems, with special emphasis on development of i) theoretical frameworks for performance analysis, ii) algorithmic components and iii) protocol architectures in modern systems. Theory and engineering of communication systems being the core of research, a cross-disciplinary approach has been pursued since the early stage of research career, when a two-years long full time experience was carried out in a microelectronic research lab of the National Research Council (CNR) of Italy. More recently, strong and structured connections with the control and computer engineering communities have been established to develop activities in the networked embedded systems domain according to the emerging "triple C" (Computing, Communication and Control) paradigm. Furthermore, significant efforts have been spent to setup close cooperations with the national and international research community and with the industrial world along more than 25 years of academic career at the University of L'Aquila. A short description of major research tracks is provided in the following.

1. Satellite communication systems and technologies

This research field has been almost explored since the Master thesis, then during the Ph.D. program and the early stage of the academic career. A major activity has been concerned with development, prototyping and validation of superconducting technologies for millimeter waves radio communications front-ends:

specifically, integrated low-noise frequency converters have been fabricated in a clean room facility with a complete sequence of processes, and tested in a series of prototypes that included on the same chip the mixer and the local oscillator for down conversion. Performance have been reported in a number of journal papers in the area of physics and technology. Moreover, application perspectives have been explored in cooperation with Telespazio, with interesting benefits in the field of long range communications and inter-satellite links. Nonetheless, the mmW band has become attractive in recent years for short range high capacity communications. Another activity undertaken at the beginning of the career is related to resource management and teletraffic performance evaluation in integrated terrestrial-satellite systems for mobile communications. In this frame, an extension of the recursive algorithm of the Erlang B formula has been developed in order to encompass the case of guard channels for priority traffic management. A latest activity in the field of satellite and space communications is concerned with all-digital processing for semi-transparent transponders, in cooperation with Thales Alenia Space - Italy: several papers have been published in major IEEE technical journals and conference proceedings, and on-going work is concerned with the design of digital transparent transponders for incoming satellite constellations and their integration with terrestrial networks in the 5G arena.

2. Handover algorithms and link quality statistics in land mobile cellular systems

This area has been a major topic of research for many years in 2G/3G systems and has been later reinforced in the 4G/5G perspective. Relevant contributions have been provided in a series of journal and conference papers that have been acknowledged and cited by top level researchers worldwide. The following major results have been achieved:

- development of cross-layer frameworks for joint analysis of handover initiation and execution, that include modelling of handover dwell time and queueing policies in several scenarios;

- novel algorithms for handover initiation, that are based on least square estimation of the path loss and have been developed in a general and adaptive version; our latest advance in this field is the result of a quite long work in cooperation with our colleagues at KTH and relies on novel approximations and modern tools for optimization; the adaptive framework that has been developed is very promising to cope with requirements of 4G/5G and beyond 5G systems, where heterogeneous and variable coverages are to be considered;

- modelling of effects of interference for accurate evaluation of performance indexes such as statistics of handovers and outages; in particular, significant theoretical contributions have been provided to derive approximate statistics for sums of log-normal variates with constant or random weights, and in terms of both first and second order statistics. Instead of resorting to bounds under simplyfied system assumptions, an approach has been undertaken that is oriented to derive accurate approximations for the signal-to (interference+noise) ratio without introducing simplifying assumptions in system settings (e.g. no cross correlations among channel components or composite channel settings); in this frame easy-to-use solutions and also new models for cross-correlated shadowing components have been developed. This research line has represented the basis for many subsequent developments of the research team in the modern areas of wideband, ultrawideband and cooperative systems, the most recent ones related to network interference modelling through stochastic geometry. Modelling of interference is currently a transversal major activity in many wireless frameworks, e.g. the ones described in the following items (short range radios, 5G and post-5G NOMA schemes for multiple access).

3. Multiple access techniques and radio resource management for multimedia wireless systems

This area is basically concerned with capacity evaluation under optimal resource assignment in spread-spectrum systems for multimedia applications. Relevant contributions have been provided in defining and solving optimization problems and in development of adequate approximations for derivation of performance indexes. The following major results have been achieved:

- computation of outage statistics (of the first and second order) in FH-TDMA and DS-CDMA systems under various settings for channel statistics and power control imperfections;

- optimal power allocation for capacity maximization in multimedia DS-CDMA systems in single cell and multi-cell systems;

- modelling and performance optimization of nested control loops in wireless chains with cross-layer settings, in cooperation with our colleagues in control engineering; this activity has lead to some prospective research lines presented in journals and conferences in the area of embedded and networked control.

4. Distributed wireless networks and networked embedded systems

This research area is quite broad: it has been almost developed within the Centre of Excellence DEWS and more recently in the recently funded Centre of Excellence Ex-EMERGE and its various connections to partners and projects. The following major results have been achieved along various research lines:

- advanced performance modelling of Impulse Radio UWB systems: along the track of earlier research work on modelling of SNR and SINR statistics, a framework based on Pearson Type IV distribution has been developed during the program of a brilliant Ph.D. student to compute the average bit error probability in UWB system setups of practical interest with both rake receivers and transmitted reference systems, without introducing preliminary simplifications in the system model (e.g. simplifying the channel model or neglecting the intra-pulse interference). Along with contributions on UWB channel sounding and optimal detection of UWB signals in the presence of interferers, this research topic has lead to a consistent number of papers in top level journals and conferences, with a good impact on the technical literature;

- distributed and cooperative algorithms for source coding and positioning in wireless sensor networks: a fundamental contribution has been provided to achieve novel results on i) theoretical frameworks for performance assessment of distributed source coding (DSC) under realistic system settings (multi-hop, error control coding and data aggregation), and ii) distributed and cooperative least squares algorithms for position estimation, with an original solution proposed and various settings tested in experimental contexts. Especially the last topic has lead to several publications, with a few of them achieving a significant number of qualified citations (e.g. by Moe Win's group);

- joint control-communication design in networked embedded control systems through advanced modelling and formal methods based on platform-based design: a fundamental and prospective activity has been done to define and develop the research agenda of this emerging and cross-disciplinary area, with results achieved on i) advanced modelling and optimization of a control-communication paradigm based on stochastic abstraction, ii) network design for application in industrial and process control, iii) development of cross layer models for wireless sensor and actuator networks relying on the widespread IEEE 802.15.4 stack and, more recently, for performance analysis of modern RFID systems based on passive tags and backscatter modulation;

- performance analysis of cooperative and cognitive communications: by resorting to the development of a Moment Generating Function (MGF)-based approach, the following specific contributions have been provided in a cooperative communication setting with multiple hops and multiple branches: i) important performance indexes as end-to-end SNR and average bit error probability are obtained in exact form for generalized fading channels, and ii) a simple bound is introduced to deal with some specific cases. This work was launched through a cooperation with a former Ph.D. student and has later evolved towards performance prediction in the presence of the network interference. A recent evolution of activities on relay networks, that is only documented in a conference paper published in April 2016, is targeted to address blockage events in millimeter waves systems;

- vehicular communication networks for automotive, rail and aeronautics. This topic is of crucial interest for effective implementation of ITS (Intelligent Transport Systems) and it requires at the same time high reliability and low latency, which is now encoded in the 5G paradigm of URLLC (Ultra Reliable Low Latency Communications). Our research activity has been focused on the shared channel capacity and MAC performance of IEEE 802.11p communication frameworks, with development of extensive simulation environments and experimental trials based on Cohda Wireless embedded platforms. A specific activity is related to performance analysis of cooperative communication setups that integrate RF wireless and optical

wireless in vehicular networks. Finally, current activities are referred to research advances for URLLC in 5G and post-5G frameworks and are included in the specific mission of the Centre Ex-EMERGE and Radiolabs Consortium;

- security issues in networked embedded systems: this research topic has been launched and developed in the research group as an internal project and has later become strategic as it has attracted many funds from both EU and national agencies; significant research results have been obtained in terms of proposal of i) a novel hybrid cryptographic scheme and ii) of low complexity intrusion detection mechanism based on weak process models. The activities have also included the development of more than one middleware platforms for actual implementation on a test-bed: an alternative is based on mobile agents, a more recent one is based on the Service Oriented Middleware (SOM) approach and is specifically developed on a IEEE 802.15.4 protocol stack. This research track has recently evolved towards cryptographic schemes based on elliptic curves with particular emphasis on its application to vehicular communication networks.

3) Main scientific titles

- Editor for IEEE Trans. on Communications from 2000 to 2013, for Hindawi International Journal of Vehicular Technology from 2012 to 2015;

- Editor for International Journal of Robust and Nonlinear Control, Special Issue "Industrial Control over Wireless Networks" (2008-2009);

- Editor for Kluwer Telecommunications Systems (2006 -);

- Regular member of the Technical Program Committee in major IEEE conferences and reviewer for major IEEE technical journals;

- Nominated by CNR President to represent Italy in the Commission C of URSI (International Union of Radio Science) in 2016. Appointed Senior URSI Member in 2020;

- Member of the IEEE (Comm. Society, Inf. Theory Society and Veh. Tech. Society), with Senior membership from 2000;

- Organizer of the Annual National Meeting of Telecommunications (GTTI) in 2004 and 2015;

- Co-organizer of workshops and conferences within european projects;

- Co-organizer of MTNS'06 Mini-symposium on "Distributed decision-making over ad-hoc networks" and special sessions in various conferences;

- Session chair in major conferences;

- Co-author of papers invited or in plenary sessions at IEEE ISWC'99, IEEE ISWC'02, IEEE EMC 2003, IEEE CDC-ECC 2005, ICST 2009, 4th IFAC ADHS 2012;

- Invited speaker at MMT'02, Rennes, June 2002; EU-RUSSIA NESTER Workshop on embedded systems, July 2009; PhysCon 2009, Catania, September 2009; EU concertation meetings; 4th Workshop of COST Action IntelliCIS, Barcelona, June 2011;

- Awarded a fellowship by Fondazione F. Filauro; co-recipient of the Best Application Paper Award at IEEE MASS'05; co-author of the paper that received the Best Student Conference Paper Award from the IEEE Sweden Joint VT-COM-IT Chapter in 2014;

- two papers have been announced in the list of selected Forthcoming Manuscripts of the IEEE Transactions on Communications.

- Invited speech on “An eco-system for innovation enabled by 5G and Space”, ESA-ESTEC Workshop in Noordwijk, The Netherlands, Nov. 21st, 2018.

- co-author of the paper “Systematic Derivation of Accurate Analytic Markov Channel Models for Industrial Control”, (with A Alrish, YZ Lun, and A. D'Innocenzo) Best Work in Progress Paper Award in15th IEEE International Workshop on Factory Communication Systems (WFCS), Sundsvall, Sweden, May 27th 2019.

4) Scientific responsibilities in institutions, research projects and technology transfer

- Officer of Commission C (Signals and Communications) for CNR and Italian representative in Commission C of URSI;

- Member of the Executive Committee (2001-) and Vice Director (2012-) of DEWS, Centre of Excellence at University of L'Aquila;

- Member of the Executive Committee of CNIT of Italy (2003-2007, 2013-2019); Member of the Scientific Committee of CNIT (2008-2012, 2020-);

- Founder and Director of the Centre of Excellence Ex-EMERGE on connected, geo-localized and cyber-secure vehicles at the University of L'Aquila (2019-);

- Proposer and scientific responsible at the University of L'Aquila of the Memorandum of Intent with European Space Agency (ESA) and local institutions on “pursuing space based activities making use of the 5th Generation of communication networks” (2019 -);

-Member of the National Technical Committee on Intelligent Transport Systems of World Road Association (2020 -);

- Member of the Executive Committee of Radiolabs Consortium (2006 -);

- Member of the Academic Senate, University of L'Aquila (2015- 2018);

- Co-founder and member of the board of directors of WEST Aquila srl, a spin-off company of the University of L'Aquila that has been operating in the field of wireless networked embedded systems since 2005;

- Member of doctoral committees at Politecnico di Torino, La Sapienza University of Rome, ENSTA Paris, University of Padova, University of L'Aquila, University of Victoria, BC, University of Mid-Sweden in Sundsvall, University of Paris-Saclay/Supelec/CNRS, University of Roma Tre;

- Member of selection committee for faculty positions at University of Lecce, La Sapienza University of Rome, University of Florence, University of Roma 3, University of Bologna, University of Cagliari, Università Politecnica delle Marche, University of L’Aquila;

- Reviewer for research proposals/grant applications at national and international level, e.g. for NSERC Canada;

- Leader of research unit for projects funded by MiUR of Italy: i) Radio access for personal communication systems (1995-1996), ii) PRIN 1997: Variable rate mobile radio systems for multimedia applications (1997-1999), iii) PRIN 2000: CDMA for broadband mobile radio systems with integrated terrestrial and satellite components (2000-2002), iv) PRIN 2010: GREen Tags with ultrawideband identification and localization capabilities (2013-2016);

- Co-proposer, WP leader and member of the Executive Committee of HYCON, NoE in FP6 of EU (2004-2009);

- Co-proposer and responsible of Het. Nets Lab. of Project RIDITT Ricostruire (2012-2015), funded by MISE of Italy;

- Co-proposer and participant of the COST Action IC0806 IntelliCIS (2009-2012);

- Participant to various european projects, e.g. ACTS Mostrain (1996-1997), FP5 IST Columbus (2002-2004), Artemis PRESTO (2011-2014) and CRAFTER (2012-2015), FP7 NoE HYCON2 (2010-2014), ECSEL SAFECOP (2016-2018);

- Responsible/PI in research contracts with industries: 3 with Telit Networks, 1 with Marconi Mobile Access, 1 with Technolabs, 1 with Radiolabs, 4 with Thales, 2 with Selex ES, 2 with Thales Alenia Space and CNIT, 1 Distinguished Agreement with Synopsys Ltd.;

- WP leader in research contracts with industries: 1 with Technolabs, 2 with Radiolabs (1 funded by EDA), 1 with Selex ES;

- Co-proposer and team coordinator at the University of L'Aquila for the Competence Centre on Cyber-security (2018-2022), a proposal accepted by the Ministry of Economic Development after a competitive call on the Industry 4.0 Framework program. The proposal is coordinated by La Sapienza University of Rome;

- Principal Investigator and Scientific Responsible of the project Ex-EMERGE, a 3.6 MEuros initiative at the University of L'Aquila for the startup of a centre of excellence on connected and geolocalized vehicles, funded by the Prime Minister Office and Ministry of Economic Development of Italy (2018-2023);

- Responsible and Principal Investigator at CNIT for two projects on localization systems based on SAR, funded by Thales Alenia Space (2018-2019);

- Eligible member of the Committee for National Scientific Qualification (ASN) for Telecommunications (2018-); nominated member of Committee for National Scientific Qualification (ASN) for Telecommunications (2020-).

5) Responsibilities in education

- Thesis advisor of about 200 students, who gained qualified technical positions in the industry, and several Ph.D. Students. Some of them have progressed in academic/research career in first class international institutions;

- Coordinator of agreements for students mobility (some with multiple degree), e.g. with KTH Stockholm, TUB Berlin, UPC Barcellona, IST Lisbon, AGH Krakow, ABB, Ericsson, etc;

- Chair of the Program Committee in Telecommunications Engineering at the University of L'Aquila (2006 - 2015): among others, he has promoted an i) international Path-of-Excellence and ii) definition and implementation of the international Master program in Telecommunications Engineering (2015);

- Teacher for courses in Analysis and processing of signals, Telecommunication Systems and Wireless Communications;

- Vice-chair of the Doctoral School in ICT at the DISIM Department, University of L'Aquila (2019 - 2021).

6) He is an author or co-author of about 250 papers published in international journals, book chapters and proceedings of international conferences. The public Google Scholar profile includes the list of publications, while the restricted list of journal papers is only provided below.

Journal papers

[J1] “Sistemi VSAT per satelliti EUTELSAT II”, (with F. Martinino and E. Salvatori) *Elettronica e Telecomunicazioni* , Anno XLI, No. 1, 1992, pp. 21-30.

[J2] “Coherence of Josephson Soliton Oscillators in the Millimeter-Wave Range”, (with M. Cirillo, I. Modena, P. Carelli and R. Leoni) *Physics Letters A* , Vol. 167, No. 2, 1992, pp. 175-178.

[J3] “Coupling of Long Josephson Junction Oscillators at Millimeter-Wave Frequencies”, (with M. Cirillo, P. Carelli, M.G. Castellano and R. Leoni) *IEEE Trans. on Applied Superconductivity*, Vol. 3, No. 1, March 1993, pp. 2500-2503.

[J4] “Radiation Detection from Fiske Steps in Josephson Junctions above 200 GHz”, (with M. Cirillo, I. Modena, P. Carelli, M.G. Castellano and R. Leoni) *Journal of Applied Physics* , Vol. 73, No. 12, June 15, 1993, pp. 8637-8640.

[J5] “Application of Superconducting Receivers to Advanced Satellite and Space Communications Systems”, (with F. Ananasso) *Space Communications*, Vol. 11, No. 1, 1993, pp. 29-36.

[J6] “Traffic Modeling of Integrated Terrestrial-Satellite Systems for Mobile Communications”, (with M. Ruggieri and F. Vatalaro) in *Space Communications* , Vol. 13, No. 3, 1995, pp. 239-247.

[J7] “A Recursive Algorithm for Calculating Performance of Cellular Networks with Cut-Off Priority”, *Electronics Letters*, Vol. 3, No. 8, 10th April 1997, pp. 662-664.

[J8] “Design of Handover Procedures for Mobile Cellular Systems Through Performance Charts”, (with M. Ruggieri, D. Giancristofaro and F. Graziosi), *Wireless Personal Communications*, Vol. 5, No. 1, July 1997, pp. 51-73.

[J9] “Dynamical evidence of critical fields in Josephson junctions”, (with M. Cirillo, T. Doderer, S.G. Lachenmann, and N. Grombech-Jensen) *Physical Review B*, Vol. 56, No. 18, pp. 11 890-11 896, 1 November 1997-II.

[J10] “Modeling of the Handover Dwell Time in Cellular Mobile Communications Systems”, (with M. Ruggieri and F. Graziosi) *IEEE Trans. on Veh. Technol.* , Vol. 47, No. 2, May 1998, pp. 489-498.

[J11] “A Least Squares Path Loss Estimation Approach to Handover Algorithms”, (with N. Benvenuto) *IEEE Trans. on Veh. Technol.,* Vol. 48, No. 2, March 1999, pp.437-447.

[J12] “A Multicell Model of Handover Initiation in Mobile Cellular Networks”, (with F. Graziosi, M. Pratesi, and M. Ruggieri) *IEEE Trans. on Veh. Technol.,* Vol. 48, No. 3, May 1999, pp.802-814.

[J13] “A Framework for Analyzing the User Membership in Cellular CDMA Networks”, (with W. Huang and V.K. Bhargava) *IEEE Trans. on Communications*, Vol. 48, No. 3, March 2000, pp. 442-454.

[J14] “A General Analysis of Signal Strength Handover Algorithms with Co-Channel Interference”, (with M. Pratesi, M. Ruggieri and F. Graziosi) *IEEE Trans. on Communications*, Vol. 48, No. 2, February 2000, pp. 231-241.

[J15] “Distribution of Outage Intervals in Macrodiversity Cellular Systems”, (with F. Graziosi) *IEEE Journal on Selected Areas in Communications (JSAC), Wireless Communications Series*, Vol. 17, No. 11, November 1999, pp 2011-2021.

[J16] “Outage Analysis in Mobile Radio Systems with Generically Correlated Log-Normal Interferers”, (with M. Pratesi, F. Graziosi and M. Ruggieri) *IEEE Trans. on Communications*, Vol. 48, No. 3, March 2000, pp. 381-385.

[J17] “A QoS-Based Handover Initiation Algorithm for Wireless Systems”, (with F. Graziosi) *European Transactions on Telecommunications*, Special Issue on Service Quality Control in Multimedia Wireless Networks, Vol. 11, No. 4, July-August 2000, pp. 407-418.

[J18] “Outage Performance with Handover Triggering in Cellular Networks”, (with F. Graziosi, M. Pratesi and M. Ruggieri) *Wireless Personal Communications*, Vol. 16, February 2001, pp. 173-192.

[J19] "A General Correlation Model for Shadow Fading in Mobile Radio Systems", (with F. Graziosi) *IEEE Communications Letters*, March 2002, pp. 102-104.

[J20] “Performance Evaluation of Packet Mobile Communications through Level Crossing Analysis”, (with F. Graziosi and M. Ruggieri) *Wireless Personal Communications*, Vol. 21, May 2002, pp. 141-162.

[J21] “Power Allocation and Control in Multimedia CDMA Wireless Systems”, (with G. Durastante, F. Graziosi, and C. Fischione), Kluwer *Telecommunications Systems*, Vol. 23:1,2, May-June 2003, pp. 69-94.

[J22] “Outage Performance of Power Controlled DS-CDMA Wireless Systems with Heterogeneous Traffic Sources", (with C. Fischione and F. Graziosi) *Wireless Personal Communications*, Vol. 24, February 2003, pp. 171-187.

[J23] “Hybrid Control of Networked Embedded Systems”, (with A. Balluchi, L. Benvenuti, S. Engell, T. Geyer, K.H. Johansson, F. Lamnabhi-Lagarrigue, J. Lygeros, M. Morari, G. Papafotiou, A.L. Sangiovanni-Vincentelli, and O. Stursberg) *European Journal on Control*, Special issue: *Fundamental Issues in Control*, Vol. 11, No. 4-5, 2005, pp. 478-508.

[J24] “Generalized Moment Matching for the Linear Combination of Lognormal RVs - Application to Outage Analysis in Wireless Systems”, (with M. Pratesi and F. Graziosi) *IEEE Transactions on Wireless Communications*, Vol. 5, No. 5, May 2006, pp. 1122-1132.

[J25] “The Ultra-Wide Bandwidth Outdoor Channel: From Measurement Campaign to Statistical Modelling”, (with M. Di Renzo, F. Graziosi, R. Minutolo, and M. Montanari) *Springer/ACM Journal on Special Topics in Mobile Networking and Applications (MONET)* – special issue on ’Ultra Wide Band for Sensor Networks’, Vol. 11, No. 4, pp. 451–467, August 2006.

[J26] "Location service design and simulation in ad hoc wireless sensor networks", (with F. Graziosi, and S. Tennina) *Int. J. Mobile Network Design and Innovation*, Vol. 1, Nos. 3/4, pp.208-214, 2006.

[J27] “Approximation for a Sum of On-Off Log-Normal Processes with Wireless Applications", (with C. Fischione, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 55, October 2007, pp. 1984--1993; the Abstract was announced among the Forthcoming Manuscripts in the Sept. 2007 TCOM issue.

[J28] “An Exact Framework for Performance Analysis of IR–UWB Systems: The Need for Approximations”, (with M. Di Renzo, and F Graziosi) *IEEE Communications Letters*, Vol. 11, October 2007, pp. 769-771.

[J29] “A Framework for the Analysis of UWB Receivers in Sparse Multipath Channels with Intra-Pulse Interference via Padé Expansion”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 56, No. 4, April 2008, pp. 535—541.

[J30] “A Novel Class of Algorithms for Timing Acquisition of Differential Transmitted Reference (DTR) Ultra Wide Band (UWB) Receivers - Architecture, Performance Analysis and System Design”, (with M. Di Renzo, L.A. Annoni, and F. Graziosi) *IEEE Transactions on Wireless Communications*, Vol. 7, No. 6, June 2008, pp. 2368-2387.

[J31] "Distributed and Cooperative Localization Algorithms for WSNs in GPS-less Environments", (with Tennina, M. Di Renzo, and F. Graziosi) *The Italian Institute of Navigation (I.I.N.)*, Issue Theme: Integration of Navigation with Communication and Remote Sensing Applications, No. 188, pp. 70-76, June/July 2008.

[J32] “Approximating the Linear Combination of Log–Normal RVs via Pearson Type IV Distribution for UWB Performance Analysis”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 57, No. 2, pp. 388-403, February 2009.

[J33] “Further Results on the Approximation of Log-Normal Power Sum via Pearson Type IV Distribution: A General Formula for Log-Moments Computation”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 57, No. 4, pp. 893-898, April 2009.

[J34] “On the Cumulative Distribution Function of Quadratic-Form Receivers Over Generalized Fading Channels with Tone Interference”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 57, No. 7, pp. 2122-2137, July 2009.

[J35] “A Unified Framework for Performance Analysis of CSI-Assisted Cooperative Communications Over Fading Channels”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 57, No. 9, pp. 2552-2557, September 2009.

[J36] “Smolyak’s Algorithm: A Simple and Accurate Framework for the Analysis of Correlated Log-Normal Power-Sums”, (with M. Di Renzo, L. Imbriglio, and F. Graziosi) *IEEE Communications Letters*, Vol. 13, No. 9, pp. 673-675, September 2009.

[J37] “A Comprehensive Framework for Performance Analysis of Dual-Hop Cooperative Wireless Systems with Fixed-Gain Relays over Generalized Fading Channels”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Wireless Communications*, Vol. 8, No. 10, pp. 5060-5074, October 2009.

[J38] “ESD: A Novel Optimization Algorithm for Positioning Estimation of WSNs in GPS-denied Environments - From Simulation to Experimentation”, (with S. Tennina, M. Di Renzo, and F. Graziosi) *International Journal of Sensor Networks*, Vol. 6, No. 3/4, pp. 131-156, 2009.

[J39] “Distributed Data Fusion over Correlated Log-Normal Sensing and Reporting Channels: Application to Cognitive Radio Networks”, (with M. Di Renzo, L. Imbriglio, and F. Graziosi) *IEEE Transactions on Wireless Communications*, Vol. 8, No. 12, pp. 5813-5821, December 2009.

[J40] ``Wireless Ventilation Control for Large-Scale Systems: the Mining Industrial Case", (with E. Witrant; A. D'Innocenzo; G. Sandou; F. Santucci; M. D. Di Benedetto; A. J. Isaksson; K. H. Johansson; S.-I. Niculescu; S. Olaru; E. Serra; S. Tennina; U. Tiberi) *International Journal of Robust and Nonlinear Control*, Vol. 20, No. 2, pp. 226-251, 2010 - Published Online: Jul 16 2009

[J41] Editorial on “Industrial Control over Wireless Networks”, (with M. D. Di Benedetto, K. H. Johansson, and M. Johansson) *International Journal of Robust and Nonlinear Control*, Vol. 20, No. 2, pp. 119-122, 2010 - Published Online: Dec 19, 2009.

[J42] “Channel Capacity Over Generalized Fading Channels: A Novel MGF-based Approach for Performance Analysis and Design of Wireless Communication Systems”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Vehicular Technology*, Vol. 59, No.1, pp. 127-149, January 2010.

[J43] “A Comprehensive Framework for Performance Analysis of Cooperative Multi-Hop Wireless Systems over Log-Normal Fading Channels”, (with M. Di Renzo, and F. Graziosi) *IEEE Transactions on Communications*, Vol. 58, No. 2, pp. 531-544, February 2010.

[J44] “Performance Analysis and Optimizazion of Tc-DTR UWB Receivers over Multipath Fading Channels with Tone Interference”, (with M. Di Renzo, D. De Leonardis, and F. Graziosi) *IEEE Transactions on Vehicular Technology,* Vol. 60, No. 7, pp. 3076-3095, Sept. 2011.

[J45] “A methodology for design of scalable architectures in software radio networks: A unified device and network perspective”, (with M. Colizza, M. Faccio, and C. Rinaldi) *Journal of Signal Processing Systems for Signal, Image, and Video Technology*, vol. 73, p. 315-323, 2013.

[J46] “Error Performance of Multi-Antenna Receivers in a Poisson Field of Interferers: A Stochastic Geometry Approach", (with M. Di Renzo, C. Merola, A. Guidotti, and G.E. Corazza) *IEEE Trans. on Communications*, Vol. 61, No. 5, pp. 2025-2047, May 2013.

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