

1 Personal Information

Filippo Attivissimo was born in Altamura (Ba).

Full Professor of Electronic Measurements (SSD ING-INF/07)

Department of Electrical and Information Engineering

Polytechnic University of Bari

Via E. Orabona ,4 – 70125 Bari – Italia

tel +39 0805963584, fax +39 0805963410

e-mail: filippo.attivissimo@poliba.it; attivissimo@misure.poliba.it

homepage: <http://dei.poliba.it/DEI-it/il dipartimento/ilpersonale/attivissimo.html>;
<http://misure.poliba.it/>

2 Education

1993: M. Sc. degree in Electronics Engineering from the Polytechnic University of Bari (Italy)

1996: Ph. D. degree in Electrical Engineering from the Polytechnic University of Bari (Italy)

1997: Post-Doc Researcher

3 Academic Position

1998-2002: Assistant Professor at Polytechnic University of Bari with the Department of Electrical and Electronic Engineering

2003-2012: Associate Professor at Polytechnic University of Bari with the Department of Electrical and Information Engineering

2012 - 2017: Eligible as Full Professor (positive judgment in National Scientific Qualification)

2017: Full Professor at Polytechnic University of Bari with the Department of Electrical and Information Engineering

4 Research activities

His research activities were carried out without interruption starting with his M.Sc. thesis, as documented by the list of scientific publications; researches have spanned many topics and fields, in

collaboration with several national and international universities as well as with local, national and international enterprises. The topics which have been developed in these years of study and research can be summarized as follows:

- *Digital signal processing and estimation theory*
- *Power Quality measurements*
- *Modeling and characterization of ADC-based devices*
- *Development and characterization of smart sensors for health and environment monitoring*
- *Measurement tools for quality control of production*
- *Medical and diagnostic applications*
- *Renewable energy monitoring tools*

The scientific results obtained by Filippo Attivissimo are reported in over 250 papers he has authored or co-authored, published prevalently in the most qualified international scientific journals and in the proceedings of peer reviewed international conferences in the field of instrumentation and measurement.

4.1 Research topics

4.1.1 Digital signal processing and estimation theory

4.1.2 Power Quality measurements

4.1.3 Modeling and characterization of ADC-based devices

4.1.4 Development and characterization of smart sensors for health and environment monitoring

4.1.5 Quality control measurement tools for production

4.1.6 Medical and diagnostic applications

4.1.7 Renewable energy monitoring tools

4.2 Awards and recognitions

- Thesis work was published by Measurement Journal after selected at Imeko International Conference 1994.
- The Paper “*A Smart Sensor Network for Sea Water Quality monitoring*”, was one of the 50 most downloaded Sensor Journal papers in 2015.
- IEE Best Poster Award for the paper: “*Image Quality Evaluation of Breast Tomosynthesis*”, presented at IEEE International Symposium on Medical Measurements and Applications (MeMeA) 2016.
- The invited talk “Measurement and Monitoring of the Sea Water Quality” at XXXIII National Conference of the Electric and Electronic Measurement Group, September 2016 has been recognized as Best oral presentation and awarded with Felice Cennamo Award.

4.3 Technology transfer

Filippo Attivissimo was the principal investigator of several research agreements between private companies and the Department of Electrical and Information Engineering of the Polytechnic University of Bari.

- He collaborated with Mer Mec S.p.A., to develop a Railway measurement system compliant with the UIC 518 and UIC 519 standards to evaluate the Wheel–Rail interaction quality.
- He was technical manager and coordinator of the project “DiVeSa” with the aim to prototyping a system for the on-line quality control of satin glass.
- He was technical manager and coordinator of the project “MiOGeRiA” with the aim to prototyping a system for the measurement of energy and disturbances produced by renewable energy generation.

- He was technical manager and coordinator of the project “Sirio” with the aim to prototyping an automatic paper-document processing system for medical data extraction and conversion in digital format. The system was tested at Bari and Foggia nephrology centers.
- He was scientific manager for a Research activity “Study and development of the novel techniques to measure electrical quantities and the monitoring of the power quality” within the framework of the RESNOVAE (PON 04a2_E) project. As results he co-developed a prototype of a smart meter and the architecture of a service application provider.

4.4 Research projects in the last decade

4.4.1 Research project in which has contributed to research activity

- 1) MIUR project “COFIN 2003” titled: *“New methodologies for the automatic characterization of advanced numeric instrumentation and of automatic industrial control”*. Period: 2003-2005
- 2) FRA (Fondo Ricerca di Ateneo) project, titled: *“Characterization and modeling of digital devices and systems”*. Period: 2003-2004
- 3) MIUR project “PRIN 2006” titled: *“Development of innovative methods for the characterization, modelling and compensation of non-idealities in A/D and D/A conversion channels, with the aim to harmonize and update the sectorial international standards”*. Period: 2006-2008

- 4) MIUR project “PRIN 2008” titled: “*A/D and D/A conversion metrology: standardization of the figures of merit, errors estimation and correction and uncertainty evaluation*”. Period: 2008-2010

4.4.2 Research project in which has coordinated the research activity

- 1) PIA (Benefit Integrated Program) Project titled: “*DI.VE.SA. – Automatic system for the defects detection and classification of satin glass slabs*”. Period: 2006-2007
- 2) Apulian POR (Regional Operative Program) project titled: “*MIOGERIA – Open hardware meter for the management of self-generation from renewable sources*”. Period: 2009-2011
- 3) Apulian POR (Regional Operative Program) project titled: “*SIRIO – System for the interpretation and quick data entry from different sources both electronic and papery documents into digital nephrological records*”. Period: 2009-2011
- 4) PON R&C 2012 (National Operative Program Research and Competitiveness) project within the framework Smart cities and communities and social innovation titled “*RES NOVAE - Networks, Buildings and Streets: New Virtuous Objectives for Environment and Energy*”. Period: 2012-2014
- 5) RIDITT – MiSE (Italian Network for Innovation Diffusion and technology transfer to enterprises – Economic Development Ministry) project titled “*DI.TR.IM.MIS - Diffusion and technology transfer to enterprises in the measurement field*”. Period: 2012-2014
- 6) PON (National Operative Program) project titled: “*Magna Grecia – Laboratory facilities for the environmental monitoring*”. Period: 2012-2014

- 7) Project titled: *“Mar Piccolo: actions for permanent securing/environmental remediation of PCB polluted sediments form the first lagoon – In-situ experiment sub-unit”*. Period: 2015-2017
- 8) Research project titled: *“New test protocol based on DronesBench for the static, dynamic and reliability characterization of Unmanned Aerial Vehicles”*. Period: 2016-2018
- 9) Apulian POR (Regional Operative Program) Project POR-Regione Puglia titled *“Openmultilab”* for the development of services to students. Period: 2017-2019

4.4.3 Collaboration with national and international research organizations

Filippo Attivissimo actively collaborates with:

- Department of energy, systems, territory and construction engineering (DESTEC) – University of Pisa
- Department of Electrical and Information Technology Engineering – Federico II University of Naples
- Department of Electronics and Telecommunications (DET) and Department of Energy (DENERG) – Politecnico di Torino
- Innovation Engineering Department – University of Salento
- Department of Information Engineering, Electronics and Telecommunications (DIET) – Sapienza University Rome
- Department of Medical and Surgical Science (DSMC) – University of Foggia
- School of Medicine: Emergency and Organ Transplants – University of Bari
- Manufacturing Execution and Control Group of the Singapore Institute of Manufacturing Technology
- School of Electric and Electronic Engineering of Nanyang Technological University di Singapore

- National Research Council of Bari
- Robotics and Mechatronics (RaM) research group University of Twente
- Department of Engineering – University of Westminster
- School of Engineering - University of Glasgow
- Department of Electronics, Controls and Communication – Comillas Pontifical University Madrid

5 Teaching activities

Filippo Attivissimo has performed, for more than twenty years, a wide didactic activity giving theoretical lessons and coordinating laboratory practices using both traditional measurement instruments (i.e. multimeter, oscilloscope, spectrum analyzer, waveform generator, filter, logic state analyzer, noise generator, etc.) and more complex systems (i.e. data acquisition and processing systems, signal conditioning devices, transmission system, control systems, PLC based systems, transducers). He pays attention to give students the basic information to develop SCADA applications in advanced environment (Ladder Logic, LabVIEW, Matlab, C++, Bridge VIEW). He is coauthor of a lot of didactic publications in the field of electric and electronic measurement field (ING-INF/07) used in many courses of this Polytechnic University and other Italian universities (see the general list of didactic publications). Currently, he teaches, as holder, *Measurement and data Acquisition Systems* for the master degree in Computer Science engineering and *Sensors and Transducers* for the master degree in Automation Engineering. Moreover, he teaches, as substitute, *Digital Instruments and Measurement Signal Processing* in master degree in Electric Engineering.

During his career, he been teacher for the following courses:

- Electronic Measurements, Measurement and testing of Electric Machines and Power Systems, Measurement for Automation and

Manufacturing, Remote Measurement Systems, Programmable Measurement Systems at Polytechnic University of Bari

- Electronic Measurements, Automatic Measurement Systems (module I and II), Sensors and Transducers at the Polytechnic University of Bari in Taranto
- Electronic Measurements, at University of Lecce (now University of Salento)
- Electric and Electronic Measurements 1, Data and signal Processing at University of Bari

He has been also holder of a Microelectronic course for new graduates at Research Centre Tecnopolis CSATA (currently Tecnopolis PST) and he has given some talks at Summer school “Italo Gorini” to new graduates, Ph.D. students and young researchers. He has been teacher for the course to Expert Technicians of Accredited Laboratories at University of Naples “Federico II”. He was also teacher for the didactic module “*E-learning platform for Electric and Electronic measurement courses*” at University of Sannio. He has been teacher for many post-graduated (master) degree courses.

5.1 Teaching results and recognitions

During his didactic activity has reached the highest results in every didactic audit from students (class A– judgement of full satisfaction) for the great part of the courses. Moreover:

- He was tutor for the master Degree thesis in Computer Science Engineering at the II faculty of the Polytechnic University of Bari (Taranto), titled “*Filtering techniques for ultrasonic medical images and quality indexes*” by Nicola Andrisani who was recognized as best thesis in 2009 and awarded by the Taranto Rotary Club with the “Distinguished Graduate Award”.
- He was tutor for the master Degree thesis in Computer Science Engineering at the II faculty of the Polytechnic University of Bari

(Taranto), titled *“Ultrasonic Medical Image simulator and noise modelling”* by Giuseppe Blasi who was recognized as best thesis in 2010 and awarded by the Taranto Rotary Club with the “Distinguished Graduate Award”.

- He was tutor for the master Degree thesis in Electronic Engineering at the II faculty of the Polytechnic University of Bari (Taranto), titled *“An Electric/Thermodynamics mathematical model development for studying integrated photovoltaic and thermal hybrid system”* by Davide Passaghe who was recognized as best thesis in 2013 and awarded by the Taranto Rotary Club with the “Distinguished Graduate Award”.
- He was tutor for the master Degree thesis in Electronic Engineering at the II faculty of the Polytechnic University of Bari (Taranto), titled *“Design and realization of a web managed microclimatic control system for greenhouses”* by Andrea Vincenzo Orlando who was recognized as best thesis in 2014 and awarded by the Taranto Rotary Club with the “Distinguished Graduate Award”.

6 Collaboration in editorial committees and conference organization

He was or actually is:

- Editorial board member of the e-Journal of the International Measurement Confederation (IMEKO) “Acta IMEKO”
- Editorial board member of “Tutto_Misure” the official bulletin of the Italian association Electric and Electronic Measurement Group.
- Didactics advisory board member of the Italian association Electric and Electronic Measurement Group.
- Organizing committee member of the International Conference Melecon’96, 1996

- Invited speaker at Summer School “Italo Gorini” for new graduates, Ph.D. students and young researcher, 2000
- Organizing committee member and session chair of IEEE International Symposium on Medical Measurement and Applications (MeMeA), 2011
- Technical Program Chair of IEEE International Symposium on Medical Measurement and Applications (MeMeA), 2012
- Technical Program Chair and organizing committee member of the XXIX National Conference of the Italian Electric and Electronic Measurement Group, 2012
- Organizing committee member and session chair at Summer School “Italo Gorini” for new graduates, Ph.D. students and young researcher, 2012
- Session Chair for the IEEE International Workshop on Measurement and Networking, 2013
- Organizing committee member and session chair at Summer School “Italo Gorini” for new graduates, Ph.D. students and young researcher, 2014
- Technical Program Committee member of the 20th IMEKO TC4 International Symposium "Measurement of Electrical Quantities" and 18th TC4 Workshop on ADC and DAC Modeling and Testing, 2014
- Technical Program Chair for IEEE International Symposium on Medical Measurement and Applications (MeMeA), 2014
- Technical Program Committee member of the I Workshop Score@Poliba, 2014
- Technical Program Committee member for the IEEE International Workshop on Measurement and Networking, 2017

- Referee for the Italian Research Quality Assessment (VQR) 2011-2014
- He Collaborates, as referee, with the following international journals: IEEE Transactions on Instrumentation and Measurement, Digital Signal Processing, Measurement, Journal of Physics, IEEE Sensor Journal, Sensors, Computers and Electronics in Agriculture, African Journal of Agricultural Research.

7 Academic roles and responsibilities

- Rector's Delegate for Orientation at Polytechnic University of Bari
- Coordinator for the Bachelor's Degree course in Medical Systems Engineering
- Board Member at "*Apulian inter-institutional regional commission*" CURC (Comitato Universitario Regionale di Coordinamento della Regione Puglia)
- He was vice-coordinator for the Master Degree course in Computer Science Engineering
- Scientific Committee member of the "*Alta Scuola Internazionale Residenziale per Innovatori Digitali*" (ASIRID)
- Pro-tempore coordinator for the Bachelor Degree course in Medical Systems Engineering
- Scientific manager for the research area "*Technologies and electrical systems for transportation*" within the public-private partnership «More Electric Transportation» between Bosh and Polytechnic University of Bari with the objective to realize a testing laboratory.

- Research manager of the sub-unit *“in situ experiment”* within the collaboration (article 15 of the law n. 240/1990) between the Special Commissioner for Remediation, Redevelopment and Relaunch of the city of Taranto and Polytechnic University of Bari.
- Member of the *“Tuition”* Committee at Polytechnic University of Bari
- Member of the *“Funding for the Right to Education”* committee at Polytechnic University of Bari
- Member of the *“School, University and Research”* committee of the Apulia Region.
- Member of the *“Space Allocation”* committee at Polytechnic University of Bari
- Member of the *“Spinoff”* Committee at Polytechnic University of Bari
- Member of the *“Research Committee”* at Department of Electrical and Computer Science Engineering of the Polytechnic University of Bari
- Member of the *“Didactic Committee”* at Department of Electrical and Computer Science Engineering of the Polytechnic University of Bari
- Member of the Scientific Committee within the partnership between the Italian Technology Institute (IIT) and the Polytechnic University of Bari
- Member of the Electrical Engineering doctoral committee at Polytechnic University of Bari

- Scientific contact within partnerships between Polytechnic University of Bari and different Apulian and national companies
- He was member of the “*didactic committee for the implementation of the Ministerial Decree 270/04*” within the Industrial Engineering Board (CUC)
- He was member of the “*Didactic Regulation*” committee within the Industrial Engineering Board (CUC)
- He was Member of the “*Scientific Committee for the distribution of University Funds (ex MURST 60%)*” for the Industrial and Information Engineering Area.
- He was member for the “*Teaching Programs Committee*” within the Bachelor and master degrees boards in Telecommunication, Automation and Computer Science Engineering.
- He was member of the “*Self-Evaluation Committee*” within the master degrees in Computer Science and Automation Engineering.
- He collaborated, as deputy of Polytechnic University of Bari, with DPM elettronica s.r.l. to organize the first edition of the contest “*Build your own idea*” addressed to high-school students.