

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome STEFANO
Cognome BARONE
Recapiti PROFESSORE ASSOCIATO DI STATISTICA (SSD SECS-S/02) Viale delle Scienze - Edificio 8 - 2° Piano - Stanza n.212
Telefono 091-23861855
E-mail stefano.barone@unipa.it

FORMAZIONE TITOLI

EDUCATIONAL DEGREES

Undergraduate and Graduate Degrees

1996: University of Naples Federico II. Full marks degree in Aeronautical Engineering (5-years program). Thesis title: “Analysis of variance and simulation for prototypes reliability estimation” (in Italian language). Supervisors: Prof. Pasquale Erto, Prof. Antonio Lanzotti. (linked document)

PhD Degree

2000: University of Naples Federico II. PhD in Industrial Statistics. Dissertation title: “Integrated Statistical-Technological approach for Robust Design” (in Italian language). Supervisors: Prof. Pasquale Erto, Prof. Antonio Lanzotti. The PhD work started in 1997. (linked document)

Associate Professor competence

2009: Swedish Docent in Industrial Statistics (academic title equivalent to the Italian title of Associate Professor according to the Italian Ministry of University and Research). (linked document)

2012: Italian National Scientific Qualification for Associate Professor in the field of Statistics (competition sector 13-D1 “Statistics”, year of habilitation 2012). (link to web page)

Additional information

SPECIAL COURSES ATTENDED DURING AND AFTER THE PHD PERIOD

2008: “Supervision of research”, lectured by Prof. Michael Christie, organized by Chalmers, Centre for competence and knowledge building in higher education, Göteborg, Sweden (pedagogical course, worth 3 ECTS, September 2008). (linked documents)

2000: “Design of Experiments”, lectured by Prof. Søren Bisgaard, organized by ENBIS (European Network for Business and Industrial Statistics) at EURANDOM (Eindhoven, Netherlands, 12-14

December 2000). (linked document)

1999: “Decisional Methods in technical and economical optimization. Stochastic tools for the evaluation of systems reliability/availability”, lectured by Prof. A. Birolini, (ETH, Zurich) at Bocconi University, Department of Quantitative Methods (Milano 17 March 1999).

1999: “The Bayesian perspective in reliability demonstration”, lectured by Prof. M. Guida at National Research Council (CNR) – Engines Institute, Naples (cycle of lessons, February-March 1999).

1998: European Master Program in Total Quality Management. Attended for six months as exchange PhD student at the Århus School of Business (Denmark).

1998: “Stochastic point processes and reliability of repairable systems”, lectured by Prof. H.E. Ascher, organized by CNR (National Research Council) – Engines Institute (Naples, 2 July 1998).

1998: “Introductory course on Life cycle assessment”, lectured by Prof. R. Clift (Centre for environmental Strategy, University of Surrey) at University of Naples (10-11 March 1998).

1996: “Flexible methods for Statistical Quality Control”, lectured by Prof. V. Lapidus (Priority Centre, Novgorod, Russia) at University of Naples (18 April - 6 May 1996).

ATTIVITA' DIDATTICA

Institutional courses at University

2016-: “Statistics for experimental research”. 3 ECTS course. University of Palermo, Bachelor program in Nursing Science. 140 students.

2014-: “Statistics”. 9 ECTS course. University of Palermo, Bachelor program in Managerial and Information Engineering. 100 students.

2016-2018 “Statistics applied to ecological systems and statistics for experimental research”. 6 ECTS course. University of Palermo, Master programs in Marine Biology and Master program in Natural Sciences. 40 students.

2009-2011: “Six Sigma Black Belt”. 15 ECTS course. Chalmers University of Technology, Master’s program in Quality and Operations Management. Excellent course evaluations (documented) given by students. Course given to an average of 30 master’s students and 15 industrial participants.

2007-2013: “Statistical risk analysis”. 6 ECTS course. University of Palermo, Master’s program in Managerial Engineering. Average of 80 students per year. Excellent documented course evaluations.

2004-2008: “Statistics for the environment”. 6 ECTS course. University of Palermo, Bachelor program in Environmental Engineering. Average of 120 students per year. Very good course evaluations (documented) given by students.

2003: “Statistics and Probability”. 3 ECTS course. University of Palermo, Degree programs in Environmental Engineering and Information Engineering. Very good course evaluations (documented) given by students. Three classes with 120 students each.

2002: “Statistical Methods for Quality Control”. 3 ECTS course. University of Sannio, Italy.

Faculty of Economics. Master's program in Statistical Sciences. About 20 students.

Teaching Material

“Statistics for the environment”. Handouts in eight sections covering the whole program held for four years at the University of Palermo (bachelor level).

“Six Sigma Black Belt”. Handouts for most of the program of the course held for three years at Chalmers University of Technology (master level). Most of this material was further developed and collected in the book “Statistical and Managerial Techniques for Six Sigma Methodology. Theory and Applications”, published by Wiley in 2012.

“Statistical Risk Analysis”. Handouts for the course held for six years at the University of Palermo (master level). In addition I have prepared many exercises with their relative solutions. Such material is matter of a second book which is currently under writing and will be published by Wiley.

Educational Planning and Administration

2002-2008 Member of the council board for the study program in environmental engineering at University of Palermo

2007- to date Member of the council board for the study programs in industrial (management) engineering at University of Palermo

2008-2011 Member of the council board for the study (master) program in Quality and Operations Management at Chalmers University of Technology

Network/Pedagogical Collaborations

My pedagogical collaborations were established mostly for the education of PhD students I supervised. Particularly, I have collaborated with the University of Naples (my Alma Mater) for the education of Dr. Pietro Tarantino. More recently I have collaborated with the Carlson School of Management (University of Minneapolis, USA) for the education of Dr. Anna Errore, and I have had some initial ideas of collaboration with Luleå university of Technology for the education of the 1st year PhD student Francesca Capaci (who was thesis worker under my supervision at the University of Palermo and then recruited at Luleå Univesity).

Then I have collaborated with Chalmers University of Technology and Linkoping University for the master theses of my Italian students sent to those universities as Erasmus exchange students.

Additional Pedagogical Merits

Short courses outside university

2006: “Statistics”, at l'IRCCS OASI Maria SS. Troina, Italy.

2003: “Robust Design”, at ELASIS (FIAT Research Centre) Pomigliano, Italy, April 2003. (linked document)

2001: “Statistics and probability”, at ELASIS, Pomigliano, Italy, May-June 2000.

2001: “Industrial Design of Experiments”, for AICQ, (Italian Association for Quality

Culture), October 2001.

2000: “Experimental Methodologies”, at ELASIS, Pomigliano, Italy, January 2000.

2000: “Statistics”, at LUISS Management, Rome, Italy, October 2000. (linked document)

1999: “Statistical analysis of time series” within the Master in Business Administration at STOÀ School of Management, Ercolano, Italy, January 1999.

1999: “Methods for reliability based maintenance management” at Naval Technical Institute, Piano di Sorrento, Italy, October 1999.

1999: “Statistics”, within the Master in Business Administration at STOÀ School of Management, Ercolano, Italy, October-November 1999.

RICERCHE FINANZIATE

Approved Research Grants

At national level (Italy and Sweden)

In addition to the post doc scholarships:

2010-12: Research project of national interest (PRIN) funded by the Italian Ministry of University and Research: “Innovation in service quality management: statistical approach and application in some fields of national interest”. I was co-applicant on this project. The funding received by my research team was around 50,000 €.

2009-11: Gothenburg Mathematical Modeling Centre. Project funded by the Swedish Foundation for Strategic research. The funding of this project financially supported my research assignments as Associate Professor at Chalmers University of Technology in 2009-2011.

2007-08: Research project between University of Palermo and CETENA (FINCANTIERI Group) “Advanced criteria for the extension and optimisation of naval operation level”. I was co-applicant in this project. The funding received by my research team was around 20,000 €. I was co-applicant and one of the most active project writers.

2006-07: Research project PRIN “Statistical design of continuous product innovation”. I was co-applicant on this project and one of the most active project writers. The funding received by my research team was around 30,000€.

2006: Research project between University of Palermo and IRCCS OASI Maria SS on “Quality Indicators in Health Care” (one year). I was co-applicant on this project and one of the most active project writers. The funding received by my research team was around 20,000 €.

2002-to date Research projects annually funded by University of Palermo (named “ex quota 60%”). I was principal applicant on these projects. The funding received was around 10,000 € in total.

2001-02: Research project between University of Naples Federico II and ELASIS (FIAT research

centre) on “New statistical methodologies for development of on-board diagnostic systems in the automotive sector”. I was co-applicant on this project and one of the most active project writers. The funding received by my research team was around 90,000 €.

1999-2000: Research project between University of Naples Federico II and ELASIS on “Formulation of statistical methodologies for the calibration of control systems”. I was co-applicant on this project and one of the most active project writers. The funding received by my research team was around 70,000 €

At international level

2003-05: EU Research project “EURobust” (G1RD-CT-2002-00833, subcontracted by Chalmers University of Technology). The funding of this project financially supported my post doc scholarship at Chalmers University of Technology in 2003-2004.

2007: Fulbright project “Experimental calibration of monitoring devices for multi-component degrading systems”. Already mentioned above. It was submitted in 2007 and developed in 2008 at the Georgia Institute of Technology, Atlanta, USA. I was the main applicant.

INCARICHI / CONSULENZE

Pro bono Work/Positions of Trust

In 2013 he was invited at Commissione Affari Sociali della Camera dei Deputati, of the Italian Parliament for an audition concerning the Proposed Law on "Provisions on the professional liability of healthcare personnel", (Rome, 27 November 2013). The talk was focused on the concept of risk and possibilities for risk management in healthcare.

In the period 2007-2012 Stefano Barone was member (as bio-statistician) of the ethical board of the IRCCS Oasi Maria SS Onlus, Troina, Italy. Oasi Maria SS. (<http://www.oasi.en.it/>) is a healthcare Institution devoted to research and care of illness related to mental retardation and brain ageing. The work in the ethical board was an annual review of the research programs of the institution from the ethical perspective.

ASSOCIAZIONI SCIENTIFICHE

Membership in scientific societies

Since 2010 Member of the International Statistical Institute (ISI) and the International Association for Statistical Education (IASE).

- 2006-07: Vice-president of the European Network for Business and Industrial Statistics (ENBIS).
- 2005-06: Member of the ENBIS council
- Since 2000: Member and Italian Representative of ENBIS.
- Since 2004 Member of the Italian Statistical Society (SIS).
- 1996-99: Member of the Italian Association for Quality Culture (AICQ).

PUBBLICAZIONE

Ongoing work:

- Statistical and managerial techniques for "Risk Analysis". Theory and application. Wiley
- A review of the risk matrix. In collaboration with Alberto Lombardo. Submitted. under review.
- A review of the loss function reasoning with implications on specification limits and capability analysis. Submitted. Submitted. under review.
- Analysis of the new Location-Dispersion Index and comparison with Lorentz curve and Gini index. Submitted. under review.
- Multiscale statistics and stochastic processes with applications in image analysis. (ongoing work in collaboration with Prof. Anthony Yezzi, Georgia Institute of Technology and a jointly supervised PhD student, Albert Comelli).

Book

Barone S., Lo Franco E. (2012). Statistical and managerial techniques for Six Sigma methodology. Theory and Application. John Wiley & sons. ISBN 978-0-470-71183-5

Peer-reviewed Publications in International Journals

P Bambina, M Pollon, M Squadrito, S Barone, L Cinquanta, O Corona (2023) The effect of prolonged (150 days) post-fermentative maceration in steel tanks and oak barrels on Cabernet Sauvignon wine quality: mathematical modelization of of the phenolic compounds' behaviour. Journal of Wine Research, 1-25

S Barone, A Chakhunashvili (2023). Pandemetrics: systematically assessing, monitoring, and controlling the evolution of a pandemic. Quality & Quantity 57 (2), 1701-1723

A Stefano, A Comelli, S Barone, G Savoca, S Richiusa, MG Sabini, (2021). A PET-based radiomics model of brain metastasis. Physica Medica: European Journal of Medical Physics 92, S96-S97

S Barone, R Cannella, A Comelli, A Pellegrino, G Salvaggio, A Stefano, (2021). Hybrid descriptive inferential method for key feature selection in prostate cancer radiomics. Applied Stochastic Models in Business and Industry 37 (5), 961-972

P Alongi, A Stefano, A Comelli, R Laudicella, S Scalisi, G Arnone, ... (2021). Radiomics analysis of 18F-Choline PET/CT in the prediction of disease outcome in high-risk prostate cancer: An explorative study on machine learning feature classification in European Radiology 31, 4595-4605

- S Davino, AG Caruso, S Bertacca, S Barone, S Panno (2020). Tomato brown rugose fruit virus: Seed Transmission Rate and Efficacy of Different Seed Disinfection Treatments. *Plants* 9 (11), 1615
- P Alongi, A Stefano, A Comelli, R Laudicella, G Arnone, S Barone, ... (2020). 18F-Choline PET/CT in the evaluation of high-risk prostate cancer outcome: an explorative study on radiomics feature classification for prediction of disease progression. *EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING* 47 (SUPPL 1 ...
- G Lo Verde, S Guarino, S Barone, R Rizzo (2020). Can Mating Disruption Be a Possible Route to Control Plum Fruit Moth in Mediterranean Environments? *Insects* 11 (9), 589
- A Stefano, A Comelli, V Bravatà, S Barone, I Daskalovski, G Savoca, ... (2020). A preliminary PET radiomics study of brain metastases using a fully automatic segmentation method. *BMC Bioinformatics* 21 (8), 1-14
- S Panno, AG Caruso, S Barone, G Lo Bosco, EA Rangel, S Davino. (2020) Spread of Tomato Brown Rugose Fruit Virus in Sicily and Evaluation of the Spatiotemporal Dispersion in Experimental Conditions. *Agronomy* 10 (6), 834
- P ALONGI, A Stefano, A Comelli, R Laudicella, S Barone, G Russo (2020). New Artificial intelligence model for 18F-Choline PET/CT in evaluation of high-risk prostate cancer outcome: texture analysis and radiomics features classification for *Journal of Nuclear Medicine* 61 (supplement 1), 1303-1303
- S Barone, A Chakhunashvili, A Comelli (2020). Building a statistical surveillance dashboard for COVID-19 infection worldwide. *Quality Engineering* 32 (4), 754-763
- Comelli A., Stefano A., Bignardi S., Russo G. , Sabini M.G., Ippolito M., Barone S., Yezzi A.. (2019). “Active contour algorithm with discriminant analysis for delineating tumors in positron emission tomography”. *Artificial Intelligence in Medicine* 94:67–78. doi: 10.1016/J.ARTMED.2019.01.002
- Barone S., Lo Iacono G. (2015). ‘Robust dynamic comfort modelling for motorcycle riding’. *Human Factors and Ergonomics in Manufacturing & Service Industries*. 25(2). DOI: 10.1002/hfm.20594
- Barone S., Doverholt T., Errore A., Lombardo A. (2014) “Six Sigma in small- and medium-sized enterprises: A Black Belt project in the Swedish steel industry”. *International Journal of Six Sigma and Competitive Advantage*. 8(2). DOI: 10.1504/IJSSCA.2014.064259
- Barone S., Errore A., Lombardo A. (2014) “Prioritisation of alternatives with analytical hierarchy process plus response latency and web surveys”. *Total Quality Management & Business Excellence*. 25(7) p.953-965, DOI: 10.1080/14783363.2014.904565
- Barone S., Lombardo A., Tarantino (2012). “A heuristic method for estimating attribute importance by measuring choice time in a ranking task”. *Risk and Decision Analysis*. Vol. 3 pp. 225–237. DOI 10.3233/RDA-2012-0065.
- Johannesson P., Bergman B., Svensson T., Arvidsson M., Lönnqvist A., Barone S., de Maré J. (2011). “A Robustness Approach to Reliability”. *Quality and Reliability Engineering International*. DOI: 10.1002/qre.1294
- Barone S., Lo Franco E. (2010). “TESF Methodology for Statistics Education Improvement”. *Journal of Statistics Education* 18(3). (www.amstat.org/publications/jse/v18n3/barone.pdf)
- Barone S., Lo Franco E. (2009). “Design of a university course quality by Teaching Experiments and Student Feedback (TESF)”. *Total Quality Management and Business Excellence*. 20(7) p.687-703. DOI: 10.1080/14783360903036939
- Barone S., D’Ambrosio P., Erto P. (2007). “A statistical monitoring approach for automotive on-board diagnostic systems”. *Quality and Reliability Engineering International*. 23, p.565-575. DOI:10.1002/qre.834
- Barone S., Lombardo A., Tarantino (2007). “A weighted ordinal logistic regression for conjoint analysis and kansei engineering”. *Quality and Reliability Engineering International*. 23, p.689-706. DOI:10.1002/qre.866
- Barone S., Lombardo A. (2006) “Balanced asymmetrical nearly orthogonal designs for first and second

order effect estimation". *Journal of Applied Statistics*. 33(4), p.373-386. DOI: 10.1080/02664760500448917

Barone S., Lombardo A. (2006). "Construction and optimality of a special class of balanced designs". *Quality and Reliability Engineering International*. 22(4) p.507-515. DOI:10.1002/qre.757

Barone S. (2006). "Statistics-driven development of OBD systems. An overview". *Quality and Reliability Engineering International*. 22(5) pp. 615-628. DOI:10.1002/qre.806

Erto P., Barone S., Palumbo B. (2006) "A robust calibration methodology for an On-Board Diagnostic car system". *Quality Engineering* 18(2) p.145-159 (American Society for Quality). DOI: 10.1080/08982110600567491

Johansson P., Chakhunashvili A., Barone S., Bergman B. (2006) "Variation Mode and Effect Analysis: A Practical Tool for Quality Improvement". *Quality and Reliability Engineering International*. 22(8), p. 865-876. DOI:10.1002/qre.773

Barone S., Lombardo A. (2004). "Service Quality design through a smart use of Conjoint Analysis". *The Asian Journal on Quality*. 5(1) p.34-42. DOI:10.1108/15982688200400004

Barone S., Erto P., Lanzotti A. (2002). "Beyond robust design: an example of synergy between statistics and advanced engineering design". *The Asian Journal on Quality* 3(2) p.13-28. DOI: 10.1108/15982688200200015.

Book Chapters

Chakhunashvili A., Barone S., Johansson P., Bergman B. (2009). "Robust product development using variation mode and effect analysis". In: *Robust Design Methodology for Reliability: Exploring the Effects of Variation and Uncertainty*. Bergman et al. (eds). Wiley. ISBN: 978-0-470-71394-5.

Barone S., Giorgio M., Guida M., Pulcini G. (2009). "Stochastic modeling and prediction of catalytic converters degradation". In: *Safety, Reliability and Risk Analysis: Theory, Methods and Applications*. Martorell et al. (eds). Taylor & Francis. ISBN 978-0-415-48513-5.

Barone S., Lanzotti A. (2008). "Robust Ergonomic Virtual Design". In: *Statistics for Innovation - Statistical Design of continuous product innovation*. Erto (ed). Springer. ISBN: 978-88-470-0814-4.

Barone S., Lombardo A., Tarantino P. (2008). "Analysis of user needs for the re-design of a wheelchair". In: *Statistics for Innovation - Statistical Design of continuous product innovation*. Erto (ed). Springer. ISBN: 978-88-470-0814-4.

Barone S., Lo Franco E. (2008). "Un metodo per la misurazione della qualità percepita di una attività didattica". In: *La qualità dell'Università. Verso un approccio psicosociale*. Franco Angeli. ISBN 13: 9788856802160.

Conference Publications

E Badalamenti, S Barone, G Sala, T LA MANTIA (2023). Invasive non-native trees in Natura2000 sites of Sicily: relevance and management issues. XV International Seminar Biodiversity Management and Conservation" Plant

Yezzi A. Barone S. (2016). "Multiscale statistics and stochastic processes with applications in image analysis". *Proceedings of the Fourth International Conference on the Interface between Statistics and Engineering*. Palermo, Italy, 20-22 June 2016.

Barone S., Capaci F., (2014). "Critical analysis to the use of metamodeling techniques in computer

experiments – a case study”. Abstract in: Proceedings of the Third International Conference on the Interface between Statistics and Engineering. City University of Hong Kong, December 15-17, 2014

Barone S., Errore A., Lombardo A. (2013) “Prioritisation of alternatives with analytical hierarchy process plus response latency and web surveys”. Full paper in Proceedings of 16th International Conference Quality Management & Organisational Development. Portoroz (Slovenia), September 4-6, 2013. Best paper award.

Barone S, Li W, Lombardo A, Zou D (2012). Enhanced multinomial logit model for the analysis of choice experiments. Abstract in: Proceedings of the Second International Conference on the Interface between Statistics and Engineering. National Cheng Kung University, Tainan, Taiwan, June 23-25, 2012

Barone S (2012). “Computer experiments combined with physical experiments: two experiences in product development”. Abstract in: Proceedings of The Second International Conference on the Interface between Statistics and Engineering. Tainan, Taiwan, June 23-25, 2012

Lo Iacono G., Barone S. (2011). “New frontiers of Robust Design - a motorcycle development application”. Abstract & Presentation in Proceedings 11th ENBIS conference. Coimbra, Portugal, 4-8 September 2011.

Barone S., Lombardo A. (2011). “Manager’s and citizen’s perspective of positive and negative risks for small probabilities”. Full paper in Proceedings 14th Toulon-Verona Conference. Alicante, Spain; 1-3 September 2011.

Barone S., Lombardo A. (2011). “Rethinking the risk matrix”. Full paper in Proceedings 14th QMOD Conference on Quality and Service Sciences. San Sebastian, Spain, 29-31 August, 2011.

Barone S. (2011). “Strengths and limitations of Variation Mode and Effect Analysis”. Proceedings DEINDE Workshop & ENBIS Spring Conference, Torino, Italy, 16-18 March 2011.

Barone S., Lombardo A. Tarantino P. (2010). “A new method for marketing research and product development based on choice modeling and weighted regression”. Abstract & Presentation in Proceedings Int. Conference on Applied Statistics and Financial Mathematics. Hong Kong, 16-18 December 2010. Invited.

Barone S., Lo Franco E. (2010). “Statistical properties of a new student satisfaction index”. Full paper in Proceedings 13th Toulon-Verona Conference - Excellence in Services. Coimbra, Portugal, 2-4 September 2010.

Barone S., Lombardo A. (2010). “Estimation of attribute importance by choice time in a ranking task”. Full paper in Proceedings 13th Toulon-Verona Conference - Excellence in Services. Coimbra, Portugal, 2-4 September 2010.

Barone S., Lo Franco E. (2010). “Enhanced TEF methodology for course excellence”. Full paper in Proceedings 8th Int. Conference on Teaching Statistics (ICOTS8). Ljubljana, Slovenia, 11-16 July 2010. Invited.

Barone S., Bergman B., (2009). “Statistical-based tolerance setting by eliciting the loss function reasoning”. Abstract & Presentation in Proceedings 9th ENBIS Conference. Göteborg, Sweden, 20-24 September 2009.

Barone S., Lo Franco E. (2009). “How to keep patient waiting lists under control? A subset of ad hoc indicators and its statistical control in a healthcare organization”. Abstract & Poster in Proceedings 9th ENBIS Conference. Göteborg, Sweden, 20-24 September 2009.

Barone S., Bergman B., Chakhunashvili A., Johansson P. (2009). “Focus on failure avoidance and risk reduction through Variation Mode and Effect Analysis (VMEA)”. Abstract & Presentation in Proceedings Spring Research Conference on Statistics in Industry and Technology. Coquitlam, BC, Canada, 27-29 May 2009.

Barone S., Giorgio M., Guida M., Pulcini G. (2008). “Stochastic modeling and prediction of catalytic

converters degradation". Full paper in Proceedings European Safety and Reliability Conference (ESREL). Valencia, Spain, 22-25 September 2008.

Barone S., Lo Franco E. (2008). "A statistical framework for teaching improvement in higher education". Abstract & Presentation in Proceedings 8th ENBIS Conference. Athens, Greece, 20-24 September 2008.

Barone, S., Lombardo, A. (2008). "Prioritization of the balancing property and full estimability in mixed-level designs". Abstract & Presentation in Proceedings Quality and Productivity Research Conference. Madison, Wisconsin, USA, 3-6 June 2008.

Barone S. (2008). "Statistical issues in the development of an automotive on-board diagnostics". Abstract & Presentation in Proceedings Spring Research Conference on Statistics in Industry and Technology. Atlanta, Georgia, USA, 19-21 May 2008. Invited.

Barone S., Lo Franco E. (2007). "Misurazione della qualità percepita di una attività didattica". Full paper in Proceedings L'approccio psicosociale alla qualità in Università: esperienze di dialogo. Palermo, Italy, 23-24 November 2007.

Barone S., Caranna A., Fonti V. (2007). "Phase-I statistical control of key indicators in health care". Abstract & Presentation in Proceedings 7th ENBIS Conference. Dortmund, Germany, 24-26 September 2007.

Barone S., Lombardo A. (2007). "A Comparison of two classes of Nearly Orthogonal Designs". Full paper in Proceedings International Statistical Institute (ISI) Conference. Lisboa, Portugal, 22-29 August 2007.

Barone S., Lo Franco E. (2007). "Teaching Experiments and Student Feedback". Full paper in Proceedings 11th QMOD Conference. Helsingborg, Sweden, 18-20 June 2007.

Barone S., Lanzotti A. (2007). "On the treatment of anthropometrical noise factors in Robust Ergonomic Design". Full paper in Proceedings Congresso Internazionale Conjunto XVI ADM-XIX INGEGRAF, Perugia, Italy, 6-8 June 2007. Chapter of Dall'Idea al Prodotto: la rappresentazione come base per lo sviluppo e l'innovazione, Ed. ETS, Pisa. ISBN 978-884671841-9.

Barone S. (2006). "Robust Design Concepts in Automotive On-Board Diagnostics". Abstract & Presentation in Proceedings Excellence in the Product Development Process – Robust Design Methodology. Göteborg, Sweden, 13-14 September 2006. Invited.

Barone S., Lombardo A., Tarantino P. (2006). "A weighted ordinal logistic regression for conjoint analysis and kansei engineering". Full paper in Proceedings 6th ENBIS Conference. Wrocław, Poland, 18-20 September 2006.

Barone S. (2005). "Statistics-driven development of OBD systems. An overview" Abstract & Presentation in Proceedings 5th ENBIS Conference. Newcastle, UK, 14-16 September 2005.

Barone S., Lombardo A. (2005). "A tool for generating new optimal designs in conjoint analysis experiments". Full paper in Proceedings 8th QMOD Conference. Palermo, Italy, 29 June - 1 July 2005.

Barone S., D'Ambrosio P. (2005). "Monitoring based burn-in for reliability improvement of on-board diagnostic systems". Abstract & Poster in Proceedings 8th QMOD Conference. Palermo, Italy, 29 June - 1 July 2005.

Barone S., Carbone F., Lanzotti A. (2005). "Progettazione del posto guida di una minicar basata su esperienza del designer e sperimentazione virtuale". Full paper in Proceedings Congresso Internazionale Conjunto XVII INGEGRAF-XV ADM, Sevilla, Spain, 1-3 June 2005.

Barone S., Lombardo A. (2005). "Construction and optimality of a special class of balanced designs". Full paper in Proceedings 6th DEINDE Workshop on Modelling and Analysis of Physical and Computer Experiments. Torino, Italy, 29-31 March 2005.

Barone S., Lombardo A. (2004). "Balanced Asymmetrical Nearly Orthogonal Designs for first and

- second order effect estimation. A collection for two- and three-level factors”. Abstract & Presentation in Proceedings 4th ENBIS Conference. Copenhagen, Denmark, 20-22 September 2004.
- Barone S., Erto P., Riegel A. (2004). “Robust calibration of automotive OBD systems combining physical and simulated experiments”. Abstract & Presentation in Proceedings 4th ENBIS Conference. Copenhagen, Denmark, 20-22 September 2004.
- Barone S., Lombardo A. (2003). “Service Quality design through a smart use of Conjoint Analysis”. Full paper in Proceedings 6th QMOD Conference. Paris, France, 1-3 October 2003.
- Barone S., D’Ambrosio P., Erto P. (2003). “Malfunction detection of an on-board diagnostic car system in presence of highly correlated data”. Abstract & Presentation in Proceedings 3rd ENBIS Conference. Barcelona, Spain, 21-22 August 2003.
- Barone S., Erto P., Caraceni A., Cioffi P., Flauti G., Funel A., Riegel A., Sepe E., Scala S. (2003). “Smart calibration of On-Board Diagnostics via design of experiments and simulation models.” Full paper in Proceedings 4th ATA Conference on Control and Diagnostics in Automotive Applications. Sestri Levante, Italy, 18-20 June 2003.
- Barone S., Lanzotti A. (2002). “Quality Engineering tools to improve life cycle design of a new vehicle in virtual environment”. Full paper in Proceedings Spring Research Conference on Statistics in Industry and Technology. Ann Arbor, Michigan, USA, 20-22 May 2002.
- Palumbo B., Barone S., Erto P. (2002). “Optimization of customer and environmental risks for an on-board diagnostic car system”. Full paper in Proceedings 6th DEINDE Workshop. Torino, Italy, 21-22 February 2002.
- Barone S., Fittipaldi F., Lanzotti A. (2001). “Improving comfort of a new city vehicle by means of parameter design in virtual environment”. Abstract & Presentation in Proceedings 1st ENBIS Conference. Oslo, Norway, 17-18 September 2001.
- Barone S., Guida M. (2001). “A stochastic model of cumulative damage in presence of relevant experimental error. Application to catalytic converter reliability analysis”. Full paper in Proceedings 2nd International ATA Conference on Advanced Measurement Techniques and Sensory Systems for Automotive Applications. Ancona, Italy, 13-14 September 2001.
- Barone S., Guida M., Pulcini G. (2001). “A stochastic degradation model of catalytic converters performances”. Full paper in Proceedings International Workshop on Modeling, Emissions and Control in Automotive Engines. Salerno, 9-10 September 2001.
- Barone S., Palumbo B., Garofalo F. (2001). “Statistical approach to fault detection in On-Board Diagnostics systems”. Full paper in Proceedings 3rd International Conference on Control and Diagnostics in Automotive Applications, Sestri Levante, Italy, 4-6 July 2001.
- Barone S., Erto P., Lanzotti A. (2000). “Beyond robust design methodologies: an elementary example of synergy between statistics and advanced engineering design”. Full paper in Proceedings QMED Conference. Aarhus, Denmark, 20-22 August 2000.
- Erto P., Lanzotti A., Barone S. (1999). “A practical ‘Analysis of Variance-Simulation’ method”. Full paper in Proceedings 1st International Symposium on Industrial Statistics. Linköping, Sweden, 19-21 August 1999.
- Barone S., Erto P., Lanzotti A. (1998). “Il metodo Analisi della varianza e simulazione (AVS) per le stime di affidabilità su prototipi”. Full paper in Proceedings II Seminario Italo - Español, Progettazione e fattibilità dei prodotti industriali (Diseño y fabricabilidad de los productos industriales). Vico Equense, Italy, 24-26 June 1998.

Invited talks at peer-reviewed internationally established conferences and international workshops

2012 “Enhanced multinomial logit model for the analysis of choice experiments”. 2nd International Conference on the Interface between Statistics and Engineering. Department of Statistics, National Cheng Kung University. Tainan (Taiwan) 23-25 June 2012

2012 “Computer experiments combined with physical experiments: two experiences in product development”. 2nd International Conference on the Interface between Statistics and Engineering. Department of Statistics, National Cheng Kung University. Tainan (Taiwan) 23-25 June 2012

2010 “A new method for marketing research and product development based on choice modeling and weighted regression”. International Conference on Applied Statistics and Financial Mathematics. Hong Kong Polytechnic University. 16-18 December 2010. (linked document)

2010 “Enhanced TESF methodology for course excellence”. 8th International Conference on Teaching Statistics (ICOTS8). Ljubljana, Slovenia, 11-16 July 2010. (linked document)

2008 “Statistical issues in the development of an automotive on-board diagnostics”. 2008 Spring Research Conference on Statistics in Industry and Technology, Atlanta (USA).

2006: “Robust Design Concepts in Automotive On-Board Diagnostics”. Conference on Excellence in the Product Development Process – Robust Design Methodology. Chalmers University of Technology, Sweden, 13-14 September 2006. (linked document)

Invited seminars

2012 “Statistical analysis of choice experiments”. Seminar at Fudan University – School of Management, Shanghai, China, 8 May 2009. Repeated at Luleå University of Technology, 22 June 2012.

2009 “My way through the scientific method for engineering innovation and decision making”. Docent Seminar at Chalmers University of Technology, Göteborg, Sweden, 8 May 2009. Repeated at Luleå University of Technology, 25 November 2010.

2008 “Design and analysis of teaching experiments for course quality in the academic setting”. Invited seminar for Doctoral students. University of Georgia, Athens (USA), 21 August 2008. Repeated at University of Florence (Italy) Department of Statistics, 9 April 2009.

2007 “Robust Design Methodology”. Seminar for the appointment as Senior Lecturer at Chalmers University of Technology, Göteborg, Sweden, 11 December 2007.

2004: “Fundamental concepts and new developments for the statistical analysis of tolerances”. Seminar for the Doctoral Program in Total Quality Management at the University of Naples.

2003: “A European research on Robust Design. Statistical methodologies for tolerance management”. Seminar for the Doctoral Program in Production Engineering. University of Palermo.

2003: “Statistical issues in developing On-Board Diagnostic (OBD) systems in automotive engineering. Solutions for experimental calibration and condition monitoring”. Seminar for the Doctoral Program in Total Quality Management at Chalmers.

2003: “New methodologies for the systematic variation management in development and production”. Seminar for the Doctoral Program in Production Engineering. University of Palermo.

2003: “International projects of research and teaching of the group in Applied Statistics at the Department of Technology, Production and Managerial Engineering”. Seminar for the Doctoral Program in Production Engineering and Management. University of Palermo.

2001: “Experimentation for Quality”, for the School of the Italian Statistical Society. Turin Polytechnic, Italy.

2001: Cycle of seminars for the Doctoral Program in Total Quality Management at the University of Naples Federico II:

“Experimental-numerical integrated approach to design of experiments”;

“Experimental statistics Lab: procedures of experimental set-up and data collection (with classroom experiments)”;

“Experimental statistics Lab: methodologies and tools for the analysis of experimental results”;

“A case study of statistical based tolerance design”.

2001: Cycle of seminars for the Doctoral Program in Total Quality Management at Chalmers University of Technology, Sweden

“A Statistical approach to fault detection in On-Board Diagnostics systems”;

“Improving comfort of a new city vehicle by means of parameter design in virtual environment”.

1999: “Statistical methods for Quality”, Summer School of the Italian Statistical Society. University of Naples.

1998: “Quality System audits” lectured at the conference “Tools for SMEs development and Quality Systems”, University of Naples - Faculty of Economics, 3 April 1998.

Supervision

Main supervision or co-supervision of more than fifty degree theses (including five-year degree in engineering, three-year bachelor degree, specialist/master degree). Main supervisor of eight master theses at Chalmers University of Technology, Sweden in the period 2009-2011.

Main supervisor of the following PhD students/theses:

2012-2015: Anna Errore, PhD in Production Engineering and Management at University of Palermo. Thesis title: “Advanced Statistical Tools for Six Sigma and other Industrial Applications”. Year of disputation: 2015 (March 17, 2015)

2008-2010: Giovanni Lo Iacono, PhD in Production Engineering and Management at University of Palermo. Thesis title: “New frontiers of Robust Design with applications to motorcycles”. Year of disputation: 2012.

2007-2009: Rossella Burruano, PhD in Production Engineering and Management at University of Palermo. Thesis title: “New models for port logistics and operational management” (in Italian). Year of disputation: 2010.

2005-2007: Valeria Fonti, PhD in Production Engineering and Management at University of Palermo. Thesis title: “Choice of quality indicators in healthcare and their statistical monitoring for continuous improvement” (in Italian). Year of disputation: 2008.

2003-2005: Paolo D’Ambrosio, PhD in Total Quality Management at University of Naples Federico II. Thesis title: “Stochastic design for sustainable development: two case studies”. Year of disputation:

2006.

Co-supervisor of the following PhD students/theses:

2017-: Albert Comelli, PhD student in Industrial Innovation Engineering at University of Palermo.

2006-2008: Pietro Tarantino, PhD student in Total Quality Management at University of Naples Federico II, Thesis title: "A statistical thinking approach to Kansei engineering for product innovation". Year of disputation: 2009.

2003-2005: Alexander Chackunashvili, PhD in Total Quality Management at Chalmers University of Technology. Thesis title: "Detecting, Identifying and Managing Sources of Variation in Production and Product Development" Year of disputation: 2006.

2003-2005: Eva Lo Franco, PhD in Total Quality Management at University of Palermo, Faculty of Economics. Thesis title: "Corporate Social Responsibility. Statistical surveys and theoretical developments". Year of disputation: 2006.

From 2003: Per Johansson, Industrial PhD student at Chalmers University of Technology and Volvo Powertrain.

Co-supervisor of the following post doc scholars:

Eva Lo Franco (PhD University of Palermo), over the years 2006-2012

Network/Research Collaboration within and outside of the university.

Participation in international cooperation projects

2011-2012: Erasmus agreement between University of Palermo and Luleå University of Technology (coordinator).

2004-2016: Erasmus agreement between University of Palermo and Linköping University (coordinator).

2008-to date: Erasmus agreement between University of Palermo and Chalmers University of Technology (coordinator).

2011-to date: Erasmus agreement between University of Palermo and Wrocław (Poland) University of Technology (coordinator).

2008-to date: Convention agreement between University of Palermo and Chalmers University of Technology (signed by the two Rectors).

2007-09: Leonardo Project "LearnRDM" (funded by the Irish LLP Agency, LLP/LdV/TOI/2007/IRL-515). I was co-applicant on this project. The funding received by my research team was around 30,000 €

2005-07: EU Project "ENGAGE" (coordination action – funded by the EU 6th Framework Programme). I was co-applicant on this project. The funding received by my research team was around

10,000 €

2004-05: Cooperation project between University of Palermo and University of Linköping (signed by the two Rectors, funded by University of Palermo).

2003-to date: Convention agreement between University of Naples Federico II and Chalmers University of Technology (signed by the two Rectors).

2002-04: EU Project “PRO-ENBIS” (thematic network – funded by the EU 5th Framework Program). I was co-applicant on this project. The funding received by my research team was around 10,000 €

1998-99: Co-operation program between University of Naples Federico II, Århus School of Business (Denmark), and Linköping University (Sweden) on “Total Quality Management”, funded by the Italian Ministry of University and Research.

Organization of scientific meetings

2016: Fourth International Conference on the Interface between Statistics and Engineering. University of Palermo, 20-22 June 2016 (co-chair of the organizing committee).

2014: Third International Conference on the Interface between Statistics and Engineering. City University of Hong Kong, December 15-17, 2014 (co-chair of the program committee, attended). (<http://www.cityu.edu.hk/seem/icise2014/committe-program.htm>)

2011: Four seminars, respectively lectured by Prof. William Li (Carlson School of Management, University of Minnesota), Dr. Pietro Tarantino (Tetra Pak), Dr. Maurizio Furlani (Chalmers University of Technology), Prof. Michele Staiano (University of Naples) at University of Palermo, period October-December 2011 (organizer, attended).

2011: 8th DEINDE Workshop & ENBIS Spring Conference, Turin, Italy, 16-18 March 2011 (member of program committee, attended).

2010 International Winter School “Quality and Risk Management in Healthcare”. Palermo, Italy, 15-19 November 2010 (member of program and chair of organizing committee, attended).

2009: Seminar “Efficient experimental designs for dealing with model uncertainty”, lectured by Prof. William Li (Carlson School of Management, University of Minnesota) at University of Palermo, 22 October 2009 (organizer, attended).

2009 9th ENBIS Conference, Annual meeting of the European Network for Business and Industrial Statistics, Göteborg, Sweden, 20-24 September 2009 (member of program and organizing committee, attended).

2009: Seminar “Some issues related to Six Sigma concepts and procedures”, lectured by Prof. T.N. Goh (National University of Singapore) at Chalmers University of Technology, Göteborg, Sweden, 12 March 2009. (organizer, attended).

2008 International Winter School “Six Sigma. Principles Methodologies and Applications”. Palermo, Italy, 10-14 November 2008 (member of program and organizing committee, attended).

2007: 7th DEINDE Workshop - ENBIS Spring Conference. Turin, April 2007 (member of scientific committee).

2007: Seminar “New opportunities of research funded by the 7th F.P. of the European Union”, lectured by Dr. Teresa De Martino (EU officer, Brussels) at University of Palermo, 28 June 2007 (organizer, attended).

2007: Workshop “Design for Emotions. Methodologies and Experiences - Progettare per le

emozioni. Metodologie ed esperienze a confronto”. Milano Polytechnic 26 February 2007 (member of program and organizing committee, attended, chairman).

2006: 6th ENBIS conference, Wroclaw, Poland, 18-20 September 2006 (member of program committee, attended, session chairman).

2005: International Workshop “Advanced Methodologies for Robust Design”. CNR Engines Institute, Naples, Italy, 23 February 2005 (member of program and organizing committee, attended, chairman).

2005: International Conference “Quality Management and Organizational Development”. Palermo, Italy, 29 June - 1st July 2005. Satellite meetings of the ENGAGE and EUROBUST projects (member of program and organizing committee, host).

2003: Seminars “The Human Dimension in TQM and Evolving Managerial Approaches” lectured by Prof. Su Mi Park (Linköping University) and “Strategies, Values and Methods for Breakthrough and Sustainable Development” lectured by Prof. Jens Jørn Dahlgaard (Linköping University) at University of Palermo, Italy, 11 April 2003 (organizer, attended).

2001: Seminar “Six sigma: theory and practice” lectured by Prof. Bo Bergman (Chalmers University of Technology) at Stoà School of Management, Ercolano, Italy, 19 June 2001 (co-organizer, attended).

2001: Seminar “Industrial experimental design since Box, Hunter & Hunter”, lectured by Prof. Jeff Wu (Michigan University, USA) at University of Naples, Italy, 28 February 2001 (co-organizer, attended).

1999: Seminar “Total Quality Management”. lectured by Prof. Jens Dahlgaard at University of Naples, 19 October 1999 (organizer, attended).

1999: Workshop “Maintenance of transportation aircrafts: methodologies, experiences, engineer’s role and attitudes”. University of Naples, Italy, 29 April 1999 (organizer, attended).

1998: Workshop “Maintenance of complex systems. The aeronautical example”. University of Naples, Italy, 29 May 1998 (organizer, attended).

Other attended conferences

3rd Stu Hunter Research Conference. University of Leuven, (Belgium), March 9-11,

2015. Invited discussant.

3rd International Conference on the Interface between Statistics and Engineering. City University of Hong Kong, December 15-17, 2014. Invited speaker.

1st Stu Hunter Research Conference. Chateau Marquette, Amsterdam (Netherlands), March 13-15,

2013. Invited discussant.

16th International conference Quality Management & Organisational Development (QMOD). Portoroz (Slovenia), September 4-6, 2013.

2nd International Conference on the Interface between Statistics and Engineering. Tainan (Taiwan), June 23-25, 2012. Invited speaker.

International Conference on Applied Statistics and Financial Mathematics. Hong Kong, 16-18

December 2010. Invited speaker.

8th International Conference on Teaching Statistics (ICOTS). Ljubljana, Slovenia, 11-16 July 2010. Invited speaker.

13th Toulon-Verona Conference – Excellence in Services. Coimbra, Portugal, 2-4 September 2010.

Spring Research Conference on Statistics in Industry and Technology. Coquitlam, BC, Canada 27-29 May 2009.

8th ENBIS Conference. Athens, Greece, 21-25 September 2008.

Quality and Productivity Research Conference. Madison, Wisconsin, USA, 3-6 June 2008.

Spring Research Conference on Statistics in Industry and Technology. Atlanta, Georgia, USA, 19-21 May 2008. Invited speaker.

10th QMOD Conference. Helsingborg, Sweden, 18-20 June 2007. Session chairman.

Workshop “Excellence in the Product Development Process - Robust Design Methodology”. Göteborg, Sweden, 13-14 September 2006. Invited speaker

XLIII Scientific Meeting of the Italian Statistical Society. Turin, Italy, July 2006.

5th ENBIS Conference. Newcastle, UK, 14-16 September 2005.

6th DEINDE Workshop “Modelling and Analysis of Physical and Computer Experiments”. Turin, Italy, 29-31 March 2005.

4th ENBIS Conference. Copenhagen, Denmark, 20-22 September 2004.

XLII Scientific Meeting of the Italian Statistical Society. Bari, Italy, 9-11 June 2004.

6th QMOD Conference. Paris, France, 1-3 October 2003.

3rd ENBIS Conference. Barcelona, Spain, 21-22 August 2003. Session chairman.

PRO-ENBIS workshop on Design of Experiments, Cagliari, Italy, 31 May 2003.

1st ENBIS Conference. Oslo, Norway, 17-18 September 2001.

2nd International ATA Conference on Advanced Measurement Techniques and Sensory Systems for Automotive Applications. Ancona, Italy, 13-14 September 2001.

International Workshop on Modeling, Emissions and Control in Automotive Engines. Salerno, Italy, 9-10 September 2001.

3rd International ATA Conference on Control and Diagnostics in Automotive Applications, Sestri Levante, Italy, 4-6 July 2001.

Founding Conference of the European Network for Business and Industrial Statistics (ENBIS), Amsterdam, Netherlands, 11 December 2000.

Quality Management and Economic Development Conference. Aarhus, Denmark, 20-22 August 2000.

1st International Symposium on Industrial Statistics. Linköping, Sweden 19-21 August 1999.

Workshop “Quality assessment and Customer Satisfaction: the role of Statistics”. Bologna, Italy, 24 September 1999.

39th Scientific Meeting of the Italian Statistical Society, Sorrento, Italy, 14-17 April 1998.

ISI Satellite Conference on Industrial Statistics: Aims and Computational Aspects. Athens, Greece, 16-17 August 1997.

Membership in scientific societies

Since 2010 Member of the International Statistical Institute (ISI) and the International Association for Statistical Education (IASE).

2006-07: Vice-president of the European Network for Business and Industrial Statistics (ENBIS). (linked document)

2005-06: Member of the ENBIS council

Since 2000: Member and Italian Representative of ENBIS.

Since 2004 Member of the Italian Statistical Society (SIS).

1996-99: Member of the Italian Association for Quality Culture (AICQ).

National and International Research Awards and Travel Grants

2013 Best paper award for “Prioritisation of alternatives with analytical hierarchy process plus response latency and web surveys” presented at 16th QMOD Conference, Portoroz (Slovenia), September 4-6, 2013. (linked document)

2010 Travel Grant awarded from the Vetenskapsrådet (Swedish Research Council) for mission to Fudan School of Management, Shanghai (China) and Hong Kong Polytechnic University as invited speaker. (linked document)

2007 Fulbright Research Scholar grant. Academic Year 2007-2008. Awarded project: “Experimental calibration of monitoring devices for multi-component degrading systems”. Hosting organisation: Georgia Institute of Technology, Atlanta USA, School of Industrial and Systems Engineering. (linked documents)

2007 Best paper award for “Teaching Experiments and Student Feedback” presented at 10th QMOD Conference, Helsingborg, Sweden, 18-20 June 2007. (linked document)

2003 Best paper award for “Service Quality Design through a new use of Conjoint Analysis” presented at 6th QMOD Conference, Paris (France), October 1-3, 2003. (linked document)

2001 Travel grant awarded by the University of Naples “Federico II” for research visit (one month) at Chalmers University of Technology, Department of Technology Management and Economics.

Other Scientific Merits Within and Outside the University

Examiner of the following PhD students/theses:

2010: Member of the examination committee of the PhD student Björn Kvarnström. Luleå University of Technology, Sweden. Thesis title: “Traceability in continuous processes with a focus on granular and mixed flows”. (linked document)

2008: Examiner of the PhD student Torben Hasenkamp. Chalmers University of Technology, Sweden. Thesis title: “Designing for Robustness. Contributions to Facilitation of Systematic Efforts”.

2004: Peer-review of Licentiate Thesis title “Towards Improving Reliability by Managing Variation” candidate Per Johansson, Industrial PhD student at Chalmers University of Technology and

Volvo Powertrain.

2004: Member of the examination committee of the PhD student Daniele Guida. University of Naples Federico II. Thesis title: “Stochastic analysis of turbulence”.

Editorial activity

Associate Editor of the journal “Risk and Decision Analysis” (www.iospress.nl/journal/risk-and-decision-analysis).

Referee for the following journals:

- × Total Quality Management and Business Excellence. (ISSN: 1478-3363)
- × Applied Stochastic Models for Business and Industry (ISSN: 1524-1904).
- × Journal of the Royal Statistics Society – Series A – Statistics in Society (ISSN: 1467-985X).
- × Journal of the Royal Statistics Society – Series C – Applied Statistics (ISSN: 0035-9254).
- × Quality and Reliability Engineering International. (ISSN: 1099-1638)
- × Quality Technology and Quantitative Management (ISSN 1684-3703)
- × Reliability Engineering and System Safety. (ISSN: 0951-8320)

Reviewer of book proposals for John Wiley & Sons in the field of Statistics, Reliability and Risk Analysis.

AMBITI DI RICERCA

Stefano Barone has 20 years’ research experience. His work is not only theoretical, since he has gained successful experience of collaboration with industry, and public organizations both in Italy and in Sweden.

The research areas cultivated over time (mostly after PhD completion) are (in alphabetical order):

- Image Analysis and Computer Experiments (including experiments in virtual reality)
- Design of experiments (theoretical and practical issues)
- Experiments for marketing research and surveys (choice experiments)
- Integration of statistics with deterministic models
- Quality in public organizations (with focus on higher-education and healthcare)
- Reliability theory and maintenance management
- Risk analysis and risk management (also in healthcare)
- Six Sigma methodology (applied to industrial settings and healthcare)
- Statistical design, calibration and monitoring of diagnostic systems (also in vivo systems and real time health assessment)
- Variation management and Robust Design

Stefano Barone has consolidated experience in the development of statistical methodologies for different type of problems.

One of the first big research projects carried out in cooperation with industry, concerned the statistical study of automotive on-board diagnostic (OBD) systems and the degradation processes affecting the anti-pollution systems.

With his assistant professor position at the Palermo University in 2002, Stefano Barone initiated a research stream mainly concerning the theoretical aspects of design of experiments (DOE) in close collaboration with his colleague Prof. Alberto Lombardo. Interesting scientific results, internationally recognized, were obtained.

Since then, Stefano Barone interests have ranged from the definition and proposition of new statistical methodologies for quality management (e.g. the methodology TESH, Teaching Experiments and Student Feedback, and a new methodology for self-assessment in health care organizations) for robust (ergonomic) design; for the development of human on-body diagnostic systems, for the so called “emotional design” (kansei engineering), and for the reliability evaluation.

During the last years Stefano Barone was involved in several research projects both at national and international level. Some of the most relevant projects are:

EURobust project (2003-2005). The purpose of this project (funded in the EU 5th Framework Program) was to develop a European Toolbox for Quality Engineering. Stefano Barone participated to this project as a team member of the official partner Chalmers University of Technology. (linked documents)

ENGAGE project (2006-2007). It was a Coordination Action of 21 partners from 9 European countries, working together to realize several objectives in the area of emotional design. The project, in which Stefano Barone was involved as a partner, was funded in the 6th EU Framework Program.

LearnRDM project (2007-2008). It was a project presented in the Lifelong Learning Programme 2007-2013. It aimed at providing a fully tested, web-supported and accessible training solution in Robust Design Methodologies with a particular focus on engineers located in SMEs. Six partners from six different European countries worked on this project.

EOLON project (2007-2008). It was a research contract between Stefano Barone’s Department and the company CETENA (FINCANTIERI research center), with the purpose of improving the reliability of naval components and to optimize ship reliability and readiness.

Fulbright project (2008). The project intended developing, in collaboration with Professor Jeff Wu and his team at the Georgia Institute of Technology (Atlanta, USA), a methodological framework for the optimal calibration of diagnostic systems aimed at monitoring the state of health of complex systems like a human body or a motor vehicle.

Mathematical Modelling Centre (GMMC) (2009-2011). The aim of this project was to meet three main challenges: 1) The emergence of mathematics and mathematical statistics as key technologies; 2) reinforce the cooperation channels between industry, society, industrial research institutes and universities; 3) Access to cutting edge research and development through extensive international networking. The project was funded by the Swedish Foundation for Strategic Research. Stefano Barone was involved in the project when he was associate professor at Chalmers. (linked document, see Section 2.1.2)

Stefano Barone’s work has always been at the frontier of new scientific problems. It has been acknowledged as an outstanding example in Europe. Based on his commitment and work, in 2005 he was elected member of the scientific council of the European Network for Business and Industrial Statistics (ENBIS) and in 2006 he was elected vice-president of ENBIS.

The Fulbright Research Scholar grant won in 2007 was a prestigious scholarship resulting from a very selective process. He won two best-paper awards at the QMOD (Quality Management and Organizational Development) conference, one in 2007, one in 2013. The QMOD conference is one of the most important international conferences in the field of Quality.

The same international public competition for a position of Associate Professor at the Chalmers University of Technology (Gothenburg, Sweden) won in December 2007 was an important international recognition of his work. In fact, Chalmers is the first polytechnic in Sweden, one of the most important Universities of Europe, and ranked among the 200 World best Universities.

On May 2009, after few months from the start of his work at Chalmers he got the “Docent” title in the field of Industrial Statistics.

At Chalmers he was main teacher and examiner of a 15 ECTS course run at Master level for three years from 2009 to end of 2011.

He has supervised or co-supervised more than fifty degree theses (including five years degree in engineering, three years bachelor degree in engineering, master degree in engineering) both in Italy and Sweden. He was main supervisor of 5 Ph.D. students (all of them completed the program) and co-supervisor of 4 Ph.D. students, 2 in Italy and 2 in Sweden.

In 2010 he won a Travel Grant by the Swedish Research Council, being an invited speaker at the prestigious Fudan School of Management (Shanghai, China) and at the International Conference on Applied Statistics and Financial Mathematics held in Hong Kong, 16-18 December 2010.

Planned Research Activities

HOBID (Human On Body Diagnostics)

The planned research is aimed at developing a methodological body of knowledge for the development of innovative diagnostic systems for monitoring the state of health of complex systems like a human body. These diagnostic systems have the characteristic to be on-body, i.e. in vivo or wearable. Starting from the experiences gained through the last years and thanks to new technologies, such methodological framework will be based on the most advanced results obtained in different scientific fields, from biometrics and reliability theory, engineering, signal processing and experimental statistics in combination with the results of medicine and biosensors. The expected results can impact the use and allocation of resources for the public health and the quality of life of human beings. This research can be developed in close collaboration with Chalmers University of Technology and the Georgia Institute of Technology.

Systemic Robust Design.

Robust design problems usually concern specific components or functions of a complex system (which could be a product, a service, or a production process). This is a serious limitation mainly due to a lack of methodologies supporting experts with a systemic view of variation. Stefano Barone intends to develop a so-called systemic robust design to look at the robust design problem in a systemic way, i.e. looking at the whole system instead of looking at specific single subsystems or components. This research can be developed in close collaboration with Fraunhofer-Chalmers Center for Industrial Mathematics and the companies TetraPak and Volvo powertrain.

Methodology for assessment and improvement of teaching quality

Stefano Barone has already proposed a methodology to be adopted by a university teacher for assessing and improving a course quality. The methodology is based on statistical tools, like design of experiments and logistic regression. The main purpose of the next research consists in formulating a complete set of indicators (involving not only student satisfaction, but also the facilitation of acquisition of new knowledge and competences by students, the satisfaction of the teacher, and so on) able to describe the course quality in all relevant dimensions, and defining an overall mathematical function of these indicators to be used as a general measure of the course quality. The proposed research has direct implications in Higher Education. However, it can be profitably used in any educational context (master's, doctoral programs, etc).

Methods for emotional engineering

In dynamic business environments, where quality is an essential part of organization success, people needs for emotional satisfaction are growing, therefore, affective properties are nowadays important factors to evaluate the right development strategies for products and services. In the last two decades several methodologies have been developed to integrate affective aspects into product design in order to fulfill the emotional requirements of customers. Kansei Engineering is one of these methodologies aimed at incorporating consumer perceptions and emotions into product design through a multi-disciplinary approach by using tools from several fields as social science, psychology, and statistics. Stefano Barone's aim is to carry out research studies to illustrate how statistical methods could be adopted to support Kansei Engineering of products and services.

SIX SIGMA in Healthcare

Advanced research on Six Sigma methodology in healthcare can be carried out on the basis of the analysis of the needs and review of the best practises in Europe. The research will be validated through pilot projects organized with the support of all advanced technologies in different countries with the support of hospital partners. Healthcare organizations will obtain a concrete and immediate demonstration of the benefits arising from the implementation of Six Sigma. The documented savings obtained through projects shall be higher than the cost of the projects themselves. The research results will be published and will contribute to the diffusion of the Six Sigma methodology, as a leading improvement strategy. This research can be developed in collaboration with the Center for Healthcare Improvement of Chalmers University of Technology and Karolinska University.

Choice experiments with the use of response latency measures

One research stream where Stefano Barone has been particularly active in the recent past concerns the so called choice experiments, i.e. experiments where the response is somehow related to the preference of a human "respondent". These experiments must be carefully planned and thoroughly analyzed. The use of web survey platforms has given ease of access to massive datasets and the possibility to implement metrics like the "response latency" which provide more information than the simple choices. Therefore, research is ongoing to propose new methods for the analysis of such data which could be more powerful than multinomial logit which is very widespread in the scientific community. This research will be conducted in collaboration with Fudan School of Management (Shanghai, China) and Carlson School of Management (Minneapolis, USA).

Potential research programs could be established with Swedish partners with which Stefano Barone has already had relationships, for example Karolinska, Volvo powertrain, TetraPak, ABB.

ALTRE ATTIVITA

In 1997 Stefano Barone was Officer of the Italian Army Technical Corp at the Technical Surveillance Office located in ALENIA Aerospace company (Turin).