


## PERSONAL INFORMATION

## Pierpaolo Brutti



 P.le Aldo Moro, 5 - 00185 Rome/Italy

 +39 347 5152695  +39 06 49910561

 [pierpaolo.brutti@uniroma1.it](mailto:pierpaolo.brutti@uniroma1.it)

 <https://www.dss.uniroma1.it/it/dipartimento/persone/brutti-pierpaolo>

**Gender** Male | **Date of birth** 3 March 1977 | **Nationality** Italian

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

**POSITION** Associate Professor of Statistics, Sapienza University of Rome

## WORK EXPERIENCE

- 2015 – Present **Associate Professor of Statistics**  
Department of Statistics / Sapienza University of Rome, Italy
- 2011 – 2015 **Assistant Professor of Statistics**  
Department of Statistics / Sapienza University of Rome, Italy
- 2008 – 2011 **Postdoctoral researcher**  
Department of Economics / LUISS Guido Carli

## EDUCATION

- 2006 **PhD - Thesis Title: “New confidence regions for nonparametric regression and how to explore them”**  
Sapienza University of Rome, Italy / Ph.D. in Statistics.
- 2002 **Master of Science in Statistics**  
Carnegie Mellon University, (PA) USA.
- 2002 **Bachelor of Science in Statistics -Thesis Title: “Il riconoscimento del parlatore: una proposta di meta-analisi basata sulla combinazione gerarchica di classificatori”**  
Sapienza University of Rome, Italy

## PERSONAL SKILLS

- Language(s)** Italian (mother tongue) and English
- Communication skills** Excellent communication skills gained through teaching and in giving public conferences
- Organisational skills** P.B has been organizer and co-organizer of series of seminars in probability and statistics, as well as conferences (e.g. *SIS Bayes Meeting 2017*, *2017 SIS Conference Statistics and Data Science: New Challenges, New Generations*), and introductory/advanced courses on the use of the programming language R aimed at the public sector and other (research) institutes.
- Computer skills**
- **Programming Languages:** R, Python, Julia, Matlab, C++
  - **Database Management:** SQL, MySQL, MS Access
  - **Other data analysis/management tools:** Apache Spark, Apache Hadoop

## ADDITIONAL INFORMATION

**Teaching Experience** Since 2005, P.B. has taught a number of courses at different levels (Bachelor, Master and Ph.D.) in statistics, probability, machine learning, Bayesian statistics, and nonparametric statistics at various universities, such as "La Sapienza" University of Rome and LUISS Guido Carli, and other (research) institutes like Banca d'Italia and EIEF (Einaudi Institute for Economics and Finance).

**Other Academic Experience** Since 2018, P.B. is member of the Board of the Phd program in Data Science and has been supervisor and co-supervisor of more than 10 PhD students in Data Science and Methodological Statistics, as well as supervisor of more than 50 Master's degree theses.

**Research Interest** As author and co-author of several publications on international scientific Journals and Conference Proceedings, P.B. research activity is mainly focused on (i) topological data analysis and its applications (ii) functional and nonparametric estimation and testing, (iii) Bayesian robust sample size determination criteria applied to the design and monitoring of clinical trials.

- Funding**
- Responsabile WP3322 - *Topological Data Analysis* nell'ambito del Progetto STILES - STrengthening the Italian Leadership in ELT and SKA (PNRR "Infrastrutture di ricerca") / (2023-2025)
  - Referente locale del Piano Nazionale Lauree Scientifiche - PLS / Statistica (2015-2021)
  - PI for the research project "*Optimal transportation based Bayesian experimental designs with application to clinical trials*" / 2019, awarded by Sapienza University
  - PI for the research project "*Bayesian bandits in clinical research*" / 2014, awarded by Sapienza University
  - PI for the research project "*Disegni Bayesiani robusti per la pianificazione di esperimenti genomici*" / 2012, awarded by Sapienza University

## PUBLICATIONS

- [1] R. Giubilei and **P. Brutti**. "Supervised Classification for Link Prediction in Facebook Ego Networks With Anonymized Profile Information". In: *JOURNAL OF CLASSIFICATION* (2022).
- [2] Andrea Marcocchia, Serena Arima, and **Pierpaolo Brutti**. "Hierarchical forecast reconciliation on Italian covid-19 data". In: *SIS 2021 / Book of Short Papers*. Pisa: Pearson, 2021, pp. 714–719.
- [3] T. Padellini and **P. Brutti**. "Supervised learning with indefinite topological Kernels". In: *STATISTICS* (2021), pp. 1–22.
- [4] Michele Cianfriglia, Tullia Padellini, and **Pierpaolo Brutti**. "Wasserstein consensus for Bayesian sample size determination". In: *Book of short papers SIS 2020*. Pearson, 2020, pp. 714–719.
- [5] Tullia Padellini, **Pierpaolo Brutti**, and Riccardo Giubilei. "Topological and Mixed-type learning of Brain Activity". In: *SIS2020 Book of short papers*. Pearson, 2020.
- [6] Riccardo Giubilei, Tullia Padellini, and **Pierpaolo Brutti**. "Unsupervised Energy Trees: Clustering With Complex and Mixed-Type Variables". In: *SIS2020 Book of short papers*. Pearson, 2020.
- [7] E. Sachini, N. Karampekios, **P. Brutti**, and K. Sioumalas-Christodoulou. "Should I stay or should I go? Using bibliometrics to identify the international mobility of highly educated Greek manpower". In: *SCIENTOMETRICS* 125 (2020), pp. 641–663.
- [8] Vittoria La Serra, Christel Faes, Niel Hens, and **Pierpaolo Brutti**. "A comparison of the CAR and DAGAR spatial random effects models with an application to diabetes rate estimation in Belgium". In: *Book of short papers SIS 2020*. Milano: Pearson, 2020, pp. 721–726.
- [9] Davide Passaro, **Pierpaolo Brutti**, Fulvio De Santis, and Stefania Gubbiotti. "Il linguaggio R e il nuovo ruolo della Statistica nell'insegnamento della Matematica". In: *ARCHIMEDE* (2020).

- [10] Riccardo Giubilei, Tullia Padellini, and **Pierpaolo Brutti**. “ETrees: A Generalization of Conditional Trees to Mixed-Type Data”. In: *EMS2019 Program and Book of Abstracts*. 2019.
- [11] Giovanni Trappolini, Tullia Padellini, and **Pierpaolo Brutti**. “Multiresolution topological data analysis for robust activity tracking”. In: *Smart Statistics for Smart Applications. Book of Short Papers SIS2019*. Pearson, 2019, pp. 1119–1124.
- [12] Federica Onori, Sara Viviani, and **Pierpaolo Brutti**. “Comparison between Experience-based Food Insecurity scales”. In: *Book of short Papers SIS 2018*. Londra: Pearson, 2018, pp. 1–6.
- [13] Nina Deliu and **Pierpaolo Brutti**. “Deep learning to the test. An application to traffic data streams”. In: *Book of Short Papers SIS 2018*. Pearson, 2018, pp. 1597–1602.
- [14] Marco Stefanucci, Laura Sangalli, and **Pierpaolo Brutti**. “Classification of the Aneurisk65 dataset using PCA for partially observed functional data”. In: *Book of short Papers SIS 2018*. Londra: Pearson, 2018, pp. 1–5.
- [15] Riccardo Giubilei and **Pierpaolo Brutti**. “Supervised Learning for Link Prediction in Social Networks”. In: *Book of short papers SIS 2018*. Londra: Pearson, 2018, pp. 1–6.
- [16] Marco Stefanucci, Laura M. Sangalli, and **Pierpaolo Brutti**. “PCA-based discrimination of partially observed functional data, with an application to Aneurisk65 dataset”. In: *STATISTICA NEERLANDICA 72 (2018)*, pp. 1–246.
- [17] Tullia Padellini and **Pierpaolo Brutti**. “Indefinite Topological Kernels”. In: *Book of short Papers SIS 2018*. Pearson, 2018, pp. 1–16.
- [18] Tullia Padellini and **Pierpaolo Brutti**. “Topological summaries for Time-Varying Data”. In: *SIS 2017. Statistics and Data Science: new challenges, new generations*. Florence: Firenze University Press, 2017, pp. 747–752.
- [19] Pietro Cignini, Maurizio Giorlandino, **Pierpaolo Brutti**, Lucia Mangiafico, Alessia Aloisi, and Claudio Giorlandino. “Reference charts for fetal cerebellar vermis height: A prospective cross-sectional study of 10605 fetuses”. In: *PLOS ONE 11 (2016)*, pp. 1–20. URL: <http://www.plosone.org/article/fetchObject.action?uri=info:doi/http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0147528&representation=PDF>.
- [20] **Pierpaolo Brutti**, Fulvio De Santis, Stefania Gubbiotti, and Valeria Sambucini. “Continuous endpoints in Bayesian two-stage designs”. In: *JOURNAL OF BIOPHARMACEUTICAL STATISTICS 26 (2016)*, pp. 966–977.
- [21] Giovanni Marchese, **Pierpaolo Brutti**, and Stefania Gubbiotti. “Bayesian hierarchical models for analyzing and forecasting football results”. In: *48th Scientific Meeting of the Italian Statistical Society – SIS2016*. Salerno, 2016, pp. 1–6.
- [22] **Pierpaolo Brutti** and Tullia Padellini. “Topological Signatures for Classification”. In: *SIS2016 Proceedings*. 2016, pp. 1–6.
- [23] Francesco Padula, Maurizio Giorlandino, Stella Capriglione, Maria Cristina Teodoro, Assunta Lippa, Salvatrice Elisa Minutolo, Alessandro Lena, Alessandro Lanteri, **Pierpaolo Brutti**, Laura D’Emidio, Lucia Mangiafico, Pietro Cignini, and Claudio Giorlandino. “Does the ESHRE/ESGE Classification of Mullerian Anomalies Correlate with the Occurrence Of Pregnancy? A Comparison between Two Definitions of Myometrial Thickness”. In: *ACTA MEDICA INTERNATIONAL 3 (2016)*, pp. 24–29.
- [24] **Pierpaolo Brutti**, Fulvio De Santis, and Stefania Gubbiotti. “A predictive look at Bayesian Bandits”. In: *47th SIS Scientific Meeting of the Italian Statistica Society*. Cagliari: CUEC Cooperativa Universitaria Editrice Cagliariitana, 2014, pp. 1–6.
- [25] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. “Bayesian-frequentist sample size determination: A game of two priors”. In: *METRON 72 (2014)*, pp. 133–151. URL: <http://link.springer.com/article/10.1007%2Fs40300-014-0043-2>.

- [26] P. Cignini, F. Padula, M. Giorlandino, **Pierpaolo Brutti**, Marco Alfo', D. Giannarelli, M. L. Mastrandrea, L. D'Emidio, L. Vacca, A. Aloisi, and C. Giorlandino. "Reference charts for fetal corpus callosum length: a prospective cross-sectional study of 2950 fetuses." In: *JOURNAL OF ULTRASOUND IN MEDICINE* 33 (2014), pp. 1065–1078.
- [27] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "Predictive measures of the conflict between frequentist and Bayesian estimators". In: *JOURNAL OF STATISTICAL PLANNING AND INFERENCE* 148 (2014), pp. 111–122. URL: <http://www.sciencedirect.com/science/article/pii/S037837581300311X>.
- [28] **Pierpaolo Brutti**, Alessandro Lanteri, and Costantino Ricciuti. "Bayesian Inference for the Intrinsic Dimension". In: *47th SIS Scientific Meeting of the Italian Statistica Society*. Cagliari: CUEC Cooperativa Universitaria Editrice Cagliariitana, 2014, pp. 1–6.
- [29] Fantini Paolo and **Pierpaolo Brutti**. "Applying LDA topic model to a corpus of Italian Supreme Court decisions". In: *Conference of European Statistics Stakeholders: Book of Abstracts*. 2014. URL: <http://cdss.sta.uniroma1.it/files/site/Abstract.pdf>.
- [30] **Pierpaolo Brutti**, Ceccarelli Lucio, Fulvio De Santis, and Stefania Gubbiotti. "On the stylometric authorship of Ovid's Double Heroides: an Ensemble Clustering approach". In: *Cladag 2013 - 9th Meeting of the Classification and Data Analysis Group. Book of Abstracts*. Padova: CLEUP, 2013, pp. 65–68.
- [31] S. Viviani, Marco Alfo', and **Pierpaolo Brutti**. "Sparse Nonparametric Graphical Models for Random Effect Distribution in GLMMs". In: *Advances in Latent Variables*. Milano: Vita e Pensiero, 2013, pp. 1–6.
- [32] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "Robust bayesian monitoring of sequential trials". In: *METRON* 71 (2013), pp. 81–95.
- [33] **Pierpaolo Brutti**, Fulvio DE SANTIS, Stefania Gubbiotti, and Valeria Sambucini. "Continuous endpoints in the design of Bayesian two-stage studies". In: *Books of Abstracts - Seventh International Workshop on Simulation*. Vol. 3. Ed. Mariagiulia Matteucci, 2013. URL: [http://www2.stat.unibo.it/iws/files/Book\\_abstracts\\_IWS.pdf](http://www2.stat.unibo.it/iws/files/Book_abstracts_IWS.pdf).
- [34] **Pierpaolo Brutti**, Fulvio De Santis, and Stefania Gubbiotti. "On a predictive measure of discrepancy between classical and Bayesian estimators". In: *Atti della 46° Riunione Scientifica della Società Italiana di Statistica*. Padova: Cleup, 2012, pp. 1–4. URL: <http://new.sis-statistica.org/pubblicazioni/indice-articoli-pubblicati-negli-atti-rs/atti-della-xlvi-riunione-scientifica-2012/>.
- [35] **Pierpaolo Brutti**, Stefania Gubbiotti, and Valeria Sambucini. "An extension of the single threshold design for monitoring efficacy and safety in phase II clinical trials". In: *STATISTICS IN MEDICINE* 30 (2011), pp. 1648–1664. URL: <http://www.scopus.com/inward/record.url?eid=2-s2.0-79957949842&partnerID=65&md5=9f6bcc06a19b601d267f53590672a58b>.
- [36] **Pierpaolo Brutti**. "Toward a Data-Driven Test of Uniformity on an Unknown Riemannian Manifold". In: *SIS2010 Proceedings*. 2010. URL: <http://homes.stat.unipd.it/mgri/SIS2010/Program/poster/780-1165-1-RV.pdf>.
- [37] **Pierpaolo Brutti** and M. Scarsini. "Bayesian inference for weighted voting games". In: *EURO XXIV*. 2010, pp. 183–183.
- [38] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "A robust Bayesian stopping rule for sequential trials". In: 2010, pp. 115–115. URL: <http://www.cfe-csda.org/ercim10/>.
- [39] **Pierpaolo Brutti**, Stefania Gubbiotti, and Valeria Sambucini. "A Bayesian two-stage design for phase II clinical trials with both efficacy and safety endpoints." In: *Books of Short Papers - Cladag 2009*. Padova: Cleup, 2009, pp. 445–448.
- [40] **Pierpaolo Brutti**. "Diffusion driven empirical Bayes estimation of high-dimensional normal means vectors". In: 2009, pp. 77–77. URL: <http://cfe-csda.org/ercim09/>.

- [41] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "Mixtures of prior distributions for predictive Bayesian sample size calculations in clinical trials". In: *STATISTICS IN MEDICINE* 28 (2009), pp. 2185–2201. URL: <http://www.scopus.com/inward/record.url?eid=2-s2.0-69949099954&partnerID=65&md5=350e93e8ca1cc0324de4872713facc96>.
- [42] **Pierpaolo Brutti**. "Diffusion driven empirical Bayes estimation of high-dimensional Normal Means vectors". In: *Complex data modeling and Computationally intensive statistical methods for estimation and prediction*. Maggioli Editore, 2009, pp. 103–107.
- [43] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "Bayesian sample size determination and re-estimation using mixtures of prior distributions". In: *First joint meeting of the Societe Francophone de Classification and CLADAG-SIS. Book of Short papers*. Vol. 1. NAPOLI: Edizioni Scientifiche Italiane, 2008, pp. 143–146.
- [44] **Pierpaolo Brutti** and Fulvio DE SANTIS. "Robust Bayesian sample size determination for avoiding the range of equivalence in clinical trials". In: *JOURNAL OF STATISTICAL PLANNING AND INFERENCE* 138 (2008), pp. 1577–1591. URL: <http://www.scopus.com/inward/record.url?eid=2-s2.0-39449122691&partnerID=65&md5=5de3bb0f0ccf6afe5ebe792d6c83b97c>.
- [45] **Pierpaolo Brutti** and Nardi Alessandra. "On an adaptive test of time-varying effects in Cox regression". In: *BIOMEDICAL STATISTICS AND CLINICAL EPIDEMIOLOGY* 2 (2008), pp. 149–156.
- [46] **Pierpaolo Brutti**, Fulvio DE SANTIS, and Stefania Gubbiotti. "Robust Bayesian sample size determination in clinical trials". In: *STATISTICS IN MEDICINE* 27 (2008), pp. 2290–2306. URL: <http://www.scopus.com/inward/record.url?eid=2-s2.0-44949250001&partnerID=65&md5=a65cc6932005201eb961aa20b7d5b8a6>.
- [47] **Pierpaolo Brutti**. "Warped Wavelet and Vertical Thresholding". 2008. URL: <https://arxiv.org/abs/0801.3319>.
- [48] **Pierpaolo Brutti** and Fulvio DE SANTIS. "Robust Bayesian Sample Size Determination for Avoiding the Range of Equivalence in Clinical Trials". In: *Proceeding of the VI SIB National Congress*. 2007, pp. 287–290.
- [49] **Pierpaolo Brutti**. "RODEO for Sparse Nonparametric Regression and Quantile Regression with Censored Data". In: *S.Co. 2007, Book of short papers*. Padova: CLEUP Editore, 2007, pp. 98–103. URL: <http://venus.unive.it/sco2007/ocs/viewabstract.php?id=81>.
- [50] **Pierpaolo Brutti**. "On an adaptive goodness-of-fit test with finite sample validity for random design regression models". In: *15th European Young Statisticians Meeting*. 2007, pp. 21–21. URL: [http://matematicas.unex.es/~idelpuerto/WEB\\_EYSM/Abstracts/book.pdf](http://matematicas.unex.es/~idelpuerto/WEB_EYSM/Abstracts/book.pdf).
- [51] **Pierpaolo Brutti**, V Bartolino, F Colloca, L Maiorano, and Giovanna JONA LASINIO. "Statistical Analysis of fish density in the Tyrrhenian-Ligurian sea". In: *Spatial data methods for environmental and ecological processes*. Vol. 1. FOGGIA: WIP Edizioni, 2006.
- [52] **Pierpaolo Brutti**. "A note on an Adaptive Goodness-of-Fit test with Finite Sample Validity for Random Design Regression Models". 2005. URL: <https://arxiv.org/abs/1502.05457>.
- [53] **Pierpaolo Brutti**, C Genovese, R Nichol, and L. Wasserman. *Spike Hunting in Galaxy Spectra: a Semiparametric Approach*. Tech. rep. 2005. URL: <https://www.stat.cmu.edu/tr/tr828/tr828.html>.
- [54] **Pierpaolo Brutti** and Giovanna JONA LASINIO. "Variable bandwidth schemes for local polynomial smoothers via vertical wavelet thresholding". In: *Bioinformatics, Images and Wavelets*. Leeds: Department of Statistics, University of Leeds, U.K., 2004, pp. 119–121.

- [55] **Pierpaolo Brutti**, Fabi Francesco, and Giovanna JONA LASINIO. “Speaker Recognition: a proposal for a meta-analysis based on hierarchical combination of classifiers”. In: *STATISTICA* 3 (2002), pp. 455–473.