

## POSITIONS

### Assistant Professor

Department of Political and Social Sciences, University of Pavia, *July 2024 – today*

- ✦ Junior position (RtdA), SECS-S/01 statistics

### Post doc in Statistics

Department of Political and Social Sciences, University of Pavia, *September 2023 – June 2024*

- ✦ Post doc researcher (SECS-S/01 statistics)
- ✦ Misurare l'incertezza attraverso i big data per un nuovo sistema sanitario di territorio nella prospettiva degli over 55 (Measuring uncertainty through big data for a new land-based healthcare system in the perspective of over-55s)

### Post doc in Statistics

Department of Political and Social Sciences, University of Pavia, *October 2021 – September 2023*

- ✦ Post doc researcher (joint with IRCCS Mondino Foundation, SECS-S/01 statistics)
- ✦ Machine and Deep Learning models for Neurosciences and Neuroimaging

## EDUCATION

### PhD in Computational Mathematics and Decision Sciences

XXXIV cycle, University of Pavia, *October 2018– September 2021*

- ✦ Scholarship founded by IRCCS Mondino Foundation
- ✦ Machine and Deep Learning models for Neurosciences and Neuroimaging
- ✦ PhD thesis: «Statistical and Machine Learning models for neurosciences». Supervisor: prof. Silvia Figini.
- ✦ Final grade: excellent

### Master Degree in Mathematics

University of Milan, *September 2015 – April 2018*

- ✦ Specialization in Biomathematics and Statistics
- ✦ Master Thesis in Statistics: «Identification of the optimal cut-point for continuous covariates in the survival analysis». Supervisor: prof. Elena Villa
- ✦ Final grades: 110/110

### Bachelor Degree in Mathematics

University of Milan, *September 2010 – July 2015*

- ✦ Theoretical curriculum
- ✦ Final grades: 95/110

## RESEARCH FIELD AND SCIENTIFIC INTERESTS

My primary field of research interest is Machine Learning and Statistical Learning applied to the biomedical field. I am interested in studying and developing statistical models, machine learning algorithms and data mining methods, both from a methodological and applied perspective.

During these years of research, I specialized my interest in non-parametric and ensemble models, developed especially in the context of survival analysis. I also had the opportunity to apply my methodological skills in the context of social sciences (education and socio-economic topics).

I am interested on mathematical and statistical models for social sciences, focused on health data.

Member of Società Italiana di Statistica (SIS), Institute of Mathematical Statistics (IMS) and Royal Statistical Society (RSS).

## PUBLICATIONS

1. F. Naz, S. Gerzeli, E. Ballante, S. Figini, **Learning in Lockdowns: A Five-Year Analysis of COVID-19's Influence on University Students' Academic Experiences**, *Advances and Applications in Statistics*, Vol 9, n 1, pp 59-75 (2023). <https://doi.org/10.17654/0972361724005>
2. E. Ballante, F. Naz, S. Figini, S. Gerzeli, **Customized Learning to predict student dropout**, accepted in *Advances and Applications in Mathematical Sciences*. [To be appear]
3. E. Ballante, L. Bellanger, P. Drouin, S. Figini, A. Stamm, **Smoothing Method for Unit Quaternion Time Series in a Classification Problem: An application to motion data**, *Scientific Reports*, Vol 13, 9366 (2023). <https://doi.org/10.1038/s41598-023-36480-y>
4. E. Ballante, **An extension of generalized Bayesian ensemble tree models to survival analysis**. *Far East Journal of Theoretical Statistics*, vol 67, n 2, pp 137-146 (2023). <http://dx.doi.org/10.17654/0972086323007>
5. C. Scapicchio, A. Chincarini, E. Ballante, L. Berta, E. Bucci, C. Bortolotto, F. Brero, R.F. Cabini, G. Cristofalo, S.C. Fanni, M.E. Fantacci, S. Figini, M. Galia, P. Gemma, E. Grassedonio, A. Lascialfari, C. Lenardi, A. Lionetti, F. Lizzi, M. Marrale, M. Midiri, C. Nardi, P. Oliva, N. Perillo, I. Postuma, L. Preda, V. Rastrelli, F. Rizzetto, N. Spina, C. Talamonti, A. Torresin, A. Vanzulli, F. Volpi, E. Neri, A. Retico, **A multicenter evaluation of a deep learning software (LungQuant) for lung parenchyma characterization in COVID-19 pneumonia**. *European Radiology Experimental*, vol 7, n 18 (2023). <https://doi.org/10.1186/s41747-023-00334-z>
6. R. F. Cabini, F. Brero, A. Lancia, C. Stelitano, O. Oneta, E. Ballante, E. Puppo, M. Mariani, E. Ali, V. Bartolomeo, M. Montesano, E. Merizzoli, D. Aluia, F. Agustoni, G.M. Stella, R. Sun, L. Bianchini, E. Deutsch, S. Figini, C. Bortolotto, L. Preda, A. Lascialfari and A.R. Filippi, **Preliminary report on harmonization of features extraction process using the ComBat tool in the multi-center "Blue Sky Radiomics" study on stage III unresectable NSCLC**, *Insights into imaging*, vol 13, n 1, pp 38 (2022)
7. E. Ballante, S. Figini, P. Uberti, **A new approach in model selection for ordinal target variables**, *Computational Statistics*, vol 37, pp 43-56 (2022). <https://doi.org/10.1007/s00180-021-01112-4>

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

8. E. Ballante, M. Galvani, P. Uberti, S. Figini, **Polarized Classification Tree Models: theory and computational aspects**, *Journal of Classification*, vol 38, pp 481-499 (2021). <https://doi.org/10.1007/s00357-021-09383-8>
9. P. Felisaz, G. Colelli, E. Ballante, F. Solazzo, M. Paoletti, G. Germani, F. Santini, X. Deligianni, N. Bergsland, M. Monforte, G. Tasca, E. Ricci, S. Bastianello, S. Figini and A. Pichiecchio, **Texture analysis and machine learning to predict muscle water T2 and fat fraction in Facioscapulohumeral muscular dystrophy**, *European Journal of Radiology*, vol 134 (2021)
10. E. Ballante, C. Bardelli, M. Zanella, S. Figini, G. Toscani, **Economic segregation under the action of trading uncertainties**, *Symmetry*, vol 12, n 9, 1390 (2020). <https://doi.org/10.3390/sym12091390>

#### **Publications related to the collaboration with IRCCS Mondino Foundation:**

1. L. Barzaghi, M. Paoletti, M. Monforte, S. Bertolani, C. Bonizzoni, F. Thorsten, N. Bergsland, F. Santini, X. Deligianni, G. Tasca, E. Ballante, S. Figini, E. Ricci, A. Pichiecchio, **Muscle diffusion tensor imaging in facioscapulohumeral muscular dystrophy**. *Muscle & Nerve*, pp 1-9, doi:10.1002/mus.28179 (2024)
2. F. Ghirardello, S. Franco, P. Accorsi, R. Albertini, M. Angelini, C. Asteggiano, S. Aversa, E. Ballante, R. Borgatti, R.F. Cabini, C. Caporali, L. Chiapparini, S. Cociglio, E. Fazzi, S. Longo, L. Malerba, V. Materia, L. Mazzocchi, C. Naboni, M. Palmisani, A. Pichiecchio, L. Pinelli, C. Pisoni, L. Preda, A. Riboli, F.M. Risso, V. Rizzo, E. Rognone, A.M. Simoncelli, P. Villani, C. Tziella, S. Ghirardello, S. Orcesi, **Fate of melatonin orally administered in preterm newborns: antioxidant performance and basis for neuroprotection**, *Journal of Pineal Research*, vol 76, n 1, e12932, doi: 10.1111/jpi.12932 (2024)
3. S. Bernini, E. Ballante, F. Fassio, S. Panzarasa, S. Quaglini, C. Riccietti, A. Costa, S.F. Cappa, C. Tassorelli, T. Vecchi and S. Bottiroli, **In person versus remote cognitive rehabilitation in patients with subjective cognitive decline or neurocognitive disorders: what factors drive patient's preference?**, *Frontiers in Psychology*, volume 14, 1266314, doi: 10.3389/fpsyg.2023.1266314 (2023)
4. S. Bottiroli, A. Renzi, E. Ballante, R. De Icco, G. Sanchez, A. Tanzilli, T. Vecchi, C. Tassorelli, F. Galli, **Personality in Chronic Headache: A Systematic Review with Meta-Analysis**, *Pain Research and Management*, doi: 10.1155/2023/6685372 (2023)
5. L.d.C. Lopes Neri, M. Guglielmetti, V. De Giorgis, L. Pasca, M.P. Zanaboni, C. Trentani, E. Ballante, S. Grumi, C. Ferraris, A. Tagliabue, **Validation of an Italian Questionnaire of Adherence to the Ketogenic Dietary Therapies: iKetoCheck**, *Foods*, Vol 12, no 17, 3214, doi:10.3390/foods12173214 (2023)
6. F. Morelli, F. Toni, E. Saligari, F. D'Abrusco, V. Serpieri, E. Ballante, G. Ruberto, R. Borgatti, E.M. Valente, S. Signorini, **Visual function in children with Joubert Syndrome**, *Developmental Medicine & Child Neurology*, doi : 10.1111/dmcn.15732 (2023)
7. L. Pasca, C. Ferraris, M. Guglielmetti, C. Varesio, M. Totaro, C. Trentani, C. Marazzi, I. Brambilla, E. Ballante, M.L. Armeno, G. Reyes Valenzuela, R.H. Caraballo, Pi. Veggiotti, A. Tagliabue, V. De Giorgis, **Ketonemia variability through menstrual cycle in patients undergoing ketogenic diet**, *Frontiers in Nutrition*, Vol 10. doi: 10.3389/fnut.2023.1188055 (2023)
8. L. Melazzini, L. Mazzocchi, A. Vecchio, A. Parades, M.M. Mensi, E. Ballante, M. Paoletti, S. Bastianello, U. Balottin, R. Borgatti, A. Pichiecchio, **Magnetic Resonance Advanced Imaging Analysis in Adolescents: Cortical Thickness Study to identify Attenuated Psychosis Syndrome**, *Neurology*, doi : <https://doi.org/10.1007/s00234-023-03200-2> (2023)
9. P. Giulia, M. Cotta Ramusino, L.M. Farina, B. Dal Fabbro, I. Canavero, M. Picascia, S. Muzic, E. Ballante,

- A. Cavallini, A. Pichiecchio, A. Costa, **Cognitive Versus Hemorrhagic Onset in Cerebral Amyloid Angiopathy: Neuroimaging Features**, *Current Alzheimer Research*, doi: 10.2174/1567205020666230713151211
10. M. Gastaldi, T. Foiadelli, G. Greco, S. Scaranzin, E. Rigoni, S. Masciocchi, S. Ferrari, S. Mancinelli, L. Brambilla, M. Mancardi, T. Giacomini, D. Ferraro, M. Della Corte, A. Gallo, M. Di Filippo, L. Benedetti, G. Novi, M. Versino, P. Banfi, R. Iorio, L. Moiola, E.C. Turco, S. Sartori, M. Nosadini, M. Ruggeri, S. Savasta, E. Colombo, E. Ballante, S. Jarius, S. Mariotto, D. Franciotta, on behalf of the NINA study group, **Prognostic relevance of quantitative and longitudinal mog antibody testing in patients with mogad: a multicenter retrospective study**, *Journal of Neurology, Neurosurgery and Psychiatry*, vol 94, pp 201-210 (2023) <https://doi.org/10.1136/jnnp-2022-330237>
  11. E. Tartara, E. Micalizzi, S. Scanziani, E. Ballante, M. Paoletti, C.A. Galimberti, **Late-Onset Focal Epilepsy: Electroclinical Features and Prognostic Role of Leukoaraiosis**, *Frontiers in Neurology* (2022)
  12. F. Morelli, G. Aprile, C. Martolini, E. Ballante, L. Olivier, E. Ercolino, E. Perotto, S. Signorini. **Visual Function and Neuropsychological Profile in Children with Cerebral Visual Impairment**, *Children*, vol 9, no. 6 (2022)
  13. S. Signorini, A. Luparia, G. Cappagli, E. Perotto, M. Antonini, F. Morelli, G. Aprile, E. Ballante, S. Figini, R. Borgatti, VFS Study Group, **Visual Function Score: A New Clinical Tool to Assess Visual Function and Detect Visual Disorders in Children**, *Frontiers in Pediatrics*, vol 10 (2022)
  14. M. Mensi, M. Criscuolo, E. Vai, C. Rogantini, M. Orlandi, E. Ballante, V. Zanna, S. Mazzoni, U. Balottin, R. Borgatti, **Perceived and Observed Family Functioning in Adolescents Affected by Restrictive Eating Disorders**, *Family Relations* vol 71 n 2 (2022)
  15. S. Bottiroli, F. Galli, E. Ballante, S. Pazzi, G. Sances, E. Guaschino, M. Allena, C. Tassorelli, **Validity of the Severity of Dependence Scale for detecting dependence behaviours in Chronic Migrain with Medication Overuse**, *Cephalalgia* vo 42 n 3 (2022)
  16. M. Paoletti, L. Diamanti, S.I. Muzic, E. Ballante, F. Solazzo, L. Foppoli, X. Deligianni, F. Santini, S. Figini, N. Bergsland, A. Pichiecchio, **Longitudinal quantitative MRI evaluation of muscle involvement in amyotrophic lateral sclerosis**, *Frontiers in Neurology* vol 12 (2021)
  17. L. Pasca, F. Sanvito, E. Ballante, M. Totaro, M. Paoletti, A. Bergui, C. Varesio, G.Papalia, E. Rognone, V. De Giorgis , A. Pichiecchio, **Arterial spin labeling qualitative assessment in pediatric patients with MRI-negative epilepsy**, *Clinical Radiology* vol 76 n 12 (2021)
  18. P. Businaro, G. Vaghi, E. Marchioni, L. Diamanti, S. Arceri, P. Bini, E. Colombo, A. Romani, G. Piccolo, M. Lombardi, G. Cosentino, E. Alfonsi, A. Costa, S. Ravaglia, G. Mallucci, E. Ballante, D. Franciotta, M. Gastaldi, **COVID-19 in patients with Myasthenia Gravis: epidemiology and disease course**, *Muscle and Nerve* vol 64 n 2 (2021)
  19. C. Varesio, S. Gana, A. Asaro, E. Ballante, R. F. Cabini, E. Tartara, L. Pasca, S. Orcesi, R. Borgatti, E. M. Valente, V. De Giorgis, **Diagnostic yield and cost-effectiveness of “dynamic” exome analysis in epilepsy with neurodevelopmental disorders: a tertiary-center experience in northern Italy**, *Diagnostics* vol 11 n 6 (2021)
  20. M.M. Mensi, S. Molteni, M. Iorio, E. Filosi, E. Ballante, U. Balottin, P. Fusar-Poli, R. Borgatti, **Prognostic accuracy of dsm-5 attenuated psychotic symptoms in adolescents: prospective real-world 5-years cohort study**, *Schizophrenia Bulletin* vol 47 n 6 (2021)
  21. M.M. Mensi, L. Capone, C. Rogantini, M. Orlandi, E. Ballante, R. Borgatti, **COVID-19 related psychiatric impact on Italian adolescent population: a cross-sectional cohort study**, *Journal of Community Psychology* vol 49 n 5 (2021)

22. M. Cotta Ramusino, G. Perini, G. Vaghi, B. Dal Fabbro, M. Capelli, M. Picascia, D. Franciotta, L. Farina, E. Ballante, A. Costa, **Correlation of frontal atrophy and CSF tau levels with neuropsychiatric symptoms in patients with cognitive impairment: a memory clinic experience**, *Frontiers in Aging Neuroscience*, vol 13 (2021)
23. C. Varesio, L. Pasca, M.P. Zanaboni, S. Grumi; M. Totaro; E. Ballante, V. De Giorgis, **Impact of COVID-19 pandemic in pediatric epileptic patients with neuropsychiatric comorbidities: a telemedicine evaluation**, *Epilepsy and Behavior*, vol 115 (2020)
24. C. Varesio, M.P. Zanaboni, E.C. Salmin, C. Totaro, M. Totaro, E. Ballante, L. Pasca, P. Veggiotti, V. De Giorgis, **Childhood epilepsy with centrotemporal spikes: clinical and neuropsychological outcome 5 years after remission**, *Diagnostics*, vol 10, n 11 (2020)
25. L. Provenzi, C. Pisoni, C. Caporali, L. Gasparini, E. Ballante, S. Orcesi, **A Global Perspective on Parental Stress in the Neonatal Intensive Care Unit: A Meta-Analytic Study**, *Journal of Perinatology*, vol 40, n 11 (2020)
26. L. Diamanti, M. Paoletti, U. Di Vita, E. Ballante, A. Pichiecchio, **MRI study of paraspinal muscles in patients with Amyotrophic Lateral Sclerosis (ALS)**, *Journal of Clinical Medicine*, vol 9, n 4 (2020)
27. C. Varesio, L. Pasca, S. Parravicini, M.P. Zanaboni, E. Ballante, S. Masnada, C. Ferraris, S. Bertoli, A. Tagliabue, P. Veggiotti, V. De Giorgis, **Quality of life in chronic ketogenic diet treatment: the GLUT1DS population perspective**, *Nutrients*, vol 11, n 7 (2019)

## PROCEEDINGS

1. F.M. Quetti, E. Ballante, S. Figini, **A Bayesian Approach to Clustering Using the Proper Bayesian Bootstrap**, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024 [To be appear]
2. E. Ballante, A. Mira, S. Figini, **A fully rank-based hierarchical clustering approach using information imbalance**, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024 [To be appear]
3. E. Ballante, S. Figini, A. Mira, **Non-parametric similarity measure based on information imbalance**, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024 [To be appear]
4. F. Brero, J. Saggi, F. Augustoni, E. Ballante, P. Borghetti, C. Bortolotto, R.F. Cabini, G. Facheris, S. La Mattina, M. Mariani, P. Pedrazzoli, G. Stella, I. Villa, L. Preda, A. Lascialfari, A.R. Filippi, **Blue Sky study: radiomics features as predictive markers of progression-free survival in stage III, PD-L1 positive NSCLC**, *Physica Medica*, 115S1 102871, doi: 10.1016/j.ejmp.2023.102871 (2023) Proceedings of Proceedings of 12th AIFM National Congress (Associazione Italiana Fisica Medica)
5. C. Scapicchio, E. Ballante, A. Benfante, L. Berta, C. Bortolotto, F. Brero, R.F. Cabini, A. Chincarini, D. Cicolari, P.E. Colombo, S.C. Fanni, M.E. Fantacci, S. Figini, E. Grassedonio, A. La Fiura, A. Lascialfari, C. Lenardi, A. Lionetti, F. Lizzi, M. Marrale, C. Nardi, E. Neri, I. Postuma, L. Preda, F. Rizzetto, N. Scichilone, N. Spina, C. Talamonti, A. Torresin, L. Ubaldi, A. Vanzulli, G. Zorzi, A. Retico, **COVID-19 severity prediction based on radiomic features extracted from lung CT scans using the LungQuant segmentation software**, *Physica Medica*, 115S1 102872, doi: 10.1016/j.ejmp.2023.102872 (2023) Proceedings of Proceedings of 12th AIFM National Congress (Associazione Italiana Fisica Medica)
6. E. Ballante, **Generalized Bayesian Ensemble Survival Trees: an extension to categorical variables to apply it to real data**, Statistical Learning, Sustainability and Impact Evaluation. Book of short papers - SIS 2023

7. F. Naz, E. Ballante, **Proper Bayesian Bootstrap for Bagging tree model in survival analysis with correlated data**, Statistical Learning, Sustainability and Impact Evaluation. Book of short papers - SIS 2023
8. A.R. Filippi, J. Saggi, E. Ballante, F. Brero, R.F. Cabini, M. Mariani, I. Villa, C. Bortolotto, F. Agustoni, G. Stella, S. La Mattina, G. Facheris, P. Borghetti, P. Pedrazzoli, L. Preda, A. Lascialfari, **PO-2100 Radiomic features and PFS post-PACIFIC in the Blue Sky Observational Study on stage 3 PDL1+ NSCLC**, Radiomics, Modelling And Statistical Methods, Vol 182, Supplement 1, S1883-S1884 (2023), proceedings of ESTRO 2023, 13-16 May 2023
9. C. Scapicchio E. Ballante, F. Brero, R. Cabini, A Chincarini, M. Fantacci, S. Figini, A. Lascialfari, F. Lizzi, I. Postuma and A. Retico, **A Deep Learning-based module for the quantification of imaging features to support the filling in of a radiological structured report**, short paper BIOSTEC2023 (16<sup>th</sup> international joint conference on biomedical engineering systems and technologies, 16-18 Feb)
10. E. Ballante, **An extension of proper Bayesian bootstrap ensemble tree models to survival analysis**, 51th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2022
11. E. Ballante, S. Molteni, M.M. Mensi, S. Figini, **At risk mental status analysis: a comparison of model selection methods for ordinal target variable**, Book of short papers - SIS 2020

#### CONFERENCES (SPEAKER UNDERLINED)

1. **A Bayesian approach to clustering via the proper Bayesian bootstrap**, E. Ballante, F.M. Quetti, S. Figini, Satellite workshop to International Society for Bayesian Analysis (ISBA) world meeting, Lugano, 25-28 July 2024 [Invited talk]
2. **A fully rank-based hierarchical clustering approach using information imbalance**, E. Ballante, A. Mira, S. Figini, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024, Bari, 17-20 June 2024
3. **A Bayesian Approach to Clustering Using the Proper Bayesian Bootstrap**, F.M. Quetti, E. Ballante, S. Figini, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024, Bari, 17-20 June 2024
4. **Non-parametric similarity measure based on information imbalance**, E. Ballante, S. Figini, A. Mira, 52th Scientific Meeting of the Italian Statistical Society. Book of short papers - SIS 2024, Bari, 17-20 June 2024
5. **Statistical data analysis of media exposure and L2 competence in informal English language learning: a first approach to data**, E. Ballante, Mid-project international conference and round table (PRIN project : The informalisation of English language learning through media), Lecce, 8-9 February 2024
6. **Smoothing Method for Unit Quaternion Time Series: An application to Multiple Sclerosis motion data**, E. Ballante, L. Bellanger, P. Drouin, S. Figini, A. Stamm, 2023 IMS International Conference on Statistics and Data Science (ICSIDS), Lisbon, 18-21 December 2023
7. **Ensemble survival models for censored data**, E. Ballante, P. Muliere, S. Figini, Royal Statistical Society International Conference (RSS 2023), Harrogate, 04-08 September 2023
8. **Generalized Bayesian Ensemble Survival Trees: an extension to categorical variables to apply it to real data**, E. Ballante, SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation, Ancona, 21-23 June 2023
9. **Proper Bayesian Bootstrap for Bagging tree model in survival analysis with correlated data**, F. Naz, E. Ballante, SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation, Ancona, 21-23 June 2023

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

10. **PO-2100 Radiomic features and PFS post-PACIFIC in the Blue Sky Observational Study on stage 3 PDL1+ NSCLC**, A.R. Filippi, J. Saggi, E. Ballante, F. Brero, R.F. Cabini, M. Mariani, I. Villa, C. Bortolotto, F. Agustoni, G. Stella, S. La Mattina, G. Facheris, P. Borghetti, P. Pedrazzoli, L. Preda, A. Lascialfari, ESTRO 2023, 13-16 May 2023
11. **Diagnostic work-up of infantile and childhood-onset nystagmus**, Morelli F., Catalano G., Ballante E., Saligari E., Misefari W., Antonini M., Figini S., Signorini S., SENP (Société Européenne de Neurologie Pédiatrique), 17-18 March 2023
12. **A bootstrap method to model small datasets with survival outcome**, E Ballante, next\_AIM General Meeting, 13-15 February 2023
13. **A Deep Learning-based module for the quantification of imaging features to support the filling in of a radiological structured report**, Scapicchio C, Ballante E, Brero F, Cabini R, Chincarini A, Fantacci ME, Figini S, Lascialfari A, Lizzi F, Postuma I, Retico A, BIOSTEC2023 (16<sup>th</sup> international joint conference on biomedical engineering systems and technologies) 16-18 February 2023
14. **Customized Learning to predict student dropout**, E. Ballante, S. Figini, S. Gerzeli, 2022 IMS International Conference on Statistics and Data Science (ICSDS), 13-16 December 2022
15. **Smoothing Method for Unit Quaternion Time Series**, E. Ballante, L. Bellanger, P. Drouin, S. Figini, A. Stamm, IBC2022, Riga, 10-15 July 2022 [Chair of the session]
16. **An extension of proper Bayesian bootstrap ensemble tree models to survival analysis**, E. Ballante, SIS 2022, Caserta, 22-24 June 2022
17. **Radiomics features extraction harmonization process in the Blue Sky study on stage 3 NSCLC patients undergoing chemoradiation and immunotherapy, (poster)** Brero F, Lancia A , Oneta O, Bortolotto C, Ballante E, Cabini RF, Puppo E, Stelitano C, Alì E, Bartolomeo V, Montesano M, Merizzoli E, Agustoni F, Stella GM, Sun R, Preda L, Figini S, Lascialfari A, Deutsch E, Filippi AR, BiGART2021, 6 October 2021
18. **At risk mental status analysis: a comparison of model selection methods for ordinal target variable**, E. Ballante, S. Molteni, M.M. Mensi, S. Figini, SIS2020
19. **Epilessia generalizzata idiopatica nell'adulto: ricerca di biomarker elettroencefalografici di outcome**, E. Tartara, E. Micalizzi, S. Scanziani, R. Esposito, E. Ballante, C.A. Galimberti (oral communication), 43° Congresso Nazionale della Lega Italiana contro l'Epilessia (LICE), 30 September-2 October 2020
20. **Correlates and Transition Rate of Children and Adolescents with Attenuated Psychotic Symptoms: Findings from a Longitudinal Study**, S. Molteni, G. Spada, E. Filosi, M.M. Mensi, E. Ballante, F. Ferro, C. Morabito, M. Iorio and U. Balottin (poster), Schizophrenia International Research Society (SIRS) 2020
21. **Functional Outcome Of Children And Adolescents With Attenuated Psychotic Symptoms: Results From A Longitudinal Study**, S. Molteni, E. Filosi, M.M. Mensi, G. Spada, E. Ballante, F. Ferro, C. Morabito, M. Iorio, U. Balottin (poster), Schizophrenia International Research Society (SIRS) 2020
22. **Funzionamento familiare nell'anoressia nervosa: confronto tra percezione materna e paterna**, E. Vai, U. Balottin, C. Rogantini, L. Capone, M. Chiappedi, S. Figini, E. Ballante, M.M. Mensi (poster), Percorsi di Psichiatria, Rome 11-13 December 2019
23. **Assessment of muscular involvement in facio-scapulo-humeral dystrophy (FSHD) by quantitative muscle MRI**, M. Paoletti, M. Monforte, N. Bergsland, E. Ballante, F. Solazzo, R. Vitale, E. Belatti, G. Savini, P. Felisaz, G. Germani, S. Figini, G. Tasca, Deligianni, F. Santini, S. Bastianello, E. Ricci and A. Pichiecchio (poster) Imaging in Neuromuscular diseases – Berlin 17-19 November 2019

24. **Muscular involvement in amyotrophic lateral sclerosis (ALS) assessed by quantitative MRI**, M. Paoletti, L. Diamanti, F. Solazzo, E. Ballante, R. Vitale, E. Belatti, G. Savini, P. Felisaz, A. Faggioli, S. Figini, Deligianni, F. Santini, N. Bergsland and A. Pichiecchio (poster) Imaging in Neuromuscular diseases – Berlin 17-19 November 2019
25. **A new methodological perspective for classification model selection**, E. Ballante, S. Figini, International Conference on Optimization and Decision Science, University of Genova (04- 07 Sept 2019)
26. **A new polarization measure for decision tree models**, M. Galvani, E. Ballante, S. Figini, P. Uberti, International Conference on Optimization and Decision Science, University of Genova (04- 07 Sept 2019)
27. **Visual Function Score: a new assessment tool for visual disorders**, Signorini S., Luparia A., Cappagli G., Perotto E., Antonini M., Morelli F., Ballante E., Figini S. (oral communication) The Child Vision Society's 2019 Biannual Meeting, Pisa (15-17 June 2019)
28. **Polarized Classification Tree Models**, E. Ballante, M. Galvani, S. Figini, P. Uberti, International Spring Workshop on Computational Mathematics, Statistics and Machine Learning, University of Pavia (07-09 May 2019)
29. **A new method for identifying the optimal cut-point for continuous covariates in survival analysis** (Poster), E. Ballante, P. Rancoita, XXIXth International Biometric Conference, Barcelona (8-13 July 2018)

#### WORKING PAPERS

1. F. Naz, E. Ballante, **Proper Bayesian Bootstrap for Bagging tree model in survival analysis with correlated data**, submitted to Springer Proceedings in Mathematics & Statistics (under review)
2. M. Paoletti, S. Nicolosi, M. Todisco, E. Caverzasi, F. Tarantino, E. Ballante, F. Valentino, R. Zangaglia, S. Figini, G. Cosentino, C. Pacchetti, A. Pichiecchio, **Radiological features of gait phenotypes in patients with idiopathic normal pressure hydrocephalus**, submitted to *Parkinsonism and Related Disorders* (under review)
3. C. Varesio, D. Politano, J. Garau, J. Galli, F. Gavazzi, E. Ballante, D. Tonduti, A. Vanderver, E. Fazzi, Prof., S. Orcesi, L. Adang, R. Battini, R. Borgatti, V. De Giorgis, Prof., M.D. F. Dragoni, A. Gardani, R. La Piana, A. Pichiecchio, A. Pini, **Clinical characterization of a multicenter international cohort of p.A177T RNASEH2B homozygous mutated Aicardi Goutières patients: in search for prognostic factors** submitted to *European Journal of Paediatric Neurology* (under review)
4. C. Rogantini, M. Orlandi , A. Vecchio , D.C. Pratile , R.F. Cabini, E. Ballante, R. Borgatti, M.M. Mensi , **Psychiatric characterization and developmental pathways towards young adulthood in adolescents with Pathological Personality Structure**, submitted to *The British Journal of Psychiatry* (under review)
5. E. Ballante, **Beta Stacy bootstrap application in ensemble models for censored data**, submitted
6. A. Bondesan, A. Piralla, E. Ballante, A.M.G. Pitrolo, S. Figini, F. Baldanti, M. Zanella, **Predictability of uncertain infection dynamics via a model-driven approach based on viral load kinetics: insights from the COVID-19 epidemic in Italy**, working paper

#### COLLABORATIONS IN RESEARCH PROJECTS

##### **Polis Lombardia e Regione Lombardia** (Dec 2021 - present)

Research on data driven approaches for the analysis of early warning data related to anti-corruption.

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

**Bluesky project – Policlinico San Matteo** (*Oct 2021 - present*)

Research on the development of machine and deep learning method for the analysis of medical images.

**NextAIM project - INFN** (*Oct 2021 - present*)

Research on the development of machine and deep learning method for the analysis of medical images.

**PRIN Project: The informalisation of English language learning through the media: language input, learning outcomes and sociolinguistic attitudes from an Italian perspective** (*2020-present*)

Research on the application and development of statistical methods for the analysis of questionnaire data.

**e-MSFC: development of new diagnostic tools for multiple sclerosis based on connected objects** (*May 2020 – Nov 2021*)

Research in collaboration with UmanIT and Department of Mathematics Kean Lerrey, University of Nantes.

**BioData Science Center – IRCCS Mondino Foundation** (*Oct 2018 - present*)

Research on the development of statistical analysis on neurological data.

**BIOMIGA ERA-NET NEURON project** (*April 2020 - present*)

Machine learning models for the analysis of multi-domain data in the context of the research of biomarker of migraine.

**Rete IRCCS Neuroscienze e Neuroriabilitazione** (*July 2020-present*)

Statistical analysis and data quality check for the National Virtual Institute for Dementias.

BARBIERI QUESTIONARI

## VISITING PERIODS

✦ **USI, Università della Svizzera Italiana** (*July 2019 – Dec 2019*)

Visiting period in the Institute of Oncology Research (IOR), academic institute within the Faculty of Biomedical Sciences. Development of an interactive web application to visualize and extract knowledge from data.

✦ **University of Nantes** (*May 2020 – Nov 2021*)

Visiting period in the Department of Mathematics Kean Lerrey, University of Nantes to work on the project e-MSFC (online due to the pandemia).

## ATTENDED SCHOOLS, WORKSHOPS AND SEMINARS

- ✦ **English as a Medium of Instruction (EMI)**, 31 Jan-18 Feb 2023, Department of Political and Social Sciences, University of Pavia (held online)

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

- ✦ **An introduction to open science and research data management**, 10 July 2020, Mondino Foundation (held online)
- ✦ **Regularization Methods for Machine Learning (RegML2020)**, University of Genova, online, (29 June-3 July 2020)
- ✦ **European R Users Meetings (eRum 2020)**, University of Milan Bicocca and Polytechnic of Milan (held online), 17-20 June 2020
- ✦ **Bayesian modelling in the big data era. Case studies in understanding neurodegenerative disease**, Prof. Kerrie Mengersen, 6 February 2020, Mondino Foundation
- ✦ **International Spring Workshop in Computational Mathematics, Statistics and Machine Learning** University of Pavia (07-09 May 2019)
- ✦ **5<sup>th</sup> International Winter School on Big Data, BigDat 2019**, Cambridge University (07-11 Jan 2019)
- ✦ **International Winter School in Machine and Deep Learning for Neurological Diseases**, University of Pavia and Mondino Foundation (03-07 Dec 2018)

## TEACHING (LECTURER)

- ✦ **Methodological and computational approaches in data science**, 40 hours, Master degree program SERI (Economic development and international relations), Department of Political and Social Sciences, University of Pavia, March-May 2024
- ✦ **Methodological and computational approaches in data science**, 40 hours, Master degree program SERI (Economic development and international relations), Department of Political and Social Sciences, University of Pavia, March-May 2023
- ✦ **Statistica**, 60 hours, Bachelor degree program SIE (International science and european institutions), Department of Political and Social Sciences, University of Milan, Apr-Jun 2022
- ✦ **Data Science: aspetti metodologici e computazionali**, 40 hours, Master degree program SERI (Economic development and international relations), Department of Political and Social Sciences, University of Pavia, March-June 2022

## LESSONS AND SHORT COURSES

- ✦ **Computational statistics for neurosciences**, 7 hours, IRCCS Fondazione Mondino, Pavia (2019)
- ✦ **Introduction to Statistics and Data Analysis**, 3 hours, degree program in Fisioterapia e degree program in Logopedia, 25 January 2021
- ✦ **Statistics and Data Analysis**, 4 hours, degree program in Fisioterapia, 03 and 05 February 2020
- ✦ **Introduction to Statistics, Data Analysis and Machine Learning**, 2 hours, Master in Management per le funzioni di coordinamento delle professioni sanitarie, University of Pavia, 06 Sept 2019
- ✦ **Corso di Statistica Computazionale per le Neuroscienze**, 10 hours, IRCCS Fondazione Mondino, Pavia, 15 Feb-1 Mar 2019
- ✦ **Introduction to Machine learning**, 4 hours, Corso Alta Formazione in Financial Advertising and Storytelling Techniques, University of Pavia 23 Feb and 9 Mar 2019
- ✦ **Text mining and sentiment Analysis**, 2 hours, Master in Marketing Utilities and Storytelling Techniques,

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae in base art. 13 del D. Lgs. 196/2003.

## ORGANIZATION OF SCHOOLS/CONFERENCES

- ✦ Member of the scientific committee of the **Satellite workshop to International Society for Bayesian Analysis (ISBA) world meeting**, Università della Svizzera Italiana (USI), Lugano (25-28 July 2024)
- ✦ Member of the organizing committee of the **Satellite workshop to International Society for Bayesian Analysis (ISBA) world meeting**, Università della Svizzera Italiana (USI), Lugano (25-28 July 2024)
- ✦ Member of the organizing committee of the **Spring Workshop 2024 of the PhD in Computational Mathematics and Decision Sciences (COMPMAT2024)**, University of Pavia (8 May 2024)
- ✦ Member of the organizing committee of the **Spring Workshop 2023 of the PhD in Computational Mathematics and Decision Sciences (COMPMAT2023)**, University of Pavia (22 May 2023)
- ✦ Member of the organizing committee of the **Spring Workshop 2022 of the PhD in Computational Mathematics and Decision Sciences (COMPMAT2022)**, University of Pavia (16-17 March 2022)
- ✦ Member of the organizing committee of the **International Winter school in Machine and Deep Learning for neurological diseases**, University of Pavia and Mondino Foundation (03-07 December 2018)

## REFEREE ACTIVITIES

Computational Statistics, Journal of the American Statistical Association, Diagnostics (special issue Radiomics and Machine Learning in Disease Diagnosis), Italian Journal of Pediatrics, Journal of classification, Axioms, Onco, Mathematics

## PUBLIC ENGAGEMENT ACTIVITIES

- ✦ **Exhibition «Simmetria, giochi di specchi »**, University of Milan, *May 2017 – February 2018*
- ✦ **Exhibition «MaTeinItaly »**, La Triennale di Milano, *September 2014 – November 2014*

## SKILLS

- ✦ **Mother tongue** Italian
- ✦ **Other language** English (B2/C1), Spanish (A2)
- ✦ **DS Tools and Programming skills** R, Python, Matlab, SAS, C
- ✦ **Other IT skills** Latex, Qlik Sense, Microsoft Office

Pavia, 09/07/2024

Elsa Bletta