

Manuela Cattelan

Associate Professor in Statistics

Contact information

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Research interests

Penalized and pseudo likelihood theory and methods; methods for high-dimensional regression; inferential methods and models for dependent data.

Employment history

- 02/2018–02/2021 Assistant Professor, Department of Statistical Sciences, University of Padua.
- 12/2017–01/2018 Research Fellow, Department of Statistical Sciences, University of Padua.
- 11/2014–11/2017 Assistant Professor, Department of Statistical Sciences, University of Padua.
- 01/2009–10/2014 Research Fellow, Department of Statistical Sciences, University of Padua.
- 03/2004–12/2005 Financial analyst, *Risk Analysis and Management srl*, Padua, Italy.

Education

- 03/2009 PhD in Statistical Sciences, Department of Statistical Sciences, University of Padua.
- 04/2007–12/2007 Visiting Ph.D. student, Department of Statistics, University of Warwick (UK).
- 12/2003 Master's Degree in Business and Economics, Faculty of Economics, University of Padua.

Research Funding

Principal Investigator

- 2021–2022 *A Bayesian nonparametric clustering approach for monitoring sport performances*, Department of Statistical Sciences, University of Padua.
- 2017–2018 *Statistical methods for marker detection with a view to cancer stratification*, Department of Statistical Sciences, University of Padua.
- 2013–2014 *Inferential issues in regression models for dependent categorical and discrete data*, University of Padua.

Member of the research group

- PRIN 2015 *Likelihood-free methods of inference*, Italian Ministry of Education, University and Research.
- 2014–2015 *Neo-Fisherian and Bayesian inference for intractable likelihoods: modern approaches with application in Life Sciences*, University of Padua.
- 2012–2013 *Modern Bayesian and frequentist inference: case studies in biostatistics*, University of Padua.
- PRIN 2008 *New likelihood-based inferential methods for complex statistical models*, Italian Ministry of Education, University and Research.
- PRIN 2006 *Approximate likelihood methods for high-dimensional dependencies*, Italian Ministry of Education, University and Research.

Contributions to conferences

Invited talks

- 14–16/12/2019 *Pairwise likelihood methods for paired comparison models*, ERCIM 2019.
- 14–16/12/2018 *Lorelogram models for spatially clustered binary data*, ERCIM 2018.
- 9–11/12/2016 *Regression approaches for competing risks models with time-dependent covariates*, ERCIM 2016.
- 26–30/08/2013 *Models for dependent paired comparison data*, 18th European Young Statisticians Meeting, Osijek, Croatia.
- 9–14/07/2012 *Hybrid pairwise likelihood estimation of paired comparison data*, 8th World Congress in Probability and Statistics, Istanbul, Turkey.
- 19–21/09/2011 *A Thurstonian model for ranking scientific journals*, 7th Conference on Statistical Computation and Complex Systems, Padua, Italy.
- 29–31/10/2009 *A model for correlated paired comparison data*, ERCIM 2009.

Contributed talks

- 22–26/07/2019 *Plackett models for dependent discrete data*, European Meeting of Statisticians, Palermo, Italy.
- 9–13/07/2018 *Plackett models for longitudinal count data*, XXIX International Biometric Conference, Barcellona, Spain.
- 24–28/07/2017 *(Hybrid) pairwise likelihood inference for Plackett models*, XXXI European Meeting of Statisticians, Helsinki, Finland.
- 5–7/07/2017 *Marginal logistic regression for spatial-clustered binary data*, Spatial Statistics 2017, Lancaster, UK.
- 6–8/12/2014 *Marginal modeling of spatial clustered binary data*, ERCIM 2014.
- 19–22/08/2014 *Maximum simulated likelihood estimation of Thurstonian models*, 21st International Conference on Computational Statistics, Geneve, Switzerland.
- 11–13/06/2014 *Composite likelihood estimation in spatial logistic regression*, 47th Scientific Meeting of the Italian Statistical Society, Cagliari, Italy.
- 14–16/12/2013 *Empirical and simulated adjustments of composite likelihood ratio statistics*, ERCIM 2013.

- 9–11/09/ 2013 *Inference in Thurstonian models for paired comparison data*, 8th Conference on Complex Data Modelling and Computationally Intensive Statistical Methods for Estimation and Prediction, Milano, Italy.
- 8–12/07/2013 *Marginal modeling of dependent paired comparison data*, 28th International Workshop on Statistical Modelling, Palermo, Italy.
- 27–28/06/2013 *Marginal regression analysis of dependent animal behavior data*, X Conference of the SIB, Brixen, Italy.
- 20–22/06/2012 *Limited information estimation methods for paired comparison data*, 46th Scientific Meeting of the Italian Statistical Society, Rome, Italy.
- 13–17/09/2010 *Mixed paired comparisons models*, Royal Statistical Society Conference 2010, Brighton, UK.
- 16–18/06/2010 *A model for correlated paired comparison data*, 45th Scientific Meeting of the Italian Statistical Society, Padua, Italy.
- 15–17/04/2008 *Composite likelihood inference for Bradley-Terry models*, Workshop on Composite Likelihood Methods, Coventry, UK.

Publications

E. Poli, M. Cattelan, I. Zanetti, A. Scagnellato, G. Giordano, A. Zin, G. Bisogno, P. Bonvini (2021). Autoantibody profiling of alveolar rhabdomyosarcoma patients unveils tumor-associated antigens with diagnostic and prognostic significance. *Oncolmmunology*, **10**, 1954765. DOI: 10.1080/2162402X.2021.1954765.

Rubega, M., Formaggio, E., Di Marco, R., Bertuccelli, M., Cattelan, M., Bonato, P., Masiero, S., Del Felice, A. (2021). Cortical correlates in upright dynamic and static balance in the elderly. *Scientific Reports* **11**, 14132. DOI:0.1038/s41598-021-93556-3.

Del Felice, A., Bertuccelli, M., Rubega, M., Cattelan, M., Masiero, S. (2021). Reply to Letter “Transcranial alternating current stimulation (tACS) as a treatment for fibromyalgia syndrome?” by Fröhlich and Riddle. *European Archives of Psychiatry and Clinical Neuroscience*. DOI: 10.1007/s00406-021-01271-x.

Masiero, S., Sarto, F., Agostini, F., Cattelan, M., Sarto, D., Del Felice, A., Scanu, A., (2021). Lifetime prevalence of non-specific low back pain in adolescents: a cross-sectional epidemiological survey. *American Journal of Physical Medicine & Rehabilitation* **100**, 1170–1175. DOI: 10.1097/PHM.0000000000001720.

Bernardi, L., Bertuccelli, M., Formaggio, E., Rubega, M., Bosco, G., Tenconi, E., Cattelan, M., Masiero, S., Del Felice, A., (2020). Beyond physiotherapy and pharmacological treatment for fibromyalgia syndrome: tailored tACS as a new therapeutic tool. *European Archives of Psychiatry and Clinical Neuroscience* **271**, 199–210. DOI: 10.1007/s00406-020-01214-y.

Tombolan, L., Millino, C., Pacchioni, B., Cattelan, M., Zin, A., Bonvini, P., Bisogno, G. (2020). Circulating miR-26a as potential prognostic biomarkers in pediatric rhabdomyosarcoma. *Frontiers in Genetics, section Cancer Genetics* **11**, 606274. DOI: 10.3389/fgene.2020.606274..

Masiero, S., Cerrel Bazo, H.A., Rattazzi, M., Bernardi, L., Munari, M., Faggin, E., Cattelan, M., Pualetto, P., Del Felice, A., (2020). Developing an instrument for an early prediction model of long-term functional outcomes in people with acquired injuries of the central nervous system: protocol and methodological aspects. *Neurological Sciences* **42**, 2441–2446. DOI: 10.1007/s10072-020-04821-8.

Poli, E., Zin, A., Cattelan, M., Tombolan, L., Zanetti, I., Scagnellato, A., Bonvini, P., Bisogno, G. (2020). Prognostic value of circulating IGFBP2 and related autoantibodies in children with metastatic rhabdomyosarcomas. *Diagnostics* **10**, 115. DOI: 10.3390/diagnostics10020115.

Monzani, D., Vergani, L., Pizzoli, S. F. M., Marton, G., Mazzocco, K., Bailo, L., Messori, C., Pancani, L., Cattelan, M., Pravettoni, G. (2020). Sexism interacts with patient-physician gender concordance in influencing patient control preferences: Findings from a vignette experimental design. *Applied Psychology: Health and Well-Being* **12**, 471–492. DOI: 10.1111/aphw.12193.

Del Felice, A., Castiglia, L., Formaggio, E., Cattelan, M., Scarpa, B., Manganotti, P., Tenconi, E., Masiero, S. (2019). TACS and physical therapy for motor and cognitive symptoms in Parkinson's disease: randomized cross-over trial, *Clinical Neurophysiology* **130**, e114. DOI: 10.1016/j.clinph.2019.04.601.

Pillon, M., Sperotto, F., Zattarin, E., Cattelan, M., Carraro, E., Contin, A. E., Massano, D., Pece, F., Putti, M.C., Messina, C., Pettenazzo, A., Amigoni, A. (2019). Predictors of mortality after admission to pediatric intensive care unit in oncohematologic patients without history of hematopoietic stem cell transplantation: a single center experience. *Pediatric Blood & Cancer* **66**(10):e27892. DOI: 10.1002/pbc.27892.

Del Felice, A., Castiglia, L., Formaggio, E., Cattelan, M., Scarpa, B., Manganotti, P., Tenconi, E., Masiero, S. (2019). Personalized transcranial alternating current stimulation (tACS) and physical therapy to treat motor and cognitive symptoms in Parkinson's disease: A randomized cross-over trial. *Neuroimage Clinical* **22**, 101768. DOI: 10.1016/j.nicl.2019.101768.

Cattelan, M. e Varin, C. (2018). Marginal logistic regression for spatially clustered binary data. *Journal of the Royal Statistical Society Series C - Applied Statistics* **67**, 939–959. DOI:10.1111/rssc.12270.

Pillon, M., Amigoni, A., Contin, A. E., Cattelan, M., Carraro, E., Campagnano, E., Tumino, M., Calore, E., Marzollo, A., Mainardi, C., Boaro, M. P., Nizzero, M., Pettenazzo, A., Basso, G., Messina, C. (2017). Risk factors and outcomes related to pediatric intensive care unit admission after hematopoietic stem cell transplantation: A single centre experience. *Biology of Blood and Marrow Transplantation* **23**, 1335–1341. DOI: 10.1016/j.bbmt.2017.04.016.

Varin, C., Cattelan, M. e Firth, D. (2016). Statistical modelling of citation exchange between statistics journals. *Journal of the Royal Statistical Society Series A - Statistics in Society* **179**, 1–33 (rejoinder 58–61). DOI: 10.1111/rssa.12124.

Contin, A. E., Pillon, M., Amigoni, A., Calore, E., Tumino, M., Carraro, E., Antonazzo, L., Marzollo, A., Mainardi, C., Gabelli, M., Varotto, S., Cattelan, M., Pettenazzo, A., Basso, G., Messina, C. (2016). Incidenza, outcome e fattori di rischio dei ricoveri in terapia intensiva di pazienti sottoposti a trapianto di cellule staminali ematopoietiche. *Hematology Reports* **8**, 96. DOI: 10.4081/hr.2016.6611.

Cattelan, M. e Sartori, N. (2016). Empirical and simulated adjustments of composite likelihood ratio statistics. *Journal of Statistical Computation and Simulation* **86**, 1056–1067. DOI: 10.1080/00949655.2015.1053091.

Cattelan, M. (2014). Maximum simulated likelihood estimation of Thurstonian models. In *Proceedings of the 21st International Conference on Computational Statistics*, 19–22 August 2014, Geneve, Switzerland, 633–640, ISBN: 978 2 8399 1347 8.

Cattelan, M. e Varin, C. (2014). Composite likelihood estimation in spatial logistic regression. In *Proceedings of the 47th Scientific Meeting of the Italian Statistical Society*, Cabras, S., Di Battista, T. e Racugno, W. (Eds), Cagliari, 11–13 June 2014, ISBN: 978 88 8467 874 4.

Cattelan, M. e Varin, C. (2013). Hybrid pairwise likelihood analysis of animal behavior experiments. *Biometrics* **69**, 1002–1011. DOI: 10.1111/biom.12090.

Cattelan, M. (2013). Inference in Thurstonian models for paired comparison data. In *Proceedings of the Conference Complex Data Modelling and Computationally Intensive Statistical Methods for Estimation and Prediction*, Milan, 9–11 September 2013, ISBN: 97888 6493 019 0.

Cattelan, M., Varin, C. e Firth, D. (2013). Dynamic Bradley-Terry modelling of sports tournaments. *Journal of the Royal Statistical Society Series C - Applied Statistics* **62**, 135–150. DOI: 10.1111/j.1467-9876.2012.01046.x.

Cattelan, M. e Varin, C. (2013). Models for dependent paired comparison data. In *Proceedings of the 18th European Young Statisticians Meeting*, Šuvak, N. (Ed), Osijek, Croatia, 26–30 August 2013, 107–111, ISBN: 978 953 6931 70 5.

Cattelan, M. e Varin, C. (2013). Marginal modeling of dependent paired comparison data. In *Proceedings of the 28th International Workshop on Statistical Modelling*, Muggeo, V. M. R., Capursi, V., Boscaino, G., Lovison, G. (Eds), Palermo, 8–12 July 2013, vol.2, 529–532, ISBN: 978 88 96251 49 2.

Cattelan, M. e Varin, C. (2013). Marginal regression analysis of dependent animal behavior data. In *Proceedings of the IX Conference of SIB, Statistics in Life and Environmental Sciences*, Brixen, 27–28 June 2013, 67–70.

Cattelan, M. e Varin, C. (2013). A model for correlated paired comparison data. In *Advances in Theoretical and Applied Statistics*, Torelli, N., Pesarin, F., Bar-Hen, A. (Eds), 167–176, Springer, ISBN: 978 3 642 35587 5.

Cattelan, M. (2012). Models for paired comparison data: A review with emphasis on dependent data. *Statistical Science* **27**, 412–433. DOI: 10.1214/12-STS396.

Cattelan, M. (2012). Limited information estimation methods for paired comparison data. In *Proceedings of the 46th Scientific Meeting of the Italian Statistical Society*, Rome, 20–22 June 2012, ISBN: 978 88 6129 882 8.

Cattelan, M. (2011). Correlation models for paired comparison data. In *PhD Theses in Statistics and Applications*, 95–98, CLEUP, Padova, ISBN: 978 88 6129 708 1.

Cattelan, M. e Varin, C. (2011). A Thurstonian model for ranking scientific journals. In *Proceedings of the 7th Conference on Statistical Computation and Complex Systems*, Padua, 19–21 September 2011, ISBN: 978 88 6129 753 1.

Cattelan, M. e Varin, C. (2011). Hybrid pairwise likelihood analysis of Thurstone-Mosteller models. In *Proceedings of the 8th Scientific Meeting of the Classification and Data Analysis group of the Italian Statistical Society*, Pavia, 7–9 September 2011, ISBN: 978 88 90663901.

Cattelan, M. e Varin, C. (2010). A model for correlated paired comparison data. In *Proceedings of the 45th Scientific Meeting of the Italian Statistical Society*, Padua, 16–18 June 2010, ISBN: 978 88 6129 566 7.

Cattelan, M. (2009). *Correlation models for paired comparison data*. PhD thesis, Department of Statistical Sciences, University of Padua.

Teaching experience

- PhD level *Statistics and Research Methodology*, PhD in *Medicina dello Sviluppo e Scienze della Programmazione Sanitaria*, University of Padua, academic years 2016/17, 2015/16, 2014/15.
- Graduate level *Statistical Methods for High-Dimensional Data*, University of Padua, academic year 2021/22.
Computational Statistics (Advanced), University of Padua, academic years 2020/21, 2018/19.
Data Mining, University of Padua, academic year 2018/19.
- Undergraduate level *Multidimensional Data Analysis*, University of Padua, academic years 2021/22, 2020/21, 2019/20, 2017/18, 2016/17, 2015/16.
Statistics, University of Verona, academic year 2013/14.
- Teaching assistant at the University of Padua (Statistics, Statistical Models I, Statistical Models II, Data Analysis, Statistical Quality Control) and at Ca' Foscari University-Venice (Probability, Statistics).