

Curriculum Vitae – Davide Ferrari, PhD

- AFFILIATION** Faculty of Economics and Management, Free University of Bozen-Bolzano
- CONTACT** Office: E2.05, Universitätsplatz 1, 39100, Bozen-Bolzano
Phone: +39 0471013167
E-mail: davide.ferrari2@unibz.it
- EDUCATION** (2003-2008) Ph.D. and M.Sc. in Statistics, University of Minnesota. Thesis: Maximum L_q -likelihood estimation. Adviser: Prof. Yuhong Yang.

(1998-2002) Laurea in Economics. University of Modena and Reggio Emilia. Master Thesis: Transformations and attributions in agents and artifact space. Adviser: Prof. David A. Lane.
- WORK EXPERIENCE** (2018-present) Associate Professor, Faculty of Economics, Free University of Bozen-Bolzano.

(2015-present) Associate Research Fellow, Associate Research Fellow, Australian Research Council Centre of Excellence for Mathematical and Statistical Frontiers.

(2016-2017) Associate Professor, School of Mathematics and Statistics, University of Melbourne.

(2012-2016) Assistant Professor, School of Mathematics and Statistics, University of Melbourne.

(2008-2012) Assistant Professor, Department of Economics, University of Modena and Reggio Emilia.

(2010-2012) Research Fellow, European Center for Living Technology, University of Venice.

(2006-2007) Graduate Instructor, School of Statistics, University of Minnesota.

(2005) Biostatistician/Research Assistant, V.A. Memorial Hospital, Minneapolis.

(2003-2006) Teaching Assistant. School of Statistics, University of Minnesota.
- CURRENT RESEARCH FOCUS** Methods: Model selection; Inference methods based on divergence minimization; Inference for intractable likelihoods; Robust statistical methods. Applications: Analysis of complex high-dimensional data sets in life and social sciences, including genetic data, environmental spatial extremes, spatio-temporal modeling for biological data.
- ACCEPTED OR PUBLISHED PAPERS** (2018) Qin, Y., **Ferrari, D.** et al, Model Confidence Bounds for Variable Selection. (Biometrics, accepted).

(2018) Qiao, P., Møllek, C., **Ferrari, D.**, and Fred Hollande. A Spatio-Temporal Model and Inference Tools for Longitudinal Count Data on Multicolor Cell Growth. The International Journal of Biostatistics. Published online. doi:10.1515/ijb-2018-0008

(2017) Zheng, C., and **Ferrari, D.** , Model selection confidence sets by likelihood ratio testing. *Statistica Sinica*, Accepted. [arXiv:1709.04342](https://arxiv.org/abs/1709.04342).

(2017) Huang, Z., **Ferrari, D.** and Qian, G.. "Parsimonious and powerful composite likelihood testing for group difference and genotype-phenotype association. *Computational Statistics & Data Analysis* 110 (2017): 37-49.

(2016) Qian, G., Wu, Y., **Ferrari, D.**, Qiao, P., & Hollande, F. semisupervised clustering by iterative partition and regression with neuroscience applications. *Computational intelligence and neuroscience*.

(2016) Creed, S., Le C., Hassan, M., Pon, C, Albold, S., Chan, K., Berginsk, M., Huang, Z., Bear, J, Lane, R., Halls, M., **Ferrari, D.**, Nowell, C., Sloan, E., beta2-adrenergic signaling induces invadopodia for breast cancer cell invasion. *Breast Cancer Research*.

- (2016) Le C. ... **Ferrari, D.** ... et al. Chronic Stress Remodels Lymph Vasculature to Promote Tumor Cell Dissemination, *Nature Communications*, 7.
- (2016) **Ferrari, D.** and Zheng, C., Reliable inference for complex models by discriminative composite likelihood estimation, *Journal of Multivariate Analysis*, 144: 68-80.
- (2016) Giuzio, M., **Ferrari, D.** and Paterlini, S., Sparse and robust normal and t- portfolios by penalized Lq-likelihood minimization, *European Journal of Operation research*, 250(1), 251–261.
- (2016) **Ferrari, D.**, Qian, G., and Hunter, T., Parsimonious and Efficient Likelihood Composition by Gibbs Sampling, *Journal of Computational and Graphical Statistics*.
- (2016) Bergamaschi, S., **Ferrari, D.**, Guerra, F., Simonini, G., & Velegarakis, Y.. Providing insight into data source topics. *Journal on Data Semantics*, 5(4), 211-228.
- (2015) **Ferrari, D.** and Yang. Y., Confidence sets for model selection by F -testing, *Statistica Sinica*, 25, 1637–1658.
- (2015) La Vecchia, D., Camponovo, L., and **Ferrari D.**, Robust heart rate variability analysis by generalized entropy minimization *Computational Statistics and Data Analysis*, 82: 137-151.
- (2014) Kim-Fuchs, C., Le, C. P., Pimentel, M. A., Shackelford, D., **Ferrari D.**; Angst, E., Hollande, F., and Sloan E., Chronic stress accelerates pancreatic cancer growth and invasion: A critical role for beta-adrenergic signaling in the pancreatic microenvironment, *Brain, Behavior, and Immunity*.
- (2013) **Ferrari, D.**, Borrotti, M. and De March D., Response improvement in complex experiments by co-information composite likelihood optimization, *Statistics and Computing*, p. 1–13.
- (2013) **Ferrari, D.**, and Borrotti, M. *Maximum Entropy Design in High Dimensions by Composite Likelihood Modelling*. mODa 10 Advances in Model-Oriented Design and Analysis. Springer International Publishing, 2013. 73-80.
- (2012) **Ferrari, D.** and La Vecchia, D. On robust estimation via pseudo-additive information, *Biometrika* , volume 99, issue 1, pages 238–244.
- (2012) Bertoldi, C., Bellei, E., Pellacani, C., **Ferrari, D.**, Lucchi, A., Cuoghi, A., Bergamini, S., Cortellini, P., Tomasi, A., Zeffe, D. and Monari, E., Non-bacterial protein expression in periodontal pockets by proteome analysis, *Journal of Clinical Periodontology*.
- (2012) Lalla, M., **Ferrari, D.** and Frederic, P. Unit nonresponse errors in income surveys: a case study. *Quality & Quantity*, Volume 46, Issue 6, pp 1769-1794.
- (2011) Lalla, M., Frederic, P. and **Ferrari, D.**, Students Evaluation of Teaching Effectiveness: Satisfaction and Related Factors (Attanasio M., Capursi V. - Statistical Methods for the Evaluation of University Systems - Springer Berlin Heidelberg (DEU)), pages 113–129. Applied statistics/Collaborative.
- (2011) Pistoresi B., Salsano F., **Ferrari, D.** Political institutions and central bank independence revisited, *Applied Economic Letters*, Vol 18, pp. 679–682.
- (2010) **Ferrari, D.** and Yang, Y. Maximum lq-likelihood estimation. *The Annals of Statistics*, Vol.38, n.2, 753-78.
- (2009) **Ferrari, D.** and Paterlini, S. The Maximum Lq-Likelihood Method: an application to extreme quantile estimation in finance. *Methodology and Computing in Applied Probability*, Vol.11, n.1, 3-19.
- (2009) **Ferrari, D.**, Read, D. and van der Leeuw, S. An agent-based model of information flows in social dynamics, in D. Lane, D. Pumain, S. van der Leeuw and G. West (eds.) Complexity Perspectives on Innovation and Social Change, Springer.
- (2009) Villani, M., Bonacini S., **Ferrari, D.**, Serra, R. and Lane, D. Exaptive processes: an agent based model, in D. Lane, D. Pumain, S. van der Leeuw and G. West (eds.) Complexity Perspectives on Innovation and Social Change, Springer. Stochastic modeling.
- (2007) Villani, M., Bonacini S., **Ferrari, D.**, Serra, R. and Lane, D. An agent-based model of exaptive processes, *European Management Review*. Vol. 4, 141-151.

GRANTS AND
RESEARCH
FUNDING

- (2018) High-Performance statistical methods for Spatio-Temporal Environmental and econometric data (HIPSTER). Interdisciplinary University of Bolzano Grant. Role: Chief investigator.
- (2018) Euregio Mobility Program grant. First UniBz Summer School in Data Science for the Social Sciences. Role: Project leader.
- (2018) REliable ASsessment of the Selection Uncertainty for statistical models by REsampling (REASSURE). Start-up University of Bolzano Grant. Role: Chief investigator.
- (2017) Composite likelihood inference for spatio-temporal image data on multicolor cell proliferation, Interdisciplinary seeding grant, University of Melbourne. Role: Chief investigator.
- (2017) Learning and Teaching Initiatives Grant, University of Melbourne. A new teaching model for data analysis in the biological sciences.
- (2016) Australian Mathematical Science Institute industry collaboration intern program, Model selection and prediction of tropical cyclones. Industry partner: Bureau of Meteorology. Role: Chief Investigator. .
- (2015) Australian Mathematical Science Institute industry collaboration intern program, Reliable data-driven modelling of the security risk in building. Industry partner: Epsilon Security. Role: Chief Investigator.
- (2015) University of Melbourne International Research and Research Training Fund grant. Role: Chief investigator.
- (2014) University of Melbourne Early Career Research grant, Model selection confidence sets for high- dimensional data. Role: Leading Chief Investigator.
- (2014) University of Melbourne International Research and Research Training Fund grant. Role: Chief investigator. Variable selection confidence sets for high- dimensional data. Role: Leading Chief Investigator.
- (2010-2012) Fondazione Cassa di Risparmio, Modena, REFIGLO Project - Real and financial economic dynamics in a globalized world: Theory, Modeling, and Policy Implications. Role: co-investigator.
- (2010-2011) Fondazione Cassa di Risparmio di Modena, ASBE Project - Advances in the study of business cycle and economic growth. Role: co-investigator.
- (2008-2009) Progetti di Ricerca di Interesse Nazionale (PRIN), Evolutionary computation in statistical modeling and estimation problems. Role: Chief Investigator.

INDUSTRY
CONSULTING
PROJECTS

- (2017) Statistical ranking of research performance in Australia from bibliometric data. Industry partner: Wiley Australia.
- (2016) Model selection and prediction of tropical cyclones. Industry partner: Bureau of Meteorology, Australia.
- (2015) Reliable data-driven modelling of the security risk in building. Industry partner: Epsilon Security.
- (2011) Design of experiments for vaccine development. Syntiron, LLC, St. Paul, USA.

SERVICE TO
PROFESSION

I served as a referee for the following journals: Journal of American Statistical Association, Statistica Sinica, Biometrika, The Journal of Econometrics, Methodology and Computing in Applied Probability, Computational Statistics and Data Analysis, Entropy, Statistical Methods, Applications and Annals of Human Genetics.

PROGRAM
DEVELOPMENT
AND
COORDINATION

(2016-2017) Coordinator of the Masters and Graduate Diploma in Data Science and at the University of Melbourne.

(2016) Contributed to development of the Masters of Data Science at the University of Melbourne.

(2016) Developed the Post-Graduate Diploma in Data Science at the University of Melbourne.

TEACHING

University of Bolzano, Italy:

(2018) 27010–Statistics (undergraduate, intro for economists)

(2018) 25408–Applied Statistics for Accounting and Finance (graduate, analysis of financial time series)

(2018) 27174–Methods for Business Analysis (graduate, statistical learning methods with applications)

University of Melbourne, Australia:

(2017) MAST20031 Analysis of Biological Data (undergraduate, introductory subject for biologists).

(2017) MAST90110 Analysis of High-Dimensional Data (graduate, advanced statistics subject).

(2012–2015) MAST10001 Experimental Design and Data Analysis (undergraduate, introductory statistics for biologists).

(2013–2016) BINF90001 Statistics for Bioinformatics (graduate, advanced statistical methods for bioinformaticians).

(2014–2016) MAST20005 Statistics (undergraduate, statistical theory).

(2014–2016) MAST90058 Elements of Statistics (graduate, introductory subject for bioinformaticians).

University of Modena and Reggio Emilia, Italy:

(2009-2011) Statistical Learning and Prediction from Data (graduate, applied statistics and generalized linear models)

(2010-2011) Introduction to sampling (graduate, topics in applied dimension reduction and classification)

(2008) Introduction to Statistical Analysis (undergraduate).

University of Parma, Italy:

Spring 2010. Bayesian Analysis for Forensic Sciences (graduate).

School of Statistics, University of Minnesota, USA:

Spring 2007. Instructor, Stat 3011: Introduction to Statistical Analysis (undergraduate)

Fall 2006. Instructor, Stat 3011: Introduction to Statistical Analysis (undergraduate)

Spring 2006. Teaching assistant, Stat 3022: Introduction to Data Analysis (undergraduate)

Fall 2005. Teaching assistant, Stat 5303: Design of Experiments (graduate)

Summer 2005. Teaching assistant, Stat 3011: Introduction to Statistical Analysis (undergraduate)

Spring 2005. Teaching assistant, Stat 1001: Introduction to the Ideas of Statistics (undergraduate)

Fall 2004. Teaching assistant, Stat 5021: Statistical Analysis (graduate)

Summer 2005. Teaching assistant, Stat 5302: Applied Regression Analysis (graduate)

Spring 2004. Teaching assistant, Stat 3011: Introduction to Statistical Analysis (undergraduate)

Fall 2003. Teaching assistant, Stat 1001: Introduction to the Ideas of Statistics (undergraduate)

Summer/Winter Schools:

(2017) Introduction to high-dimensional statistics. Australian Mathematical Science Institute (AMSI) Winter School, Queensland University of Technology, Brisbane, Australia.

(2010) Generalized likelihood inference for biologists (graduate). International Advanced School in Statistical Inference for Biology and Human Sciences, Asti, Italy.

STUDENT
SUPERVISION

PhD students (University of Melbourne):

(2017) Chao Zheng.

(current) PuXue Qiao, Zhendong Huang, Zhenguo Wu, and Louis Lara Gonzales.

MSc research students (University of Melbourne):

(current) Kieran Maguire Shiting Zhao

(2017) Irina Domaingue, Olga Shulyarenko.

(2016) Kexin Xu, Tian Yuan

(2015) Chen Fan, Lachlan McIntosh, Janan Arslan

(2014) Zhendong Huang, Puxue Qiao, Michael Zheng

Undergraduate students:

(2012–2017) At the University of Melbourne, I have supervised 4 students through the Vacation Scholarship Program (VSP) at the School of Mathematics and Statistics working on various statistics and data analysis projects related to biomedical research.

(2009–2011) At the University of Modena, Italy, I supervised 5 students on data analysis research projects related to business statistics, economics and finance in collaboration with other academics in the Economics Department.

ADMINISTRATIVE
RESPONSIBILITIES
& ENGAGEMENT

University of Bolzano:

(2018–present) Member of the UniBz Doctoral Degree Committee

(2018–present) Coordinator of bilateral exchange programs

University of Melbourne:

(2016–2017) Master of Data Science coordinator

(2017–2018) Mathematics and Statistics Postgraduate Committee member

(2014–2018) Mathematics and Statistics Melbourne-Peking Research Forum Deputy Chair

(2012–2015) Student-Staff Liason Committee member

(2012–2015) Mathematics and Statistics Open Day coordinator

(2013–2015) Undergraduate Studies Committee member

University of Modena:

(2009-10) Seminar series organizer

(2009-10) Undergraduate Studies Teaching Committee