




Alessandro Casa


CONTACT INFORMATION

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RESEARCH INTERESTS

Density-based clustering; Nonparametric statistics; Density estimation; Co-clustering; Longitudinal data; Latent variable models; High-dimensional regression; Dimensionality reduction techniques.

CURRENT POSITION

Postdoctoral research fellow since Nov. 2019
School of Mathematics and Statistics, University College Dublin
Supervisor: Prof. T.B. Murphy

EDUCATION

Ph.D. in Statistics Oct. 2016 - Feb. 2020
University of Padova
Thesis: *Climbing modes and exploring mixtures: a journey in density-based clustering*
Supervisor: Prof. G. Menardi and Prof. J.E.Chacòn (co-supervisor)

Master degree in Statistical Sciences Oct. 2014 - Sept. 2016
University of Padova
Final grade: 110/110 cum laude
Thesis: *Semi-supervised detection of collective anomalies using non-parametric methods with an application to particle physics* (written in italian)
Supervisor: Prof. G. Menardi

Bachelor degree in Statistics, Economics and Finance Oct. 2011 - July 2014
University of Padova
Final grade: 110/110 cum laude
Thesis: *Dimension reduction for model-based clustering: a simulation study and an application to genetic data* (written in italian)
Supervisor: Prof. G. Menardi

PUBLICATIONS

Working paper

- Casa A., Bouveyron C., Erosheva E. & Menardi G. (2020+)
Co-clustering of longitudinal data via shape invariant model.
- Casa A., O'Callaghan T. & Murphy, T.B. (2020+)
Parsimonious Bayesian Factor Analysis for modelling latent structure in spectroscopy data.

Submitted preprints

- Frizzarin M., Gormley I.C., Berry D.P., Murphy T.B., Casa A., Lynch A. & McParland S. (2020+)
Predicting dairy cow milk quality traits from routinely available milk spectra using statistical machine learning methods.
- Casa A. & Menardi, G. (2020+)
Nonparametric semi-supervised classification with application to signal detection in high energy physics.
Preprint available at: <https://arxiv.org/pdf/1809.02977.pdf>

Article in refereed journals

- Casa A., Scrucca L. & Menardi G. (2020+)
Better than the best? Answers via model ensemble in density-based clustering
Accepted for publication in *Advances in Data Analysis and Classification*
- Casa A., Chacòn J.E. & Menardi, G. (2020)
Modal clustering asymptotics with applications to bandwidth selection.
Electronic Journal of Statistics 14(1), 835–856
- Casa A. (2018)
On the choice of the weight function for the integrated likelihood.
SM Journal of Biometrics & Biostatistics, 3(3), 1033.

Book chapters

- Cabassi A., Casa A., Farcomeni A., Fontana M., Russo, M. (2018).
Three testing perspectives on connectome data.
Studies in Neural Data Science, Springer Volume 'Proceedings in Mathematics & Statistics', ISBN-9783030000394.

Conferences and Workshop

- Casa A., Chacòn J.E. & Menardi G. (2019)
Asymptotics for bandwidth selection in nonparametric clustering.
Cladag 2019 - Book of short papers.
- Casa A. & Menardi G. (2019)
Nonparametric semisupervised classification and variable selection for new physics searches.
EMS 2019 - Program and Book of Abstracts.
- Pascali G., Casa A. & Menardi G. (2019)
Co-clustering TripAdvisor data for personalized recommendations.
Book of short Papers SIS 2019. ISBN 978889191510.
- Casa A., Scrucca L. & Menardi G. (2018)
Averaging via stacking in model-based clustering.
Book of abstracts of the 4th International Workshop on Model-Based Clustering and Classification (MBC2)
- Casa A., Scrucca L. & Menardi G. (2018)
On the selection uncertainty in parametric clustering.
Book of abstracts of the European Conference on Data Analysis (ECDA).
- Casa A., Chacòn J.E. & Menardi G. (2018)
On the choice of an appropriate bandwidth for modal clustering.
Book of short Papers SIS 2018. ISBN-9788891910233.
- Casa A., Chacòn J.E. & Menardi G. (2018)
Clustering-oriented selection of the amount of smoothing in kernel density estimation.
Book of abstracts - ISNPS 2018. ISBN: 978-88-61970- 00-7.
- Casa A. & Menardi G. (2017)
Signal detection in high energy physics via a semisupervised nonparametric approach.
Proceedings of the Conference of the Italian Statistical Society "Statistics and Data Sciences: new challenges, new generations". ISBN: 978-88-6453-521-0.
- Casa A. & Menardi G. (2017)
Nonparametric semi-supervised classification with application to signal detection in high energy physics.
Books of abstracts of the International Federation of Classification Societies (IFCS).

**VISITING
PERIODS**

University of Cote d'Azur
Laboratory J.A. Dieudonné
Visiting scholar under the supervision of Prof. C. Bouveyron

Oct. 2018 - Dec. 2018

University of Perugia Apr. 2018
 Department of Economics
 Visiting scholar under the supervision of Prof. L. Scrucca

University of Cambridge Oct. 2017 - Dec. 2017
 Department of Pure mathematics and Mathematical Sciences
 Visiting scholar under the supervision of Prof. R.Samworth

CONFERENCES PRESENTATIONS

- Working Group on Statistical Learning
Dublin [Invited talk] Feb. 2020
- CLADAG - Classification and Data Analysis Group
Cassino [Invited talk] Sept. 2019
- EMS - European Meeting of Statisticians
Palermo [Invited talk] Jul. 2019
- WG19 - Working Group on Model-Based clustering
Wien [Poster] Jul. 2019
- ASPD - Workshop on Advanced Statistics for Physics Discovery
Padova [Poster] Sept. 2018
- MBC2 - Workshop on Model-Based Clustering and Classification
Catania [Poster] Sept. 2018
- ECDA - European Conference on Data Analysis
Paderborn [Contributed talk] Jul. 2018
- SIS - 49th Scientific meeting of the Italian Statistical Society
Palermo [Contributed talk] Jun. 2018
- Start Up Research - Follow up presentation (joint with A.Cabassi)
Palermo [Invited talk] Jun. 2018
- ISNPS - 4th Conference of the International Society for Nonparametric Statistics
Salerno [Contributed talk] Jun. 2018
- SIS - Intermediate conference of the Italian Statistical Society
Florence [Contributed talk] Jun. 2017

MISCELLANEA

Supervising Experience

- Co-supervisor of the MSc Thesis *A co-clustering based recommendation system with an application to TripAdvisor data* (in italian). Academic year 2018/2019.

Teaching Experience

University College Dublin

- Instructor for the module STAT20060 - Statistics & Probability (Level 2, University College Dublin, Academic year 2019/2020)
- Tutor for the module STAT30270/40590 - Statistical Machine Learning (Level 3, University College Dublin, Academic year 2019/2020)
- Tutor for the module STAT20060 - Statistics & Probability (Level 2, University College Dublin, Academic year 2019/2020).

University of Padova

- *Bike sharing in Paris: a case study* (in italian). Specialist lecture during the class Statistica Iterazione (Master degree, University of Padova, Academic year 2018/19).

Editorial Activities

- Referee for: Annals of Applied Statistics, Computational Statistics and Data Analysis, Knowledge-based Systems, Mathematics, Social Indicators Research, WIREs Computational Statistics.

Contests

- Stats Under the Stars 3 Jun. 2017
Organizers: University of Florence, Italian Statistical Society
- Stars Under the Stars 1 Sept. 2015
Organizers: University of Padova, Italian Statistical Society
- Data Science Game Jun. 2015
Organizers: Google, Capgemini

Others

- VistaMilk IR Meeting 2019-2021
Organizer of the VistaMilk IR monthly meeting where, within the VistaMilk project, updates on the projects related to Infra-Red technology are shared and discussed.
- Start Up Research - Follow up Jun. 2018
Follow up meeting where the research groups present and discuss the scientific output of their works after one year of research.
- Start Up research Jun. 2017
Meeting where small research groups of young scholars, advised by senior researchers are asked to develop innovative methods and models to analyze a common dataset.

LANGUAGES

Italian: Mothertongue
English: Fluent

COMPUTER SKILLS

O.S. and general applications: Mac OS, Microsoft Windows, Linux, \LaTeX , OpenOffice, Microsoft Office tools
Statistical Software and programming: R (advanced), SQL, Stata, SAS, C