

Michael Fop

Contact information

Address: School of Mathematics and Statistics
University College Dublin
Belfield, Dublin 4, Ireland

E-mail: michael.fop@ucd.ie

Website: <https://michaelfop.github.io>

Employment

2018 - Present	Lecturer/Assistant Professor in Statistics School of Mathematics and Statistics	University College Dublin, <i>Ireland</i>
2017 - 2018	Postdoctoral researcher in Statistics Insight Centre for Data Analytics	University College Dublin, <i>Ireland</i>

Education

2017	PhD in Statistics Supervisor: Prof. Thomas Brendan Murphy	University College Dublin, <i>Ireland</i>
2013	Master's Degree in Finance and Statistics 110/110 <i>with honors</i> Supervisor: Ass. Prof. Luca Scrucca	University of Perugia, <i>Italy</i>
2010	Bachelor's Degree in Economics 110/110 <i>with honors</i>	University of Perugia, <i>Italy</i>

Publications

12. Nagle M., Price S., Trotta A., Destrade M., Fop M., Ní Annaidh A. (2023)
Analysis of in vivo skin anisotropy using elastic wave measurements and Bayesian modelling
Annals of Biomedical Engineering, online. [doi]
11. D'Angelo, S., Alfò, M., Fop, M. (2023)
Model-based clustering for multidimensional social networks
Journal of the Royal Statistical Society Series A: Statistics in Society, online. [doi]
10. Casa A., Cappozzo A., Fop M. (2022)
Group-wise shrinkage estimation in penalized model-based clustering
Journal of Classification, 39:648–674. [doi]
9. Fop M., Mattei P-A., Bouveyron C., Murphy T.B. (2022)
Unobserved classes and extra variables in high-dimensional discriminant analysis.
Advances in Data Analysis and Classification, 16, 55–92 [doi]
8. Casa, A., Fop, M., Murphy, T.B. (2021)
Contributed discussion to **Centered partition processes: informative priors for clustering**, by Paganin, S., Herring, A.H., Olshan, A.F., Dunson, D.B.
Bayesian Analysis, 16(1), 301-370. [doi]

7. Rastelli R., Fop M. (2020)
A stochastic blockmodel for interaction lengths
Advances in Data Analysis and Classification, 14, 485-512. [doi]
6. O'Connor S., McCaffrey N., Whyte E.F., Fop M., Murphy T.B., Moran K.A. (2020)
Can the Y balance test identify those at risk of contact or non-contact lower extremity injury in adolescent and collegiate Gaelic games?
Journal of Science and Medicine in Sport, online. [doi]
5. Fop M., Murphy T.B., Scrucca L. (2019)
Model-based clustering with sparse covariance matrices.
Statistics and Computing, 29(4), 791–819. [doi]
4. O'Connor S., McCaffrey N., Whyte E.F., Fop M., Murphy T.B., Moran K.A.(2018)
Is poor Hamstring flexibility a risk factor for hamstring injury in Gaelic games?
Journal of Sport Rehabilitation, 28(7), 677-681. [doi]
3. Fop M., Murphy T.B. (2018)
Variable selection methods for model-based clustering
Statistics Surveys,12, 18-65. [doi]
2. Fop M., Smart K., Murphy T.B. (2017)
Variable selection for latent class analysis with application to low back pain diagnosis
Annals of Applied Statistics, 11(4), 2085–2115. [doi]
1. Scrucca L., Fop M., Murphy T.B., Raftery A.E. (2016)
mclust 5: Clustering, classification and density estimation using Gaussian finite mixture models
The R Journal, 8(1), 289-317. [doi]
"Highly Cited Paper" by Web of Science – Among the top 100 most cited papers of the last 10 years in the field of Mathematics.

Preprints and submitted papers

- Gwee X. Y., Gormley I. C., Fop M. (2023)
A latent shrinkage position model for binary and count network data
Under review. [arXiv]

Software

Advanced knowledge of the language for statistical computing R. Author and contributor of the packages:

- **covglasso**: Sparse covariance matrix estimation. [Link]
- **damda**: Dimension-Adaptive Mixture Discriminant Analysis. [Link]
- **expSBM**: Exponential stochastic block model for interaction lengths. [Link]
- **LCAvarsel**: Variable selection for latent class analysis. [Link]
- **mclust**: Gaussian finite mixture modelling. [Link]
- **mixggm**: Mixtures of Gaussian graphical models. [Link]
- **spaceNet**: Latent space models for multivariate networks. [Link]

Teaching

Lecturer for a number of Statistics and Machine Learning modules at undergraduate, postgraduate and PhD level, all involving a significant component of data programming with R.

- 2019 - Present STAT30270/STAT40750 Statistical Machine Learning, STAT40970 Machine Learning & AI.
2018 - 2019 STAT10060 Statistical Modeling, STAT20070 Data Modeling for Science, STAT404030 Advanced Biostatistics.

Academic and professional activities

- 2020 - Present **Programme director** of the Bsc, BA, and BScScSoc degrees in Statistics.
2020 - Present **Reviewer** in the editorial board of the *Journal of Machine Learning Research*.
2019 - Present **Organizer** of the Statistics Seminar Series of the School of Mathematics and Statistics University College Dublin, Ireland.
2017 - Present **Reviewer** for a number of scientific journals in statistics and machine learning, including: Advances in Data Analysis and Classification, Annals of Applied Statistics, Bioinformatics, Computational Statistics and Data Analysis, Journal of Computational and Graphical Statistics, Journal of the Royal Statistical Society (Series A and C), Journal of Machine Learning Research, Pattern Recognition, Statistical Analysis and Data Mining, Statistics and Computing, Statistics in Medicine.
2021 - 2022 **Invited reviewer** for AISTATS, the International Conference on Artificial Intelligence and Statistics.
2021 **Member** of the programme committee of IC2S2 2021.
2019 - 2021 **Founding chair** of the Young Irish Statistical Association.
2019 **Research visit** – Université de Caen Normandie, France – Host: Prof. Faïcel Chamroukhi
2019 **Extern PhD examiner** – Huynh Bao-Tuyen – *Estimation and Feature Selection in High-Dimensional Mixtures-of-Experts Models*, supervisor Prof. Faïcel Chamroukhi – Université de Caen Normandie
2016 **Member** of the organizing committee of the 39th Students' Conference in Probability and Statistics University College Dublin, Ireland.

PhD and master students

Phd students

- 2021 - 2025 CJ Clarke
Latent variable models for collections of networks.
2021 - 2025 Niyati Seth
Optimization techniques for facility location problems for design of renewable energy communities.
2020 - 2024 Iuliia Promskaia (co-supervision with Dr. Adrian O'Hagan)
Advances in latent variable models for multivariate and multidimensional networks.
2020 - 2024 Matt Nagle (co-supervision with Assoc. Prof. Aisling Ní Annaidh)
Statistical and machine learning methods for tissue biomechanics data analysis.
2020 - 2024 Thais Pacheco (co-supervision with Prof. Brendan Murphy)
Record linkage of historical census data.
2020 - 2024 Ganesh Babu (co-supervision with Prof. Claire Gormley)
Model-based clustering and classification methods for hyperspectral images.
2019 - 2023 Gwee Xian Yao (co-supervision with Prof. Claire Gormley)
Bayesian nonparametric models for network data.

Master students

- 2022 Marco Vitelli (visiting from University of Bologna)
Statistical methods for multivariate regression and cluster analysis with sparse covariance and regression coefficient matrices
- 2020 - 2021 Federica Benassi (visiting from University of Bologna)
Model-based clustering and dependence modeling for mixed data.

Awards and grants

Charlemont Grant

Royal Irish Academy, 2019.

Classification Society Distinguished Dissertation Award

The Classification Society, 2018.

Best Poster Presentation

39th Research Students' Conference in Probability and Statistics, Dublin, 2016.

Science Foundation Ireland Conference and Workshops Grant

University College Dublin, 2016.

Best Poster Presentation

37th Research Students' Conference in Probability and Statistics, Nottingham, 2014.

Best Master's Degree Career Prize

University of Perugia, 2014.

Societies

Member of:

- American Statistical Association
- Royal Statistical Society
- Institute of Mathematical Statistics
- Irish Statistical Association (ordinary member)