

# ANDREAS ANASTASIOU

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## EDUCATION

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**University of Oxford** *Oct 2012 - July 2016*

D.Phil. in Statistics

Research Title: ‘Bounds for the normal approximation of the maximum likelihood estimator’

Supervisor: Professor Gesine Reinert

**University of Oxford** *Oct 2011 - Sep 2012*

M.Sc. in Applied Statistics

Grade: Distinction (**Top graduate of the year**)

Dissertation Title: ‘Some formal aspects of model choice’

Supervisor: Professor Sir David R. Cox

**University of Cyprus** *Sep 2007 - Sep 2011*

B.Sc. in Mathematics and Statistics

Grade: 8.81/10

## ACADEMIC WORK EXPERIENCE

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**University of Cyprus** *January 2024 - date*

*Assistant Professor at the Department of Mathematics and Statistics*

**University of Cyprus** *August 2019 - December 2023*

*Lecturer (tenure-track) at the Department of Mathematics and Statistics*

**The London School of Economics and Political Science** *July 2016 - April 2019*

*Postdoctoral Research Officer at the Department of Statistics*

Funded by EPSRC Fellowship EP/L014246/1 (“New challenges in time series analysis”).

Under the guidance of Professor Piotr Fryzlewicz.

**University of Oxford** *September 2012 - June 2016*

*Tutor in the Department of Statistics*

Marked students’ solutions on problem sheets given every week.

Gave tutorials to help students understand the course.

**University of Oxford** *December 2015*

*Interviewer for undergraduate admissions in Mathematics*

Interviewed final year students to decide whether they were suitable to undertake undergraduate studies in Mathematics at the University of Oxford.

## PUBLICATIONS AND PREPRINTS

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1. A. ANASTASIOU, C. LEY & S. LOIZIDOU (2026+). Construction of optimal tests for symmetry on the torus and their quantitative error bounds. *In submission*
2. A. ANASTASIOU & P. FRYZLEWICZ (2026+). Non-parametric multiple change-point detection. *In submission*
3. A. ANASTASIOU & I. CRIBBEN (2026+). Tensor time series change-point detection in cryptocurrency network data. *To appear in the Journal of the Royal Statistical Society, Series A (Statistics in Society)*.
4. Y. MA, A. ANASTASIOU & F. MONTIEL (2026+). Automated detection of short-term slow slip events using GNSS data via change-point analysis. *To appear in the Geophysical Journal International*.

5. A. ANASTASIOU & S. LOIZIDOU (2025). Data-adaptive structural change-point detection via isolation. *Statistics and Computing*, **35**:117.
6. A. F. LODEIRO ET AL. (2025). Chemical Change-Point Detection on a Silver Nanoplate Substrate. *Proceedings of the IEEE 25th International Conference on Nanotechnology (NANO)*.
7. A. ANASTASIOU & T. KLEY (2024). Wasserstein distance bounds on the normal approximation of empirical autocovariances and cross-covariances under non-stationarity and stationarity. *Journal of Time Series Analysis*, **45**:3.
8. C. PANTELI ET AL. (2024). Gas-Phase Detection of UTI-causing Bacteria using Off-the-Shelf Gas Sensors and Change-Point Detection. *IEEE Sensors*, **doi: 10.1109/JSEN.2024.3402828**
9. A. ANASTASIOU & I. CRIBBEN (2024). Contribution to the Discussion of ‘the Discussion Meeting on Probabilistic and statistical aspects of machine learning’. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, **86**:2, 313-314.
10. A. ANASTASIOU & A. PAPANASTASIOU (2023). Generalized multiple change-point detection in the structure of multivariate, possibly high-dimensional, data sequences. *Statistics and Computing*, **33**:94.
11. N. PETROU ET AL. (2023). A Multiple change-point detection framework on linguistic characteristics of real versus fake news articles. *Scientific Reports*, **13**, Article no: 6086.
12. J. ALVAREZ-GALVEZ ET AL. (2023). The impact of government actions and risk perception on the promotion of self-protective behaviors during the COVID-19 pandemic. *PLOS ONE* **18**(4): e0284433.
13. A. ANASTASIOU ET AL. (2023). Stein’s Method Meets Computational Statistics: A Review of Some Recent Developments. *Statistical Science* **30**:1, 120-139.
14. C. PANTELI ET AL. (2023). Rapid Detection of Bacterial Infection Using Gas Phase Time Series Analysis. *Proceedings of the IEEE SENSORS 2023 Conference*.
15. A. ANASTASIOU ET AL. (2022). Cross-covariance isolate detect: A new change-point method for estimating dynamic functional connectivity. *Medical Image Analysis* **75**
16. A. ANASTASIOU & P. FRYZLEWICZ (2022). Detecting multiple generalized change-points by isolating single ones. *Metrika* **85**, 141-174.
17. A. ANASTASIOU & R. E. GAUNT (2021). Wasserstein distance error bounds for the multivariate normal approximation of the maximum likelihood estimator. *Electronic Journal of Statistics* **15**:2, 5758-5810.
18. S. AGAPIOU ET AL. (2021). Modeling the first wave of Covid-19 pandemic in the Republic of Cyprus. *Scientific Reports* **11**, Article number: 7342
19. A. ANASTASIOU & G. REINERT (2020). Bounds for the asymptotic distribution of the likelihood ratio. *Annals of Applied Probability* **30**:2, 608-643.
20. A. ANASTASIOU & R. E. GAUNT (2020). Multivariate normal approximation of the maximum likelihood estimator via the delta method. *Brazilian Journal of Probability and Statistics* **34**:1, 136-149.
21. A. ANASTASIOU ET AL. (2019). Normal Approximation for Stochastic Gradient Descent via Non-Asymptotic Rates of Martingale CLT. *Proceedings of the Conference on Learning Theory (COLT) 2019*.
22. A. ANASTASIOU (2018). Assessing the multivariate normal approximation of the maximum likelihood estimator from high-dimensional, heterogeneous data. *Electronic Journal of Statistics* **12**:2, 3794-3828.
23. A. ANASTASIOU & C. LEY (2017). Bounds for the asymptotic normality of the maximum likelihood estimator using the Delta method. *ALEA, Lat. Am. J. Probab. Math. Stat.* **14**, 153-171.

24. A. ANASTASIOU (2017). Bounds for the normal approximation of the maximum likelihood estimator from m-dependent random variables. *Statistics & Probability Letters* **129**, 171-181.
25. A. ANASTASIOU & G. REINERT (2017). Bounds for the normal approximation of the maximum likelihood estimator. *Bernoulli* **23**, 191-218.

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## SOFTWARE

1. A. ANASTASIOU ET AL. (2025). **breakfast**: Methods for Fast Multiple Change-Point Detection and Estimation. R package.
2. A. ANASTASIOU ET AL. (2021). **ccid**: a change-point detection method for estimating dynamic functional connectivity. R package.
3. A. ANASTASIOU & P. FRYZLEWICZ (2018). **IDetect**: Isolate-Detect Methodology for Multiple Change-Point Detection. R package.

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## FUNDING

1. *Surface-Enhanced Raman Scattering (SERS) effect of nanoparticles, primarily gold, silver, and their combinations, to advance Point-Of-Care Testing technology.* Onisilos Marie Skłodowska-Curie Actions (MSCA) Cofund 2020. Co-PI, €147,120. 2023-2025
2. **SepsISensor**: Sepsis Diagnosis via Integrated Breath Sensing System with Change-Point Detection for Real-Time Point-of-Care. European Commission Marie Skłodowska-Curie Actions. Work Package Leader, €148,000. 2022-2025
3. *University of Cyprus start-up grant.* University of Cyprus. PI, €20,000. 2020-2022
4. *Stein's method and high-dimensional time series analysis* Heilbronn Focused Research Grant, University of Bristol. £7,500. 2020

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## SUPERVISION

### PhD students

- Sophia Loizidou (co supervised with Prof. Christophe Ley) with a research project on “Flexible modelling for hyper-toroidal data”. 2023-date
- Panagiotis Maouris (co supervised with Prof. Efstathios Papanoditis) with a research project on “Time Series Analysis, Bootstrapping, and Change-point Detection”. 2024-date

### Master and undergraduate students

- Christiana Zorzi with a research project on “A review on online change-point detection”. 2025
- Yianna Ioannou with a research project on “Robustness of Change-Point Detection Methods under Violations of Gaussianity and Independence”. 2025
- Sophia Loizidou with a research project on “A novel approach on offline change-point detection”. 2022
- Panos Mougios with an M.Sc. thesis on “Comparing sampling methods for machine learning”. 2020

### Research assistants

- Sophia Loizidou funded by my start-up grant (“Advances on change-point detection and asymptotic statistics”). 2021-2022
- Aggelos Papanastasiou funded by my start-up grant (“Advances on change-point detection and asymptotic statistics”). 2020-2021

## CONFERENCES AND ACADEMIC VISITS (LAST 5 YEARS)

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- DSSV2025 – Data Science Statistics & Visualisation 2025, Kruger Park (South Africa). *7-9 July 2025*
- Invited by Dr. Tobias Kley to give a seminar to the Institute of Mathematical Stochastics, University of Göttingen, Göttingen (Germany). *1-9 Apr. 2025*
- Invited by Prof. Christophe Ley to give a formal seminar to the Department of Mathematics and Statistics of the University of Luxembourg (Luxembourg). *4-13 Mar. 2025*
- The Bernoulli-IMS 11<sup>th</sup> World Congress in Probability and Statistics, Bochum (Germany). *12-16 Aug. 2024*
- The 2024 Joint Statistical Meetings (JSM 2024), Portland, Oregon (USA). *3-8 Aug. 2024*
- Workshop on Stein’s Method and Networks, Oxford (UK). *20-21 June 2024*
- The 12th International Chinese Statistical Association (ICSA) International Conference, Hong Kong. *7-9 July 2023*
- The 34th European Meeting of Statisticians (EMS 2023), Warsaw (Poland). *3-7 July 2023*
- Invited by the Greek Statistical Institute to give a Series of Lectures at the University of Athens (Greece). *22-25 May 2023*
- Invited by Prof. Christophe Ley to give a formal seminar to the Department of Mathematics and Statistics of the University of Luxembourg (Luxembourg). *28 June-4 July 2022*
- International Symposium on Nonparametric Statistics (ISNPS 2022), Paphos (Cyprus). *20-24 June 2022*
- 14<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2021), London (UK). *18-20 Dec. 2021*
- Invited by the Department of Commerce, Finance and Shipping of the Cyprus University of Technology to give a talk in their organised seminar on Econometrics and Statistics, Limassol (Cyprus). *8 Nov. 2021*
- Invited by the Research Centre on Interactive Media, Smart Systems and Emerging Technologies (RISE) to give a seminar on change-point detection, Nicosia (Cyprus). *17 Sept. 2020*

## SELECTED HONOURS AND AWARDS

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- Shortlisted for the University of Cyprus teaching award. *2024*
- Teaching Assistantship Bursary for my D.Phil. studies, Department of Statistics, University of Oxford. *2012-2016*
- EPSRC Studentship for my D.Phil. studies, University of Oxford. *2012-2016*
- A.G. Leventis Foundation Scholarship for my D.Phil. studies. *2012-2015*
- Jesus College Oxford Graduate Scholarship. *2013-2015*
- Best Poster Award at the 36<sup>th</sup> annual Research Students’ Conference in Probability, Statistics and Social Statistics (University of Lancaster). *2013*
- Gutiérrez Toscano Prize for the best performance in the M.Sc. in Applied Statistics, Department of Statistics, University of Oxford. *2012*

## TEACHING EXPERIENCE

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### University of Cyprus

*Sep. 2019 - date*

Lecturer for the following modules: DSC 531 Statistical Simulations and Data Analysis, MAS 454 Non-parametric Statistics, DSC 573 Research Project for the M.Sc. in Data Science, MAS 051 Statistical Methods, MAS 452 Linear Models II, MAS 458 Statistical Data Analysis, MAS 468 Topics in Probability and Statistics I, MAS 667 Statistical Project, MAS 662 Topics in Statistics II.

### University of Oxford

*Oct. 2012 - Apr. 2016*

Tutor and Teaching Assistant for: Part C Probability and Statistics for Network Analysis, Part A Simulation and Statistical Programming, Part B Foundations of Statistical Inference, Part B Applied Probability.

## EXTERNAL PROFESSIONAL COMMITMENTS

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### Associate Editor

Computational Statistics & Data Analysis

*2021-2024*

### Regular review service to professional journals

Journal of the Royal Statistical Society, Series B (JRSSb), Journal of the American Statistical Association (JASA), Journal of Business and Economic Statistics (JBES), Biometrika, Electronic Journal of Statistics, Statistics and Computing, Journal of Nonparametric Statistics, Journal of Applied Statistics, Journal of Theoretical Probability, Scientific Reports, Statistical Papers, The Annals of the Institute of Statistical Mathematics, Computational Statistics & Data Analysis, Statistics & Probability Letters, Econometrics and Statistics, Journal of Econometrics, Journal of the Korean Statistical Society, Statistics in Medicine, Metrika, Communications in Statistics - Theory and Methods.

### External examining

Platonas Michailidis (Department of Mathematics and Statistics, University of Cyprus) with B.Sc. thesis title “Distributed Methods in Bayesian Nonparametric Regression using Oversmoothed Heavy-Tailed Priors”.

*2024*

Brecht Dewilde (Department of Applied Mathematics, Computer Science and Statistics, Ghent University) with M.Sc. thesis title “Predicting the Olympic marathon: A machine learning oriented approach”.

*2020*

Chrysovalantis Christodoulou (Department of Computer Science, University of Cyprus) with M.Sc. thesis title “Fake News Evolution - Linguistic Characteristics”.

*2020*

Panagiotis Maouris (Department of Mathematics and Statistics, University of Cyprus) with B.Sc. thesis title “Tests for equality of variances”.

*2020*

## CONSULTING

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### Bank of Cyprus Cultural Foundation (BCCF)

*December 2021 - May 2022*

*Statistical consultant for the European Programme “ReInHerit”, for which BCCF has acquired funding through the Horizons 2020 scheme.*

I have prepared a complete statistical analysis of real data collected from questionnaires. This has been achieved through an extensive writing of relevant functions using R. Furthermore, the results of the analysis have been disseminated and presented to various partners of the project.

## COMMITTEES

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- Member of the Board of the Cyprus Statistical Society. *2022-date*
- Representative of Cyprus in the Board of the European Courses in Advanced Statistics. *2018-date*
- Curator of the video collection of the Bernoulli Society. *2019-date*

- Member of the Executive Committee of the Oxford University Society Cyprus. *2018-2023*
- Member of the Oxford Union. *2011-date*
- Research Officers' representative, London School of Economics. *2016-2019*
- Member of Equity, Diversity and Inclusion (Athena SWAN) committee, Department of Statistics, London School of Economics. *2016-2019*
- Member of the Green Impact committee, Department of Statistics, London School of Economics. *2016-2019*
- Statistics representative, Oxford University SIAM Student Chapter. *2012-2014*
- Member of the Oxford University SIAM Student Chapter. *2011-2016*