

# 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** *August 2019 - date*

*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** *Sep 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

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1. A. ANASTASIOU, A. BARP, F-X. BRIOL, B. EBNER, R. E. GAUNT, F. GHADERINEZHAD, J. GORHAM, A. GRETTON, C. LEY, Q. LIU, L. MACKAY, C. J. OATES, G. REINERT & Y. SWAN (2023). Stein’s Method Meets Computational Statistics: A Review of Some Recent Developments. *Statistical Science* **30:1**, 120-139.
2. A. ANASTASIOU, I. CRIBBEN & P. FRYZLEWICZ (2022). Cross-covariance isolate detect: A new change-point method for estimating dynamic functional connectivity. *Medical Image Analysis* **75**

3. A. ANASTASIOU & P. FRYZLEWICZ (2022). Detecting multiple generalized change-points by isolating single ones. *Metrika* **85**, 141-174.
4. 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.
5. S. AGAPIOU, A. ANASTASIOU, A. BAXEVANI, C. NICOLAIDES, G. HADJIGEORGIOU, T. CHRISTOFIDES, E. CONSTANTINOU, G. NIKOLOPOULOS & K. FOKIANOS (2021). Modeling the first wave of Covid-19 pandemic in the Republic of Cyprus. *Scientific Reports* **11**, Article number: 7342
6. A. ANASTASIOU & G. REINERT (2020). Bounds for the asymptotic distribution of the likelihood ratio. *Annals of Applied Probability* **30:2**, 608-643.
7. 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.
8. A. ANASTASIOU, K. BALASUBRAMANIAN & M. A. ERDOGDU (2019). Normal Approximation for Stochastic Gradient Descent via Non-Asymptotic Rates of Martingale CLT. *Proceedings of the Conference on Learning Theory (COLT) 2019*.
9. 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.
10. 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.
11. A. ANASTASIOU (2017). Bounds for the normal approximation of the maximum likelihood estimator from m-dependent random variables. *Statistics & Probability Letters* **129**, 171-181.
12. A. ANASTASIOU & G. REINERT (2017). Bounds for the normal approximation of the maximum likelihood estimator. *Bernoulli* **23**, 191-218.

## SOFTWARE

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A. ANASTASIOU, I. CRIBBEN & P. FRYZLEWICZ (2021). **ccid**: a change-point detection method for estimating dynamic functional connectivity. R package.

A. ANASTASIOU, Y. CHEN, H. CHO & P. FRYZLEWICZ (2020). **breakfast**: Methods for Fast Multiple Change-Point Detection and Estimation. R package.

A. ANASTASIOU & P. FRYZLEWICZ (2018). **IDetect**: Isolate-Detect Methodology for Multiple Change-Point Detection. R package.

## FUNDING

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1. **SepsISensor**: Sepsis Diagnosis via Integrated Breath Sensing System with Change-Point Detection for Real-Time Point-of-Care. European Commission Marie Skłodowska-Curie Actions. Co-PI, €148,000. 2022-2024
2. *University of Cyprus start-up grant*. University of Cyprus. PI, €20,000 2020-2022
3. *Stein's method and high-dimensional time series analysis* Heilbronn Focused Research Grant, University of Bristol. £7,500. 2020

## CONFERENCES AND ACADEMIC VISITS

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- 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 December 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 November 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 September 2020*
- 12<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2019), London (UK). *14-16 December 2019*
- Workshop on Modern Challenges in Spectral Analysis of Time Series, Bristol (UK). *9-11 September 2019*
- 32<sup>nd</sup> European Meeting of Statisticians, Palermo (Italy). *22-26 July 2019*
- 2<sup>nd</sup> Pancyprian Day of Statistics, Nicosia (Cyprus). *7 June 2019*
- Invited by Dr. Andreas Artemiou to give a seminar to the School of Mathematics of the Cardiff University, Cardiff (UK). *8-9 April 2019*
- Invited by Dr. Robert Gaunt to give a seminar to the School of Mathematics of the University of Manchester, Manchester (UK). *12-15 February 2019*
- 11<sup>th</sup> International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2018), Pisa (Italy). *14-16 December 2018*
- Conference on various studies of statistical analysis for asymptotic theory, circular or time series, Nagoya (Japan). *23-28 October 2018*
- Workshop on challenges in modern change-point problems, Bristol (UK). *21-23 August 2018*
- Workshop on Stein's method and applications in high-dimensional statistics, San Jose, California (USA). *6-10 August 2018*
- Joint Statistical Meetings (JSM) 2018, Vancouver (Canada). *28 July - 2 August 2018*
- Invited by Dr. Tobias Kley to give a seminar to the School of Business and Economics of Humboldt-Universität zu Berlin, Berlin (Germany). *18-24 June 2018*
- Modern Mathematical Methods for Data Analysis Conference, Liege (Belgium). *4-6 June 2018*
- Workshop on Data Science Theory and Practice, London (UK). *27-28 March 2018*
- 31<sup>st</sup> European Meeting of Statisticians, Helsinki (Finland). *24-28 July 2017*
- Visited Prof. Christophe Ley at Ghent University to start a new collaboration. *16-25 June 2017*
- 9<sup>th</sup> International Conference of the ERCIM Working Group on Computational and Methodological Statistics, Seville (Spain). *9-11 December 2016*
- 38<sup>th</sup> Conference on Stochastic Processes and their Applications, Oxford (UK). *13-17 July 2015*
- 30<sup>th</sup> European Meeting of Statisticians, Amsterdam (Netherlands). *6-10 July 2015*

Invited by Prof. Christophe Ley to give a formal seminar to the European Center for Advanced Research in Economics and Statistics (ECARES), Université libre de Bruxelles, Brussels (Belgium).	<i>8 January-18 February 2015</i>
BL-PRO15 Workshop on Probability, Liege (Belgium).	<i>29-30 January 2015</i>
International Workshop on Applied Probability 2014, Antalya (Turkey).	<i>16-19 June 2014</i>
3 <sup>rd</sup> SIAM National Student Chapter Conference, Oxford (UK).	<i>28 May 2014</i>
Royal Statistical Society 2013 International Conference, Newcastle (UK).	<i>2-5 September 2013</i>
Week 3 of Academy for PhD Training in Statistics (APTS), Warwick (UK).	<i>29 July-2 August 2013</i>
Young Statisticians' Meeting YSM2013, Imperial College London (UK).	<i>4-5 July 2013</i>
Week 2 of Academy for PhD Training in Statistics (APTS), Nottingham (UK).	<i>15-19 April 2013</i>
36 <sup>th</sup> Annual Research Students' Conference (RSC) in Probability, Statistics and Social Statistics, Lancaster (UK).	<i>25-28 March 2013</i>
Week 1 of Academy for PhD Training in Statistics (APTS), Cambridge (UK).	<i>10-14 December 2012</i>
Oxford Centre for Collaborative and Applied Mathematics (OCCAM) workshop on Networks in Biology, Oxford (UK).	<i>5 December 2012</i>
12 <sup>th</sup> National Conference on Mathematical Science and Education, organized by the Cyprus Mathematical Society, Paphos (Cyprus).	<i>5-7 February 2010</i>

## **TEACHING EXPERIENCE**

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<b>University of Cyprus</b>	<i>Sep 2019 - date</i>
Lecturer for the following modules:	
DSC 573 Research Project for the M.Sc. in Data Science	<i>Sep - Dec 2022</i>
DSC 531 Statistical Simulations and Data Analysis	<i>Sep - Dec 2022</i>
	<i>Sep - Dec 2021</i>
MAS 454 Non-parametric Statistics	<i>Sep - Dec 2022</i>
	<i>Sep - Dec 2021</i>
	<i>Sep - Dec 2020</i>
	<i>Sep - Dec 2019</i>
MAS 051 Statistical Methods	<i>Jan - May 2021</i>
	<i>Sep - Dec 2020</i>
MAS 452 Linear Models II	<i>Jan - May 2022</i>
	<i>Jan - May 2020</i>
MAS 458 Statistical Data Analysis	<i>Jan - May 2023</i>
	<i>Jan - May 2020</i>
MAS 468 Topics in Probability and Statistics I	<i>Jan - May 2020</i>
MAS 667 Statistical Project	<i>Jan - May 2020</i>
MAS 662 Topics in Statistics II	<i>Sep - Dec 2019</i>
<b>University of Oxford</b>	<i>Oct 2012 - Apr 2016</i>
Tutor and Teaching Assistant for:	
Part C Probability and Statistics for Network Analysis	<i>Oct - Dec 2015</i>
	<i>Oct - Dec 2014</i>
	<i>Oct - Dec 2012</i>
Part A Simulation and Statistical Programming	<i>Jan - Apr 2015</i>
	<i>Jan - Apr 2014</i>
	<i>Jan - June 2013</i>

Part B Foundations of Statistical Inference

*Oct - Dec 2013*

Part B Applied Probability

*Oct - Dec 2012*

## **RESEARCH ASSISTANTS AND SUPERVISION**

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### **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

### **Supervision of graduate students**

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

## **EXTERNAL PROFESSIONAL COMMITMENTS**

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### **Associate Editor**

Computational Statistics & Data Analysis

### **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

Statistics and Computing

Journal of Theoretical Probability

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

Metrika

METRON

Communications in Statistics - Theory and Methods

Scientia Iranica

## External examining

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

## HONORS AND AWARDS

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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
Fourth highest overall grade (out of 7000 soldier applicants) in the National Military examinations for acceptance in the Cadet Officers body.	2005
Top graduate, Palouriotissa Lyceum.	2005
First place in the “EUROQUIZ” - National knowledge competition.	2005

## CONSULTING AND NON-ACADEMIC WORK EXPERIENCE

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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 the programming language R. Furthermore, the results of the analysis have been disseminated and presented to the various partners of the project.

**PricewaterhouseCoopers (PwC) Limited, Cyprus** *June - July 2009*  
*Summer Intern, Assurance Department*

Assisted in audit procedures and typed summaries of Meetings of Directors.

**Pulse Limited, Cyprus** *July - August 2008*  
*Summer Intern, Statistical Service*

Filled in questionnaires and analysed the results for the needs of statistical surveys.

## FURTHER SKILLS

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### Language Skills

- Greek: Native language
- English: Fluent

### IT and Computer Skills

- Operating Systems: Windows, Mac
- Programming Languages: R, MATLAB, Fortran
- Communications: LaTeX and Microsoft Office

## 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-date*
- 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*
- Member of the executive board of *OXYgono*, which is a think tank based in Cyprus. *2014-2020*
- Statistics representative, Oxford University SIAM Student Chapter. *2012-2014*
- Member of the Oxford University SIAM Student Chapter. *2011-2016*