

# Dr. Azadeh Khaleghi

Assistant Professor of Statistics  
Department of Mathematics & Statistics  
Lancaster University



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✉ | Mathematics & Statistics  
Fylde College, Lancaster University

## CURRENT POSITION

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■ **Sep 2015 - Present** : Assistant Professor of Statistics, Department of Mathematics & Statistics, Lancaster University, UK

*also affiliated with*

- Lancaster University's Data Science Institute (DSI)
- Statistics and Operations Research (STOR-i) Doctoral Training Center

## EDUCATION & PREVIOUS POSITIONS

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- **2013 – 2015**: Postdoctoral Scholar, Mines ParisTech/Curie Institute, Paris, France
- **2010 – 2013**: Ph.D. Mathematics, Université de Lille I & INRIA, Lille, France
- **Jun – Sep 2013**: Graduate Summer Intern, Walt Disney Animation Studios, Burbank, CA, USA
- **2007 – 2009**: MSc. Electrical & Computer Engineering, University of Toronto, Toronto, Canada
- **2003 – 2007**: BSc. Electrical & Computer Engineering, University of Toronto, Toronto, Canada

## ACHIEVEMENTS & AWARDS

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- **2019/20**: Google Faculty Research Award, USD 58000
- **2019/20**: Lancaster University Department of Mathematics & Statistics Tower of Teaching Award Nominee
- **2019**: London Mathematical Society (LMS) Scheme 4 Grant, £4000
- **2017**: Adobe Research Grant, USD 15000
- **2017**: London Mathematical Society (LMS) Scheme 1 Grant, £600
- **2016**: Certificates of the Higher Education Academy (PG-CAP I-II) Teaching Qualifications in the UK
- **2015**: French Research & Teaching Qualifications
- **2013**: E. M. Gold Award for the best paper at the ALT International Conference
- **2013**: PhD at INRIA - Université de Lille I with distinction (mention "très honorable")
- **2010**: INRIA Doctoral Grant
- **2006 – 2009**: University of Toronto MSc Fellowship, NSERC Undergraduate Research Award, University of Toronto's Faculty Undergraduate Research Award

## RESEARCH VISITS

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- **Feb – Mar 2020:** Gabor Lugosi, Department of Economics, Pompeu Fabra University, Barcelona, Spain
- **Jan – Feb 2020:** Olivier Collier, Laboratoire Modal'X, Université Paris-Nanterre, Paris, France
- **Sep 2018:** Facebook Research, Paris, France
- **Feb – Mar 2018:** Statistical Scalability Programme, Isaac Newton Institute for Mathematical Sciences, Cambridge University, Cambridge, UK
- **Nov – Dec 2017:** Adobe Research, San Jose, California, USA

## NOTABLE PRESENTATIONS

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- **Sep 2020:** (Online) Symposium on Machine Learning and Dynamical Systems, Fields Institute for Research in Mathematical Sciences, Toronto, Canada
- **Feb 2020:** Pompeu Fabra University, Department of Economics, Barcelona, Spain
- **Sep 2019:** Data, Learning and Inference (DALI) Meeting, San Sebastian, Spain
- **Mar 2019:** Université Paris-Nanterre, Laboratoire Modal'X, Paris, France
- **Apr 2018:** Isaac Newton Institute (INI) for Mathematical Sciences, Workshop on heterogeneity, model misspecification and changepoints, Cambridge/Windermere, UK
- **Feb 2018:** University of Cambridge, Statistical Laboratory, Cambridge, UK
- **Feb 2018:** University of Warwick, Department of Statistics, Coventry, UK
- **Dec 2017:** Amazon Music, San Francisco, CA, USA
- **Jul 2017:** ISI2017 61st World Statistics Congress, Marrakech, Morocco
- **Apr 2017:** Adobe Research, San Jose, CA, USA
- **Mar 2017:** University of Bristol, School of Mathematics, Bristol, UK
- **Sep 2016:** Royal Statistical Society (RSS) Conference, Manchester, UK
- **Jun 2014:** International Conference on Machine Learning (ICML), Beijing, China
- **Mar 2014:** Ergodic Theory and Dynamical Systems Workshop, UNC Chapel Hill, NC, USA

## PHD SUPERVISION

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- **Oct 2020 - present:** Ali Arabzadeh, funded by EPSRC Mathematical Sciences PhD studentship
- **Oct 2020 - present:** Moe Kuchemann-Scales, funded by the Mathematics & Statistics Department, co-supervised with Gordon Blower in pure mathematics.

## RESEARCH WORKSHOPS ORGANIZED

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- **Sep 2019:** *Multi Armed Bandits*, at Imperial College, London
- **May 2018:** *Lancaster Probability Days*, at Lancaster University
- **Dec 2017:** *NeurIPS 2017 Time-Series Workshop*, at the NeurIPS international conference, LB, CA, USA
- **Mar 2017:** *Statistical Learning Workshop*, at Lancaster University
- **Dec 2016:** *NeurIPS 2016 Time-Series Workshop*, at the NeurIPS international conference, Barcelona, Spain
- **Dec 2015:** *NeurIPS 2015 Time-Series Workshop*, at the NeurIPS international conference, Montreal, Canada

## SELECTED PUBLICATIONS & PREPRINTS

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- S. Grünewälder, A. Khaleghi, Oblivious Data for Fairness with Kernels, arXiv:2002.02901.

**Remark.** This work will be presented in an invited talk at the forthcoming ELLIS workshop on the foundations of algorithmic fairness in March 2021.

- A. Khaleghi, D. Ryabko, Clustering piecewise stationary processes, In Proceedings of the IEEE International Symposium on Information Theory, 2020.
- S. Grünewälder, A. Khaleghi, Approximations of the Restless Bandit Problem, Journal of Machine Learning Research, 20:1-37, 2019.
- A. Khaleghi, D. Ryabko, J. Mary, P. Preux, Consistent Algorithms for Clustering Time Series, Journal of Machine Learning Research, 17(3):1-32, 2016.
- A. Khaleghi, D. Ryabko, Nonparametric Multiple Change Point Estimation in Highly Dependent Time Series, Theoretical Computer Science, 620:119-133, 2016.

**Remark.** A shorter version of this paper received the E. M. Gold Award for the best paper at the 24th International Conference on Algorithmic Learning Theory (ALT) 2013.

- A. Khaleghi, D. Ryabko, Asymptotically Consistent Estimation of the Number of Change Points in Highly Dependent Time Series, In Proceedings of the International Conference on Machine Learning, 2014.
- A. Khaleghi, D. Ryabko, Locating Changes in Highly-Dependent Data with an Unknown Number of Change-Points, In Proceedings of Neural Information Processing Systems, 2012.
- A. Khaleghi, D. Ryabko, J. Mary, P. Preux, Online Clustering of Processes, In Proceedings of Artificial Intelligence & Statistics, 2012.
- A. Khaleghi, D. Silva, F. R. Kschischang, Subspace Codes, Lecture Notes in Computer Science, 2009.
- A. Khaleghi, F. R. Kschischang, Projective Space Codes for the Injection Metric, In Proceedings of the Canadian Workshop on Information Theory 2009.

## TEACHING

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- **Machine Learning (MATH336):** Lancaster University 2016 – present
  - Designed the course as a new addition to the curriculum upon the Department's request.
  - Topics: Mathematical foundations of Statistical Learning Theory, feasibility of learning, theory of generalization, probabilistic framework for learning, Bayes optimal predictor, Empirical Risk Minimization, VC-theory, kNNs, Perceptrons, Neural Networks and SVMs.
- **Probability & Stochastic Processes (STOR602ii):** Lancaster University, 2019
  - Designed the course upon request as part of the new curriculum design for the Doctoral Training Center.
  - Topics: Fast-paced introduction to measure-theoretic probability geared towards the needs of prospective statistics PhD students at the Doctoral Training Center.
- **Financial Stochastic Processes (MATH580/STOR602i):** Lancaster University, 2015 – 2018
  - Introduction to probability & stochastic processes: a *service course* for MSc mathematical finance students.
- **Project Skills (MATH390/MATH240):** Lancaster University, 2015 – present
- **MSc/MSci Supervision:** Lancaster University, 2015 – present
- **Reconnaissance des formes (Pattern Recognition):** Université de Lille I, 2012 – 2013

## ADMINISTRATIVE RESPONSIBILITIES

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- **Sep 2020 – present: Director of Non-FST Undergraduate Studies**
  - Monitor academic performance and engagement of, and coordinate exams for, all students on combined-degree programmes with departments beyond the Faculty of Science and Technology, and serve as an active member of the Undergraduate Teaching Committee, Examinations Committee and Exceptional Circumstances Committee.
- **Sep 2020 – present: APTS Executive Committee Member**
  - Contribute to the curriculum design of the Academy for PhD Training in Statistics (APTS), a collaboration between major UK statistics research groups to organize courses for first-year PhD students in statistics and applied probability nationally. (From 2018 to 2020 I served on the APTS Advisory Committee, and organized an APTS Week, a Statistics “Summer School” to take place at Lancaster University in July 2021.)
- **Oct 2015 – Oct 2019: Early Career Research Representative**
  - Represent early career staff at the Department’s Research Committee meetings.
- **Oct 2015 – present: Lancaster University Open Day Representative**
  - Represent the Department at Undergraduate Open Days to increase awareness around women’s achievements in mathematical sciences and to encourage young scientists, especially women and minority groups to consider careers in mathematics.
- **Oct 2019 – present: Equality & Diversity Committee Member**
  - Contribute to the Department’s policies on actively promoting equal opportunities, as well as high-quality and inclusive learning and working experiences for all, and ensuring appropriate procedures for fairness in assessment and treatment.
- **Oct 2018 – Sep 2019: Postgraduate Research Tutor**
  - Contributed to decisions on PhD admissions, coordinated the regular progress reviews of PhD students, and monitored the results of the 1-year confirmation panels.
- **Oct 2017 - Sep 2019: Head of Computing Committee**
  - Represented the Department at the Faculty of Science and Technology on computing policies and objectives.

## OTHER ACADEMIC SERVICES & OUTREACH

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- **PhD Viva Examination:** Have served as internal examiner for four PhD statistics vivas at Lancaster University
- **Reviewer:** Journal of Machine Learning Research (JMLR), International Conference on Machine Learning (ICML), Conference on Learning Theory (COLT), Advances in Neural Information Processing Systems (NeurIPS), Artificial Intelligence & Statistics Conference (AI&Stats), IEEE International Symposium on Information Theory (ISIT)
- **Area Chair (2017):** Women in Machine Learning (WiML)
- **Women in Machine Learning Theory (WiML-T) Mentor (2020 - present):** Helping young women and non-binary researchers interested in theoretical ML to overcome obstacles in reaching their academic career goals.
- **Lancaster University Associate Teacher Programme Mentor (2019 - 2020):** Helping junior graduate teaching assistants gain access to new teaching possibilities through peer-observation and shadowing opportunities.

## OTHER SKILLS

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- **Programming**
  - Python, Matlab, R, C/C++, Java
- **Languages**
  - **English:** Native
  - **French:** Bilingual
- **Music**
  - **Classical Piano:** Able to play at Canada’s RCM Gr-10 Standard