

MICHAEL A OSBORNE

University of Oxford ☎ +44 (0) 1865 616622
Engineering Science ✉ mosb@robots.ox.ac.uk
Parks Road 🌐 <https://is.gd/29MWjd>
Oxford OX1 3PJ, UK v. May 28, 2024

Academic Experience

CAREER BREAKS

2019 – 20 Ten months' parental leave.

UNIVERSITY OF OXFORD

- 2019 – **Professor of Machine Learning**, Department of Engineering Science.
- 2012 – **Official Fellow** of Exeter College, Oxford.
- 2019 – **Director** of the EPSRC Centre for Doctoral Training in Autonomous Intelligent Machines and Systems.
- 2012 – 19 **Associate Professor in Machine Learning**, Department of Engineering Science.
- 2010 – 12 **Junior Research Fellow** of Pembroke College, Oxford.
- 2011 – 12 **Postdoctoral Research Assistant**, Machine Learning Research Group.
Project title: 'Human-agent collectives: from foundations to applications'; Contributions: Developed scalable inference techniques for applications related to future energy networks.
- 2009 – 11 **Postdoctoral Research Assistant**, Machine Learning Research Group.
Project title: 'Control and management of autonomous mobile sensors'; Contributions: Developed efficient Gaussian process inference and optimisation for intelligent sensor networks.
- 2006 – 10 **DPhil (PhD)** in Machine Learning.
Thesis title: 'Bayesian Gaussian processes for sequential prediction, optimisation and quadrature'; supervisor: Prof Stephen J Roberts; examiners: Prof Zoubin Ghahramani, University of Cambridge, and Prof Paul M Newman.

AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

- 2004 – 05 **Year-in-research internship**, Institute of Materials and Engineering Sciences.
Responsible for laboratory experiments investigating the photocatalytic properties of various materials and subsequent data analysis.

UNIVERSITY OF WESTERN AUSTRALIA (UWA)

- 1999 – 05 **BEng**, Mechanical Engineering (first class honours).
1999 – 02 **BSc**, Pure Mathematics, Physics (first class honours).

Teaching Experience

UNIVERSITY OF OXFORD

- 2012 – **Lecturer**, Department of Engineering Science.
Responsible for the design and lecturing of courses on 'Machine Learning', 'Estimation and Inference', 'Advanced Probability Theory' and 'Object-Oriented Programming' for third and fourth year undergraduates.
- 2012 – **Engineering Science tutor**, Exeter College.
- 2015 – **Non-Stipendiary Lecturer**, St Peter's College.
Tutoring of pairs of undergraduates in topics including Engineering Mathematics and Information, Electronic and Electrical Engineering.
- 2011 – 12 **Engineering Science tutor**, Somerville College.
Tutoring of pairs of second and third year undergraduates in Engineering Mathematics and Engineering Computation.

Grants

I have been **awarded grants of total value £18.4M** as either **PI** (£8.1M) or **co-I** (£10.3M), all since my appointment in 2012.

- 2024 – 29 £1 405 633, Open Philanthropy, co-Director, Oxford Martin AI Governance Initiative.
- 2024 – 33 £6 417 883, EPSRC, Director, EPSRC Centre for Doctoral Training in Autonomous Intelligent Machines and Systems, AIMS CDT. In addition, the AIMS CDT attracted £2.8M in cash pledges from external partners.

2019 – 28 £4 985 990, EPSRC, co-Director, EPSRC Centre for Doctoral Training in Autonomous Intelligent Machines and Systems, AIMS CDT. In addition, the AIMS CDT attracted £11M in pledges (£5M in cash) from external partners.

2018 – 19 \$200 000, Templeton World Charity Foundation, [PI](#), Creative Algorithmic Intelligence: Capabilities and Complementarity.

2018 – 19 £105 978, Networked Quantum Information Technologies Hub (NQIT), co-I, Machine Learning for Quantum Technologies.

2017 – 19 £466 599, Technology Strategy Board TS/No12437/1, co-I, DESIRE: Domestic Energy Storage Integrating Renewable Energy.

2016 – £400 000 as a philanthropic gift to the Department of Engineering Science, Dyson, [PI](#), Dyson Associate Professorship in Machine Learning.

2016 – 19 £108 573, EPSRC/Dyson ICASE 16000200, [PI](#), The development of novel optimisation methods to improve the planning of a domestic robot built upon state-of-the-art Bayesian methods.

2016 – 19 £61 000, Mathworks, co-I, Environmental Bayesian Optimization of General-Purpose Convolutional Neural Networks.

2016 – 18 £1 451 548, EPSRCEP/P009824/1, co-I, ASPIRE: Automated Sensing and Predictive Inference for Respiratory Exacerbation.

2016 – 17 £53 120, Pearson and Nesta, [PI](#), Employment in 2030: skills, competencies and the implications for learning.

2016 – 18 £323 101, The Health Foundation, co-I, The Future of Healthcare: Computerisation, Automation, and General Practice Services.

2015 – 16 £98 208, EPSRC (EP/M021394/1), co-I, Learning Tidal Currents.

2015 – 19 £1 006 678, Citi Group and Oxford Martin School, co-Director \simeq co-[PI](#), The Oxford Martin Programme on Technology and Employment.

2015 – 17 £713 392, Korea Institute of Energy Technology Evaluation and Planning, co-I, Intelligent Management of Multiple Decentralised Solar/Energy Storage Systems.

2014 – 17 £430 415, EPSRC (EP/J012041/1), co-I, replacing Prof A Papachristodoulou as of 12/2014., Autonomous Behaviour and Learning in an Uncertain World.

2014 – 15 \$75 600, Li Ka Shing Foundation, co-I, Being Bayesian in a Single Cell World: Statistical modelling of sparse single-cell RNA-seq data.

2013 – 16 £181 818, BP Plc, co-I, Selecting, Stitching and Identifying Digital Data Used In Integrity Management.

2012 £6 500 EPSRC award for “Upgrading the Small-Scale Equipment Base”.

Selected Awards & Distinctions

2018 Highly Commended in the Early Career category of the University of Oxford’s Vice-Chancellor Innovation Awards (shared with Dr Carl Frey), for our “The Future of Employment: How Susceptible Are jobs to Computerisation?” project.

2018 University of Oxford Mathematical, Physical and Life Sciences Impact Award (shared with Dr Carl Frey), for contributing “to the political and social understanding and debate of how computerisation might affect jobs in the future. ”

2005 BHP Billiton Iron Prize in Engineering, for the highest weighted average mark in the final year of a Bachelor’s degree in either Mechanical or Materials Engineering at UWA.

2001 Blakers Prize in Mathematics (shared with another student), for the best student in the final year of a Bachelor’s degree in Mathematics at UWA.

Academic Service

ADVISORY BOARDS & MEMBERSHIPS

2018 – Advisor, Institute for the Future of Work.

2017 – Associate Fellow, Leverhulme Centre for the Future of Intelligence

2018 Member, Working Group on AI, Labor and the Economy of the Partnership on AI.

2017 Commissioner, Independent Parliamentary Commission on the Future of Work.

2015 Core Group for scoping of Royal Society policy project on Machine Learning.

2012 Associate Fellow of the UK Higher Education Academy.

2013 – 16 Steering Group, EPSRC Computational Statistics and Machine Learning Network.

WORKSHOPS & SYMPOSIA CO-ORGANIZED

- 2016 Probabilistic Numerics: Integrating Inference With Integration. *Joint meeting of the Institute of Mathematical Statistics and International Society for Bayesian Analysis, MCMSKI.*
- 2015 Probabilistic Integration. *Conference on Neural Information and Processing Systems, NeurIPS.*
- 2015 “Algorithms Among Us: The Societal Impacts of Machine Learning” symposium, which attracted a few thousand attendees. *NeurIPS.*
- 2015 Probabilistic Numerics for Differential Equations.. *University of Warwick.*
- 2015 Probabilistic Numerics. *Data, Learning and Inference, DALI.*
- 2013 Bayesian Optimization in Theory & Practice. *NeurIPS.*
- 2012 Probabilistic Numerics. *NeurIPS.*
- 2011 Bayesian Optimization, Experimental Design & Bandits: Theory and Applications. *NeurIPS.*

CONFERENCE & WORKSHOP REVIEWING

- 2014, 2018 Area Chair, *Neural Information Processing Systems, NeurIPS.*
- 2017 – 18 Area Chair, *International Conference on Machine Learning, ICML.*
- 2017 Area Chair, *Artificial Intelligence and Statistics, AIS-TATS.*
- 2016 Workshop and Symposia Committee, *NeurIPS.*
- 2015 – 16 Program Committee, *AISTATS.*
- 2013 – 15 Program Committee, *NeurIPS.*
- 2012 – 16 Program Committee, *ICML.*
- 2011 – 15 Program Committee, *Conference on Uncertainty in Artificial Intelligence, UAI.*
- 2013 Program Committee, *Constructive Machine Learning Workshop, NeurIPS.*

SUMMER SCHOOL LECTURES

- 2018 Machine Learning Summer School, Universidad Autónoma de Madrid, Madrid, Spain.
- 2018 Diverse Intelligences Summer School, University of St Andrews, St Andrews, UK.
- 2017 Deep Learning Summer School, Université de Montréal,

Montréal, Canada.

- 2014 Gaussian Process Summer School, University of Sheffield, Sheffield, UK.
- 2013 Gaussian Process Summer School, University of Sheffield, Sheffield, UK.

JOURNAL & OTHER REVIEWING

Science.
Journal of Machine Learning Research (JMLR).
IEEE Signal Processing Letters, IEEE Signal Processing Society.
Mechanical Systems and Signal Processing, Elsevier.
The Computer Journal, BCS, the Chartered Institute for IT.
Royal Academy of Engineering Research Fellowships.
Springer, SpringerBriefs.

THESIS EXAMINING

- 2024 Panagiotis Tigkas. DPhil. Computer Science, University of Oxford.
- 2023 Andreas Kirsch. DPhil. Computer Science, University of Oxford.
- 2023 Jean-François Ton. DPhil. Statistics, University of Oxford.
- 2023 Chang Yong Oh. PhD. Faculty of Science, University of Amsterdam.
- 2022 Tabish Rashid. DPhil. Computer Science, University of Oxford.
- 2022 Matthew Fellows. DPhil. Computer Science, University of Oxford.
- 2021 Andrew Gambardella. DPhil. Computer Science, University of Oxford.
- 2020 Edoardo Manino. PhD. Electronics and Computer Science, University of Southampton.
- 2018 Ferdian Jovan. PhD. Computer Science, University of Birmingham.
- 2017 Owen Thomas. DPhil (PhD). Statistics, University of Oxford.
- 2017 Amar Shah. PhD. Engineering, University of Cambridge.
- 2016 Roberto Calandra. PhD. Computer Science, TU Darmstadt.

- 2016 Hugo Grimmer. DPhil (PhD). Engineering Science, University of Oxford.
- 2016 Yura Perov. MSc (Research). Engineering Science, University of Oxford.
- 2015 Sam Harrison. DPhil (PhD). Engineering Science, University of Oxford.
- 2015 Emma Pierson. MSc (Research). Statistics, University of Oxford.
- 2015 Alex Davies. PhD. Engineering, University of Cambridge.
- 2015 Robert McInerney. DPhil (PhD). Engineering Science, University of Oxford.
- 2013 M. Berkan Şeşen. DPhil (PhD). Engineering Science, University of Oxford.
- 2013 Colorado Reed. MPhil. Engineering, University of Cambridge.
- 2013 Ian Baldwin. DPhil (PhD). Engineering Science, University of Oxford.

Academic Supervision

- 2023 – Rong Gu. MSc Research.
- 2023 – Juliusz Ziomek. DPhil (PhD).
- 2021 – Masaki Adachi. DPhil (PhD).
- 2021 – Ondřej Bajgar. DPhil (PhD).
- 2021 – 23 Sam Daulton. DPhil (PhD).
- 2020 – 23 Cong Lu. DPhil (PhD).
- 2019 – 23 Xingchen Wan. DPhil (PhD).
- 2019 – 23 Michael Cohen. DPhil (PhD).
- 2019 – 23 Saad Hamid. DPhil (PhD).
- 2019 – 24 Philip Ball. DPhil (PhD).
- 2017 – 21 Arno Blaas. DPhil (PhD).
- 2019 – 23 Adam Golinski. DPhil (PhD).
- 2017 – 21 Edward Wagstaff. DPhil (PhD).
- 2017 – 22 Binxin Ru. DPhil (PhD).
- 2016 – 20 Sylvestre Rebuffi. DPhil (PhD).
- 2016 – 20 Nikitas Rontsis. DPhil (PhD).
- 2016 – 21 Sebastian Schulze. DPhil (PhD).
- 2016 – 20 Gabriele Abbati. DPhil (PhD).
- 2016 – 17 Neil Dhir. DPhil (PhD).
- 2015 – 20 Logan Graham. DPhil (PhD).

- 2014 – 20 Jonathan Downing. DPhil (PhD).
- 2014 – 19 Jack Fitzsimons. DPhil (PhD).
- 2014 – 17 Tom Rainforth. DPhil (PhD).
- 2014 – 21 Arnold Pimentel Salas. DPhil (PhD).
- 2013 – 15 Nabeel Gillani. MSc Research.
- 2013 – 18 Mark McLeod. DPhil (PhD).
- 2013 – 18 Favour Nyikosa. DPhil (PhD).
- 2012 – 19 Ahsan Alvi. DPhil (PhD).
- 2012 – 18 Justin Bewsher. DPhil (PhD).
- 2012 – 18 Tom Nickson. DPhil (PhD).
- 2012 – 17 Tom Gunter. DPhil (PhD).
- 2012 – 15 Jia Tsing Ng. DPhil (PhD).
- 2011 – 14 Jan-Peter Calliess. DPhil (PhD).

Selected Policy Impacts

- 2018 Lecture and round-table discussion on human resource development toward “Society5.0” chaired by Japan’s Minister of Education, Culture, Sports, Science and Technology.
- 2016 Oral evidence presented to the House of Commons Science and Technology Committee.
- 2016 Keynote to senior civil servants at a Launchpad event on ‘The Future of Work’ organised by the Cabinet Office at 10 Downing St.
- 2016 Academic round-table discussion on ‘UK productivity policy and challenges’, at the Dept for Business, Innovation and Skills, hosted by Sir Martin Donnelly, Permanent Secretary.
- 2016 Future Of Government Decision-Making’ round-table, chaired by Sir Mark Walport, then Chief Scientific Adviser.
- 2016 Round-table discussion with Professor Sir Charles Bean on his ‘Independent Review of UK Economic Statistics’ at HM Treasury, London.
- 2015 Round-table discussion with Andrea Nahles, German Federal Minister of Labour and Social Affairs, in Berlin.
- 2015 Keynote, immediately following Dr Angela Merkel, Chancellor of Germany, at ‘Digitising Europe’, International Summit hosted by the Vodafone Institute in Berlin.
- 2015 Intervention presented to the Working Group on Digital Platforms and Big Data, of the Strategic Policy Forum on Digital Entrepreneurship, advisory body to the Euro-

pean Commission in Brussels.

- 2015 Hosting visits to Oxford by the Horizon Scanning Programme team, (joint Cabinet Office and Government Office for Science initiative), and the Labour Market Strategy team of the DWP.

Enterprise activity

I co-founded Mind Foundry Ltd (mindfoundry.ai) in 2016 with my colleague Prof Stephen Roberts, and remain a Director. Mind Foundry is a tech spin-out from the University of Oxford. Mind Foundry currently has more than 70 full-time employees.

Media Appearances & Coverage

My work has attracted broad and sustained media coverage, including my being interviewed on BBC Newsnight, a cover feature in the Economist and coverage from the Financial Times, the Guardian, the New York Times and the Independent, amongst many other venues. A selection of this coverage is available at <https://is.gd/7dh7ba>.

Selected Invited Talks

- 2023 Nikkei Symposium, , Tokyo, Japan.
- 2021 Nikkei Business Live—The Future of Management 2030, Nikkei Business Editorial, Webinar.
- 2021 Nikkei Business Live, Nikkei Business Editorial, Webinar.
- 2018 Speaker Series on ‘How Extensive Might the Effects of Automation and Digitalisation Be?’, Department for Business, Energy and Industrial Strategy, London, UK.
- 2018 Invited lecture, UKRI – EPSRC Council meeting, London, UK.
- 2018 The Royal Society and British Academy event on ‘AI and the Future of Work’, the Royal Society, London, UK.
- 2018 SAMSI-Lloyds-Turing Workshop on Probabilistic Numerical Methods, The Alan Turing Institute, London, UK.
- 2017 Nomura Investment Forum, Tokyo, Japan.
- 2016 Seminar on Probabilistic Numerics, Technische Universität Darmstadt, Darmstadt, Germany.
- 2016 Machine Learning and the Professions Round-table, the Royal Society project on machine learning, the Royal Society, London, UK.

- 2016 Resolution Foundation Robotics Conference, the Resolution Foundation, the Science Museum, London, UK.
- 2016 ‘The Future of Work’, the Launchpad Series, the Cabinet Office, 10 Downing St, London, UK.
- 2016 Memorial Lecture, Nomura Research Institute, Tokyo, Japan.
- 2015 How to Change the World Conference, Royal Institution, London, UK.
- 2015 Probabilistic Numerics, Alan Turing Institute workshop, London, UK.
- 2015 Citi Global Family Leaders’ Summit 2015, Madrid, Spain.
- 2015 Europe’s Strategic Choices: Building Prosperity and Security, Chatham House Conference, Berlin, Germany.
- 2015 Digital Transformation, The Economist Events, Madrid, Spain.
- 2015 Workshop on Gaussian processes for global optimisation, University of Sheffield, Sheffield, UK.
- 2015 Vodafone Institute, Berlin, Germany.
- 2015 Future of Life Institute Conference, Policy Exchange, London, UK.
- 2015 Seminar, Department of Engineering, University of Cambridge, Cambridge, UK.
- 2015 Statistics Seminar, Columbia University, New York, USA.
- 2015 Real World Futures, QUT, Brisbane, Australia.
- 2015 FutureFest, Nesta, London, UK.
- 2015 Machine Learning Tutorial, Imperial College, London, UK.
- 2015 The Future of AI: Opportunities and Challenges, The Future of Life Institute, San Juan, Puerto Rico.
- 2015 Digitising Europe, Vodafone Institute for Society and Communications, Berlin, Germany.
- 2014 Cognitive Systems Seminar, Technical University of Denmark, Lyngby, Denmark.
- 2013 Empirical Inference Unit Seminar, Max Planck Institute for Intelligent Systems, Tübingen, Germany.
- 2013 Gatsby Unit Seminar, University College London, UK, London, UK.
- 2011 Complex Systems Seminar, Uppsala University, Uppsala, Sweden.
- 2010 Machine Learning and Empirical Algorithms Reading Groups Seminar, University of British Columbia, Van-

couver, Canada.

- 2008 Annual International Conference of the Royal Statistical Society (RSS 2008), University of Nottingham, Nottingham, UK.

Peer-Reviewed Publications

Listed below are all my competitively-reviewed academic publications. Note that, in my field of machine learning, conference publications are primary and are highly-competitively-reviewed (acceptance ratios around 20%). A full list of my publications, including impactful but non-reviewed reports, is available at <https://is.gd/MxyMRo>. As of 28th May 2024, my work has received **24 564 citations** (giving an **h-index of 46**) to work including 34 journal papers and 63 peer-reviewed conference papers (see <https://is.gd/2oEdes>).

BOOK

- ¹P. Hennig, M. A. Osborne, and H. P. Kersting, *Probabilistic Numerics: Computation as Machine Learning* (Cambridge University Press, Cambridge, 2022).

JOURNAL ARTICLES

- ²D. L. Craig, H. Moon, F. Fedele, D. T. Lennon, B. van Straaten, F. Vigneau, L. C. Camenzind, D. M. Zumbühl, G. A. D. Briggs, M. A. Osborne, D. Sejdinovic, and N. Ares, “Bridging the Reality Gap in Quantum Devices with Physics-Aware Machine Learning”, *Physical Review X* **14**, 011001 (2024).
- ³C. B. Frey and M. A. Osborne, “Generative AI and the future of work: a reappraisal”, English, *Brown Journal of World Affairs* **30** (2024).
- ⁴M. Adachi, Y. Kuhn, B. Horstmann, A. Latz, M. A. Osborne, and D. A. Howey, “Bayesian Model Selection of Lithium-Ion Battery Models via Bayesian Quadrature”, *IFAC-PapersOnLine*, 22nd IFAC World Congress **56**, <https://github.com/Battery-Intelligence-Lab/BayesianModelSelection>, 10521–10526 (2023).

- ⁵C. Lu, P. J. Ball, T. G. J. Rudner, J. Parker-Holder, M. A. Osborne, and Y. W. Teh, “Challenges and Opportunities in Offline Reinforcement Learning from Visual Observations”, en, *Transactions on Machine Learning Research*, <https://github.com/conglu1997/v-d4rl> (2023).

- ⁶X. Wan, P. Osselin, H. Kenlay, B. Ru, M. A. Osborne, and X. Dong, “Bayesian Optimisation of Functions on Graphs”, en, *Advances in Neural Information Processing Systems* **36**, 43012–43040 (2023).

- ⁷M. Adachi, S. Hayakawa, M. Jørgensen, H. Oberhauser, and M. A. Osborne, “Fast Bayesian Inference with Batch Bayesian Quadrature via Kernel Recombination”, en, *Advances in Neural Information Processing Systems* **35**, <https://github.com/ma921/BASQ>, 16533–16547 (2022).

- ⁸M. Cohen, M. Hutter, and M. Osborne, “Advanced Artificial Agents Intervene in the Provision of Reward”, en, *AI Magazine* **43**, 282–293 (2022).

- ⁹M. K. Cohen, S. Daulton, and M. A. Osborne, “Log-Linear-Time Gaussian Processes Using Binary Tree Kernels”, en, *Advances in Neural Information Processing Systems* **35**, <https://colab.research.google.com/drive/1Fcr9Tne4ofV6HjZaq8118-8129> (2022).

- ¹⁰S. Daulton, X. Wan, D. Eriksson, M. Balandat, M. A. Osborne, and E. Bakshy, “Bayesian Optimization over Discrete and Mixed Spaces via Probabilistic Reparameterization”, en, *Advances in Neural Information Processing Systems* **35**, https://github.com/facebookresearch/bo_pr, 12760–12774 (2022).

- ¹¹D. Granzio, B. Ru, X. Dong, S. Zohren, M. Osborne, and S. Roberts, “Maximum Entropy Approach to Massive Graph Spectrum Learning with Applications”, en, *Algorithms* **15**, 209 (2022).

- ¹²M. Jørgensen and M. A. Osborne, “Bezier Gaussian Processes for Tall and Wide Data”, en, *Advances in Neural Information Processing Systems* **35**, 24354–24366 (2022).

- ¹³E. Wagstaff, F. B. Fuchs, M. Engelcke, M. A. Osborne, and I. Posner, “Universal Approximation of Functions on Sets”, *Journal of Machine Learning Research* **23**, 1–56 (2022).

- ¹⁴N. E. R. van Bueren, T. L. Reed, V. Nguyen, J. G. Sheffield, S. H. G. van der Ven, M. A. Osborne, E. H. Kroesbergen, and R. Cohen Kadosh, “Personalized brain stimulation for effective neurointervention across participants”, eng, *PLoS computational biology* **17**, e1008886 (2021).
- ¹⁵L. K. Gan, P. Zhang, J. Lee, M. A. Osborne, and D. A. Howey, “Data-Driven Energy Management System With Gaussian Process Forecasting and MPC for Interconnected Microgrids”, *IEEE Transactions on Sustainable Energy* **12**, 695–704 (2021).
- ¹⁶V. Nguyen, S. B. Orbell, D. T. Lennon, H. Moon, F. Vigneau, L. C. Camenzind, L. Yu, D. M. Zumbühl, G. a. D. Briggs, M. A. Osborne, D. Sejdinovic, and N. Ares, “Deep reinforcement learning for efficient measurement of quantum devices”, en, *npj Quantum Information* **7**, https://github.com/oxquantum-repo/drl_for_quantum_measurement, 1–9 (2021).
- ¹⁷H. Moon, D. T. Lennon, J. Kirkpatrick, N. M. van Esbroeck, L. C. Camenzind, L. Yu, F. Vigneau, D. M. Zumbühl, G. a. D. Briggs, M. A. Osborne, D. Sejdinovic, E. A. Laird, and N. Ares, “Machine learning enables completely automatic tuning of a quantum device faster than human experts”, en, *Nature Communications* **11**, 4161 (2020).
- ¹⁸M. Willis, P. Duckworth, A. Coulter, E. T. Meyer, and M. Osborne, “Qualitative and quantitative approach to assess of the potential for automating administrative tasks in general practice”, en, *BMJ Open* **10**, e032412 (2020).
- ¹⁹F.-X. Briol, C. J. Oates, M. Girolami, M. A. Osborne, and D. Sejdinovic, “Probabilistic Integration: A Role in Statistical Computation?”, EN, *Statistical Science* **34**, https://fxbriol.github.io/publications/www.warwick.ac.uk/fxbriol/probabilistic_integration/code_pt_mar16.zip, 1–22 (2019).
- ²⁰F.-X. Briol, C. J. Oates, M. Girolami, M. A. Osborne, and D. Sejdinovic, “Rejoinder – Probabilistic Integration: A Role in Statistical Computation?”, EN, *Statistical Science* **34**, 38–42 (2019).
- ²¹J. Fitzsimons, A. Al Ali, M. Osborne, and S. Roberts, “A General Framework for Fair Regression”, en, *Entropy* **21**, 741 (2019).
- ²²D. Granzio, B. Ru, S. Zohren, X. Dong, M. Osborne, and S. Roberts, “MEMe: An Accurate Maximum Entropy Method for Efficient Approximations in Large-Scale Machine Learning”, en, *Entropy* **21**, 551 (2019).
- ²³D. T. Lennon, H. Moon, L. C. Camenzind, L. Yu, D. M. Zumbühl, G. a. D. Briggs, M. A. Osborne, E. A. Laird, and N. Ares, “Efficiently measuring a quantum device using machine learning”, en, *npj Quantum Information* **5**, 1–8 (2019).
- ²⁴R. R. Richardson, M. A. Osborne, and D. A. Howey, “Battery health prediction under generalized conditions using a Gaussian process transition model”, *Journal of Energy Storage* **23**, 320–328 (2019).
- ²⁵D. Sarkar, M. A. Osborne, and T. A. A. Adcock, “Spatiotemporal Prediction of Tidal Currents Using Gaussian Processes”, *Journal of Geophysical Research: Oceans* **124**, 2697–2715 (2019).
- ²⁶Z. Zhao, J. K. Fitzsimons, M. A. Osborne, S. J. Roberts, and J. F. Fitzsimons, “Quantum algorithms for training Gaussian processes”, *Physical Review A* **100**, 012304 (2019).
- ²⁷J. Lee, P. Zhang, L. K. Gan, D. A. Howey, M. A. Osborne, A. Tosi, and S. Duncan, “Optimal operation of an energy management system using model predictive control and Gaussian process time-series modelling”, *IEEE J. Emerg. Sel. Topics Power Electron. IEEE Journal of Emerging and Selected Topics in Power Electronics*, 1 (2018).
- ²⁸R. R. Richardson, C. R. Birkel, M. A. Osborne, and D. Howey, “Gaussian Process Regression for In-situ Capacity Estimation of Lithium-ion Batteries”, *IEEE Transactions on Industrial Informatics*, 1–1 (2018).
- ²⁹D. Sarkar, M. A. Osborne, and T. A. A. Adcock, “Prediction of tidal currents using Bayesian machine learning”, *Ocean Engineering* **158**, 221–231 (2018).
- ³⁰P. Zhang, I. Neval, G. W. Peters, F. Septier, and M. A. Osborne, “Spatial Field Reconstruction and Sensor Selection in Heterogeneous Sensor Networks with Stochastic Energy Harvesting”, *IEEE Transactions on Signal Processing* (2018).
- ³¹C. B. Frey and M. A. Osborne, “The future of employment: How susceptible are jobs to computerisation?”, *Technological Forecasting and Social Change* **114**, 254–280 (2017).

- ³²R. R. Richardson, M. A. Osborne, and D. A. Howey, “Gaussian process regression for forecasting battery state of health”, *Journal of Power Sources* **357**, 209–219 (2017).
- ³³P. Hennig, M. A. Osborne, and M. A. Girolami, “Probabilistic Numerics and Uncertainty in Computations”, *Proceedings of the Royal Society A* **471**, 10.1098/rspa.2015.0142 (2015).
- ³⁴V. Rajpaul, S. Aigrain, M. A. Osborne, S. Reece, and S. J. Roberts, “A Gaussian process framework for modelling stellar activity signals in radial velocity data”, en, *Monthly Notices of the Royal Astronomical Society* **452**, 2269–2291 (2015).
- ³⁵J. T. Ng, C. Dekker, M. Kroemer, M. A. Osborne, and F. von Delft, “Using textons to rank crystallization droplets by the likely presence of crystals”, *Acta Crystallographica Section D Biological Crystallography* **70**, 10.1107/S1399004714017581 (2014).
- ³⁶S. J. Roberts, M. A. Osborne, M. Ebdn, S. Reece, N. P. Gibson, and S. Aigrain, “Gaussian processes for time-series modelling”, *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* **371**, 20110550 (2013).
- ³⁷N. P. Gibson, S. Aigrain, S. J. Roberts, T. Evans, M. A. Osborne, and F. Pont, “A Gaussian process framework for modelling instrumental systematics: application to transmission spectroscopy”, *Monthly Notices of the Royal Astronomical Society* **419**, 2683–2694 (2012).
- ³⁸M. A. Osborne, S. J. Roberts, A. Rogers, and N. R. Jennings, “Real-Time Information Processing of Environmental Sensor Network Data”, *ACM Transactions on Sensor Networks* **9**, 1:1–1:32 (2012).
- ³⁹R. Mann, R. Freeman, M. A. Osborne, R. Garnett, C. Armstrong, J. Meade, D. Biro, T. Guilford, and S. J. Roberts, “Objectively identifying landmark use and predicting flight trajectories of the homing pigeon using Gaussian processes”, *Journal of The Royal Society Interface* **8**, 210–219 (2011).
- ⁴⁰R. Garnett, M. A. Osborne, S. Reece, A. Rogers, and S. J. Roberts, “Sequential Bayesian prediction in the presence of changepoints and faults”, *The Computer Journal* **53**, 1430 (2010).

- ⁴¹V. Luca, M. A. Osborne, D. Sizgek, C. Griffith, and P. Z. Araujo, “Photodegradation of methylene blue using crystalline titanosilicate quantum-confined semiconductor”, *Chemistry of materials* **18**, 6132–6138 (2006).

CONFERENCE PAPERS (PEER REVIEWED)

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