

Rob Cornish

Curriculum Vitae

June 2020

<i>Full name</i>	John Robert Macaulay Cornish
<i>Address</i>	13 Vicarage Road, Oxford, OX14RB, United Kingdom
<i>Date of Birth</i>	23rd January, 1992
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Education

2015-2020	CDT DPhil in Autonomous Intelligent Machines and Systems, University of Oxford. <i>Supervisors:</i> Arnaud Doucet and George Deligiannidis.
2014-2015	Bachelor of Science (Honours) in Mathematics and Statistics, Monash University, majoring in Applied Mathematics. GPA: 4.0/4.0 (First Class Honours)
2012-2014	Bachelor of Science, University of Melbourne, majoring in Electrical Systems. GPA: 86/100 (First Class Honours)
2011-2014	Diploma of Mathematical Sciences, University of Melbourne, majoring in Pure Mathematics. GPA: 88/100 (First Class Honours)
2010-2012	Bachelor of Arts, University of Melbourne, majoring in Philosophy and History and Philosophy of Science. (Transferred to BSc in 2012.)
2009	VCE ENTER (tertiary entrance for Victoria, Australia) percentile ranking of 99.55

Experience

2018-present	Co-founder & CTO, Quro Medical – a South African digital health startup pioneering premium hospital-at-home services in Southern Africa. www.quromedical.co.za
2014-2015	Mathematics tutor, Monash University
2014-2015	Monash University Honours research project. <i>Topic:</i> Detection and Tracking of Surface Primitives in RGBD Data. <i>Supervisors:</i> Prof. Tom Drummond, Dr. Norman Do.
2013-2014 (summer)	Research assistant at CSIRO's Queensland Center for Advanced Technologies (QCAT). <i>Topic:</i> robotic deployment of the HeatWave thermography device. <i>Supervisor:</i> Dr. Peyman Moghadam.
2012-2014	Research assistant with Optimization and Programming Languages Research Group at The University of Melbourne. <i>Topic:</i> analysis and verification of array manipulating programs. <i>Supervisor:</i> A/Prof. Harald Søndergaard.

Academic publications

Copies of each of the following papers can be found at <http://www.robots.ox.ac.uk/~rcornish/>.

Conference

Relaxing Bijectivity Constraints with Continuously Indexed Normalising Flows

Rob Cornish, Anthony L. Caterini, George Deligiannidis, Arnaud Doucet
International Conference on Machine Learning (ICML), 2020

Scalable Metropolis-Hastings for Exact Bayesian Inference with Large Datasets

Rob Cornish, Paul Vanetti, Alexandre Bouchard-Côté, George Deligiannidis, Arnaud Doucet
International Conference on Machine Learning (ICML), 2019

Online Learning Rate Adaptation with Hypergradient Descent

Atılım Güneş Baydin, Rob Cornish, David Rubio, Mark Schmidt, Frank Wood
International Conference on Learning Representations (ICLR), 2018

On Nesting Monte Carlo Estimators

Tom Rainforth, Rob Cornish, Hongseok Yang, Andrew Warrington, Frank Wood
International Conference on Machine Learning (ICML), 2018

Analyzing Array Manipulating Programs by Program Transformation

Rob Cornish, Graeme Gange, Jorge Navas, Peter Schachte, Harald Søndergaard, Peter Stuckey
Logic-Based Program Synthesis and Transformation: Proceedings of the 24th International Symposium, 2015

Workshop

Robust Out-of-Sample Uncertainty for Neural Networks via Confidence Densities

Rob Cornish, George Deligiannidis, Arnaud Doucet
ICML workshop on Uncertainty and Robustness in Deep Learning, 2019

Towards a testable notion of generalisation for generative adversarial networks

Rob Cornish, Frank Wood, Honseok Yang
NIPS workshop on Deep Learning: Bridging Theory and Practice, 2017

Efficient exact inference in discrete Anglican programs

Rob Cornish, Frank Wood, Hongseok Yang
POPL workshop on Probabilistic Programming Semantics (PPS), 2017

On the Pitfalls of Nested Monte Carlo

Tom Rainforth, Rob Cornish, Hongseok Yang, Frank Wood
NIPS Workshop on Advances in Approximate Bayesian Inference, 2016

Awards and achievements

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| 2016 | Carl Moppert Prize in Mathematics from the School of Mathematical Sciences at Monash University for “best overall honours student in the school” |
| 2015 | Awarded travel grant to attend AMSI Summer School in the Mathematical Sciences, University of Newcastle, NSW for January 2015. |
| 2014 | Monash Mathematical Sciences Honours Scholarship |
| | John Monash Exhibition Prize from the University of Melbourne for “best overall performance in third-year undergraduate Electrical Engineering subjects” |

2013	Selected for CSIRO (QLD) Computational Informatics Vacation Scholarship program (<i>Accepted</i>)
	Selected for CSIRO (NSW) Astronomy and Space Science Vacation Scholarship program (<i>Declined</i>)
	Selected for the Melbourne University Department of Mathematics and Statistics' Vacation Scholarship program (<i>Declined</i>)
	Winner of Melbourne University Electrical Engineering Club (MUEEC) SumoRobo Competition
2012	Faculty of Arts Dean's Honours List for 2011
	Selected for the Melbourne School of Engineering's Summer Research Experience program (<i>Accepted</i>)
	Selected for the Melbourne University Department of Mathematics and Statistics' Vacation Scholarship program (<i>Declined</i>)
2011	Hastie Exhibition from the University of Melbourne for "highest overall results in two Philosophy subjects"

Technical Skills

I am proficient in the following:

- Programming languages:
 - *Strong*: Python, C/C++ , Ruby, Javascript, Bash
 - *Working knowledge*: MATLAB, R, Clojure/Lisp, PHP, Perl
- Machine learning frameworks, especially Pytorch, Tensorflow, Scikit-learn
- Cloud computing, especially Amazon Web Services
- Probabilistic programming systems, especially Anglican
- \LaTeX
- Linux/Unix environment
- Version control tools, especially Git and Subversion
- Robot Operating System (ROS)
- LLVM Compiler Infrastructure Project