

# Martti Karvonen

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## Employment

2019-present **Post-doctoral fellow**, *University of Ottawa*.

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## Education

2015-2019 **PhD**, *University of Edinburgh*.

2014-2015 **PhD studies**, *Aalto University*.

2013-2014 **Master of Science in Mathematics and the Foundations of Computer Science**, *University of Oxford*.  
Graduated with distinction.

2010-2012 **Bachelor of Science**, *University of Helsinki*.

Major subject: Mathematics. Grade 5 in basic and intermediate studies.

Minor subject: Economics. Grade 4 in basic and intermediate studies.

2009-2012 **Bachelor of Arts**, *University of Helsinki*.

Major subject: Theoretical Philosophy. Grade 5 in basic and intermediate studies.

Minor subject: Philosophy of Values and World Views. Grade 4 in basic and intermediate studies.

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## Awards and grants

2016 **Postgraduate scholarship**, *The Osk. Huttunen foundation*.

2015 **Postgraduate scholarship**, *Vilho, Yrjö and Kalle Väisälä Foundation*.

2013 **Outstanding mathematics student award**, *The Mathematics and Science Fund, University of Helsinki*.

2012 **Outstanding philosophy student award**, *The Ilkka Niiniluoto Fund, University of Helsinki*.

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## Teaching experience

Spring 2019 **Introduction to Theoretical Computer Science**, *Co-Teacher*.  
*University of Edinburgh, School of informatics*.

Spring 2018 **Introduction to Theoretical Computer Science**, *Tutor*.  
*University of Edinburgh, School of informatics*.

Spring 2017 **Algorithms, Data Structures and Learning**, *Tutor*.  
*University of Edinburgh, School of informatics*.

Spring 2016 **Algorithmic Game Theory and Applications**, *Tutor and marker*.  
*University of Edinburgh, School of informatics*.

Spring 2015 **Introduction to discrete mathematics**, *TA and marker*.  
*Aalto University, Department of Mathematics and Systems analysis*.

Summer **Measure and Integral**, *TA*.

2013 *University of Helsinki, Department of Mathematics and Statistics*.

- Springs **Logic: basic part and Logic: supplementary part I, TA.**  
2012-2013 University of Helsinki, Department of Philosophy.  
Falls **Introduction to logic, TA (including the design of problem sets).**  
2010-2012 University of Helsinki, Department of Philosophy.

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### Selected talks

- July 2019 **Applied Category Theory Conference.**  
Oxford
- July 2019 **International Category Theory Conference.**  
Edinburgh
- July 2019 **Workshop on Contextuality as a resource in quantum computation.**  
Oxford
- May 2019 **Workshop: Quantum Contextuality in Quantum Mechanics and Beyond.**  
Prague
- March 2019 **Third Symposium on Compositional Structures.**  
Oxford
- March 2019 **The Oxford Advanced Seminar on Informatic Structures.**  
Oxford
- September 2018 **Category Theory Seminar.**  
Cambridge
- June 2018 **15th International Conference on Quantum Physics and Logic.**  
Halifax
- April 2018 **Category theory seminar.**  
Brno
- April 2018 **103rd Peripatetic Seminar on Sheaves and Logic.**  
Brno
- March 2018 **Combining Viewpoints in Quantum Theory.**  
Edinburgh
- November 2016 **Categories, Logic, and Physics, Scotland.**  
Glasgow
- October 2016 **Copenhagen Programming Language Seminar.**  
Copenhagen
- August 2016 **International Category Theory Conference.**  
Halifax
- February 2016 **Category theory seminar.**  
Edinburgh
- October 2015 **Category theory seminar.**  
Edinburgh
- June 2015 **Mathematical Foundations of Programming Semantics XXXI.**  
Nijmegen

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### Publications

C. Heunen and M. Karvonen. Limits in dagger categories. *Theory and Applications of Categories*, 34(18):468–513, 2019.

- M. Karvonen. Categories of empirical models. In *Proceedings of QPL 2018*, volume 287 of *Electronic Proceedings in Theoretical Computer Science*, pages 239–252, 2018.
- C. Heunen, R. Kaarsgaard, and M. Karvonen. Reversible effects as inverse arrows. In *Mathematical Foundations of Programming Semantics (MFPS)*, volume 341 of *Electronic Notes in Theoretical Computer Science*, pages 179–199. Elsevier, 2018.
- C. Heunen and M. Karvonen. Monads on dagger categories. *Theory and Applications of Categories*, 31(35):1016–1043, 2016.
- C. Heunen and M. Karvonen. Reversible monadic computing. In *Mathematical Foundations of Programming Semantics (MFPS)*, volume 319 of *Electronic Notes in Theoretical Computer Science*, pages 217–237, 2015.