

Abdul-Lateef Haji-Ali

PERSONAL INFORMATION	Syrian, born 1988 Native in Arabic, fluent in English	
CONTACT INFORMATION	Colin Maclaurin Building, G.15 Heriot-Watt University Edinburgh Campus Edinburgh, Scotland, EH14 4AS	+44 (0) 131 451 3206 a.hajiali@hw.ac.uk http://www.macs.hw.ac.uk/~ah180/
RESEARCH INTERESTS	Uncertainty Quantification, Stochastic Differential Equation, Numerical methods for SDEs and PDEs, Multilevel Monte Carlo, Particle systems, Crowd modelling, Mean-field theory, Sparse Grids, Combination techniques, Multi-index techniques, Inverse problems.	
EDUCATION	King Abdullah University of Science and Technology (KAUST) , Saudi Arabia Ph.D., Applied Mathematics, December 2012 to May 2016 Thesis Title: <i>Efficient multilevel and multi-index sampling methods in stochastic differential equations</i> Advisor: Raúl Tempone M.S., Applied Mathematics, September 2010 to December 2012 Published Thesis: <i>Pedestrian Flow in the Mean-field Limit</i> Advisor: Raúl Tempone Arab International University , Damascus, Syria B.S., Informatics Engineering, September 2005 to August 2010 Project: Recognition using spectral imaging, theory and algorithms	
EMPLOYMENT	Mathematical Institute — University of Oxford • Hooke Research Fellowship, 05 September 2016 to 05 September 2019. St. Anne's College — University of Oxford • College Association, January 2017 to January 2019.	
REFEREED JOURNAL PUBLICATIONS	<ol style="list-style-type: none">1. N. Collier, A. Haji-Ali, F. Nobile, E. von Schwerin, R. Tempone, "A continuation multilevel Monte Carlo algorithm", <i>BIT Numerical Mathematics</i>, 55(2), 399–432, 2014.2. A. Haji-Ali, F. Nobile, E. von Schwerin, R. Tempone, "Optimization of mesh hierarchies in multilevel Monte Carlo samplers", <i>Stochastic Partial Differential Equations: Analysis and Computations</i>, 4(1), 76–112, 2015.*3. A. Haji-Ali, F. Nobile, R. Tempone, "Multi-Index Monte Carlo: when sparsity meets sampling", <i>Numerische Mathematik</i>, 132(4), 767–806, 2015.4. A. Haji-Ali, F. Nobile, L. Tamellini, R. Tempone, "Multi-Index Stochastic Collocation for random PDEs", <i>Computer Methods in Applied Mechanics and Engineering</i>, 306, 95–122, 2016.*5. A. Haji-Ali, F. Nobile, L. Tamellini, R. Tempone, "Multi-index stochastic collocation convergence rates for random PDEs with parametric regularity", <i>Foundations of Computational Mathematics</i>, 16(6), 1555–1605, 2016.	

- *6. A. Haji-Ali, R. Tempone, “Multilevel and Multi-index Monte Carlo methods for McKean-Vlasov equations”, *Statistics and Computing*, 28(4), 923-935, 2018. doi:10.1007/s11222-017-9771-5
- 7. A. Haji-Ali, H. Harbrecht, M. Peters, M. Siebenmorgen, “Novel results for the anisotropic sparse quadrature and their impact on random diffusion problems”, *Journal of Complexity*, 47, 62–85, 2018.
- 8. A. Haji-Ali, MB. Giles “Multilevel nested simulation for efficient risk estimation”, *SIAM/ASA Journal on Uncertainty Quantification*, 7(2), 497–525, 2019.

PREPRINTS

- 9. A. Haji-Ali, F. Nobile, R. Tempone, S. Wolfers “Multilevel weighted least squares polynomial approximation”, 2017. Submitted.
Pre-print: <https://arxiv.org/abs/1707.00026>

AWARDS

- Second-place Leslie Fox Prize, June 2019.
- Fulford Non-stipendiary Junior Research Fellowship, Somerville College, University of Oxford, October 2017 to September 2019.
- Hooke Research Fellowship, Mathematical Institute, University of Oxford, September 2016 to September 2019.
- King Abdullah University of Science and Technology Fellowship 2010
- Academic Excellence Award, King Abdullah University of Science and Technology 2010.
- Top Student Scholarship, Arab International University, 2006 to 2010.

TEACHING
EXPERIENCE

- **Short course.** “Specialist 03: Monte Carlo simulations”, InFoMM CDT, University of Oxford, March 2018.
- **Tutor** “Stochastic Differential Equations”, Mathematical Institute, University of Oxford, October to November 2017 and 2018.
- **Tutor** “Differential Equations”, St. Anne’s College, University of Oxford, October to November 2017.
- **Tutor** “Constructive Maths”, St. Anne’s College, University of Oxford, May 2017.
- **Tutor** “Martingale Through Measure Theory”, Mathematical Institute, University of Oxford, May 2017 and October to November 2018.
- **Tutor** “Differential Equations II”, St. Anne’s College, University of Oxford, January to July 2017 and 2018.
- **Tutor** “Numerical Analysis”, St. Anne’s College, University of Oxford, January to July 2017 and 2018.
- **Project supervisor** “Multilevel Hierarchical Markov Chain Monte Carlo”, Centre for Doctoral Training in Mathematical Institute, University of Oxford, January 2017.
- **Teaching assistant** to Prof. Raul Tempone. Graduate course, “Stochastic Differential Equations”, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, Fall Semester, August 2012 to December 2012.
- **Teaching assistant** to Prof. Raul Tempone. Short course, “Stochastic Methods in Engineering”, Universidad de la República in Montevideo, Uruguay, December 2012.
- **Teaching assistant** to Prof. Raul Tempone. Graduate course, “Stochastic Methods in Engineering”, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, Spring Semester, January 2013 to May 2013.
- **Teaching assistant** to Prof. Raul Tempone. Short course, “Uncertainty Quantification” part of a International Summer School on Scientific Computing, University of the Chinese Academy of Sciences, Beijing, July 2013.

- **Teaching assistant** to Prof. Raul Tempone. Short course, “Numerical techniques for PDEs with random input data”, Königlich Technische Hochschule, Stockholm, Sweden, May 2014.
- **Short course.** “mimclib: A Python library for MLMC and MIMC”, UQ School, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, May 2016.

- RESEARCH VISITS
- Issac Newton Institute, Cambridge, United Kingdom, April 2018.
 - École Polytechnique Fédérale de Lausanne, Switzerland, July 2017.
 - RWTH Aachen University, Germany, June 2017.
 - École Polytechnique Fédérale de Lausanne, Switzerland, April 2016.
 - École Polytechnique Fédérale de Lausanne, Switzerland, August 2015.
 - University of Pavia, Pavia, Italy, July 2015.
 - Königlich Technische Hochschule, Stockholm, Sweden, June 2015.
 - University of Austin, Austin, Texas, USA, July 2014.
 - Universidad de la República, Montevideo, Uruguay, December 2013.
 - University of Austin, Austin, Texas, USA, June 2013.

- CONFERENCES
- Organization:**
- Co-organiser with Dr. Alberto Paganini of SIAM UKIE annual meeting, January 2019.
 - Co-organiser of mini-symposium with Prof. Raul Tempone and Prof. Fabio Nobile: “Forward and inverse UQ with hierarchical models”, MCQMC, Rennes, France, United Kingdom, July, 2018.
 - Co-organiser of mini-symposium with Prof. Mike Giles: “Numerical Methods for PDEs in Uncertainty Quantification”, SciCADE, University of Bath, United Kingdom, September, 2017.

Talks:

- MCQMC, Renne, France, July 2018.
- UNQW03, “Reducing dimensions and cost for UQ in complex systems”, Issac Newton Institute, Cambridge, United Kingdom, March, 2018.
- BIRS, “Computational Uncertainty Quantification”, Banff, Canada, October 2017.
- LMS-EPSRC Symposium, “Model Order Reduction”, Durham, August 2017.
- MCM2017, Montreal, July 2017.
- Applied maths seminar, University of Warwick, December 2016.
- Numerical analysis seminar, University of Bath, November 2016.
- UQ Summer School, WIAS Berlin, September 2016.
- SIAM UQ, Lausanne, April 2016.
- SRI UQ16, KAUST, January 2016.
- UQ15, WIAS Berlin, November 2015.
- SciCADE, Potsdam, September 2015.
- ICIAM, Beijing, August 2015.
- MCM 2015, Johannes Kepler University, Linz, July 2015.
- FoCM, Universidad de la República in Montevideo, December 2014.
- SGA, Universität Stuttgart, September 2014.
- NASPDE, École Polytechnique Fédérale de Lausanne, September 2014.
- ENUMATH, École Polytechnique Fédérale de Lausanne, August 2013.

TECHNICAL SKILLS Proficient in C, C++, C#, Java, JavaScript, Python, UNIX shell scripting, GNU make, MySQL, MATLAB, Mathematica.

REFERENCES Raúl Tempone raul.tempone@kaust.edu.sa

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Professor of Scientific Computing in the Mathematical Institute
Oxford, United Kingdom.
Fabio Nobile fabio.nobile@epfl.ch
Scientific computing and uncertainty quantification - CADMOS Chair
École Polytechnique Fédérale de Lausanne, Switzerland.