Joël Ouaknine

— Short CV —

November 2, 2020

Year of birth: 1972
Citizenships: Canadian and French
Family: Married, two children

RESEARCH INTERESTS

Foundations of Algorithmic Verification and **Theoretical Computer Science**; in particular:

- Decision, control, and synthesis problems for continuous and discrete linear dynamical systems (using tools from number theory, Diophantine geometry, algebraic geometry)
- Automated verification of real-time, probabilistic, and infinite-state systems (e.g. model-checking algorithms, synthesis problems, complexity)
- Logic and applications to verification
- Automated software analysis
- Concurrency

EDUCATION

Oxford University Oxford, UK	**PhD, Computer Science**	**2001**
McGill University Montréal, Canada	**MSc, Mathematics**	**1995**
	BSc, Honours in Mathematics	**1993**

EMPLOYMENT

Max Planck Institute for Software Systems Saarbrücken, Germany	**Scientific Member & Director** - Managing Director 2018 – 2020	**2016 – present**
Saarland University Saarbrücken, Germany	**Adjunct Professor of Computer Science**	**2016 – present**
Oxford University Oxford, UK	**Professorial Research Fellow** (part-time)	**2016 – 2021**
	Full Professor of Computer Science - Deputy Head of Department 2014 – 2016	**2010 – 2016**
	Reader[1] **in Computer Science**	**2008 – 2010**
	University Lecturer[2] **in Computer Science**	**2004 – 2008**
	Fellow[3] **of St John's College**	**2004 – present**
Ecole Normale Supérieure Cachan, France	**Invited Professor** (1-month appointment, twice)	**2006, 2008**
Carnegie Mellon University Pittsburgh, USA	**Postdoctoral Fellow** (Computer Science Department)	**2002 – 2004**
Tulane University New Orleans, USA	**Instructor** (Department of Mathematics)	**1999 – 2002**

[1] Tenure awarded July 2009. 'Reader' is roughly equivalent to Associate Professor in North America.
[2] 'University Lecturer' is roughly equivalent to tenure-track Assistant Professor in North America.
[3] Emeritus Fellow since 2016.

PUBLICATIONS

Over **130 papers** in peer-reviewed conferences and journals, including:
LICS/ICALP (29), CONCUR/FoSSaCS (17), CAV/TACAS (10), STOC/SODA (4)

AWARDS

1. **Arto Salomaa Prize, 2020.** *€2000 prize, awarded jointly to James Worrell and myself for "outstanding contributions to Theoretical Computer Science, in particular to the theory of timed automata and to the analysis of dynamical systems."*
2. **Elected member of Academia Europaea, 2020**
3. **ERC Consolidator Grant, 2015–2021**
4. **Best Paper Award, ICALP 2014**
5. **Best Paper Award, CONCUR 2011**
6. **Roger Needham Award, 2010.** *£5000 annual prize, given by the British Computer Society, for "a distinguished research contribution in computer science by a UK-based researcher within 10 years of their PhD."*
7. **EPSRC Leadership Fellowship, 2009–2014.** *5-year research grant, of total value over £1M, covering among others 100% of my salary and providing complete buy-out from teaching and administrative duties. (Only 17 Leadership Fellowships awarded in 2009 in the UK across all scientific areas covered by EPSRC (the Engineering and Physical Sciences Reseach Council), of which only 4 in Computer Science.)*
8. **Outstanding Teaching Award, Oxford University, 2008**
9. **Outstanding Teaching Award, Oxford University, 2007**

INVITED PLENARY SPEAKER AT INTERNATIONAL CONFERENCES, ETC.

1. **AG:** SIAM Conf. on Applied Algebraic Geometry, 2021
2. **CiE:** Computability in Europe, 2021
3. **FSTTCS:** 40th IARCS Annual Conf. on Foundations of Software Technology and Theoretical Computer Science, 2020
4. **AutoMathA:** Jewels of Automata: from Mathematics to Applications, 2020
5. **LMV:** 5th Logic Mentoring Workshop, 2020
6. **CONCUR:** 30th Int'l Conf. on Concurrency Theory, 2019
7. **CCA:** 16th Int'l Conf. on Computability and Complexity in Analysis, 2019
8. **TCSAG:** MPI-INF and MPI-MiS Joint Workshop on Theoretical Computer Science and Algebraic Geometry, 2019
9. **AVM:** 12th Alpine Verification Meeting, 2018
10. **DIMAP10:** DIMAP 10 Year Anniversary Workshop, 2017
11. **FoSSaCS:** 20th Int'l Conf. on Foundations of Software Science and Computation Structures, 2017
12. **EQINOCS:** Workshop on Entropy and Information in Computational Systems, 2016
13. **Heilbronn Annual Conference,** 2015
14. **FFM:** Conf. on Frontiers of Formal Methods, 2015

15. **Journées nationales du GDR IM,** Bordeaux, 2015
16. **TbiLLC:** 11th Int'l Tbilisi Symp. on Language, Logic and Computation, 2015
17. **London Mathematical Society BCS-FACS Annual Seminar,** 2014
18. **VTSA:** Summer School on Verification Technology, Systems & Applications, 2014
19. **GandALF:** 5th Int'l Symp. on Games, Automata, Logics and Formal Verification, 2014
20. **AISS:** Workshop on Algorithmics on Infinite State Systems, 2014
21. **SCSS:** 5th Int'l Symp. on Symbolic Computation in Software Science, 2013
22. **FroCoS:** 9th Int'l Symp. on Frontiers of Combining Systems, 2013
23. **FCT:** 19th Int'l Symp. on Fundamentals of Computation Theory, 2013
24. **LATA:** 7th Int'l Conf. on Language and Automata Theory and Applications, 2013
25. **RP:** 6th Int'l Workshop on Reachability Problems, 2012
26. **QMC:** ARTIST PhD School on Quantitative Model Checking, 2012
27. **Roger Needham Lecture,** The Royal Society, London, 2010
28. **ICALP:** 37th Int'l Coll. on Automata, Languages and Programming, 2010
29. **MFPS:** 26th Conf. on the Mathematical Foundations of Programming Semantics, 2010
30. **AVACS:** Spring School on Automatic Verification and Analysis of Complex Systems, 2010
31. **VECoS:** 3rd Int'l Workshop on Verification and Evaluation of Computer and Communication Systems, 2009
32. **FORMATS:** 6th Int'l Conf. on Formal Modelling and Analysis of Timed Systems, 2008
33. **QAPL:** 4th Workshop on Quantitative Aspects of Programming Languages, 2006

SERVICE

1. **Organiser, Gump Research Station Workshop** on Dynamical Systems and Computation, 2019
2. **PC chair, LICS:** 32nd Annual ACM/IEEE Symp. on Logic in Computer Science, 2017
3. **Organiser, Bellairs Workshop** on Infinite-State Systems, Barbados, 2015
4. **PC co-chair and co-organiser, RP:** 8th Int'l Workshop on Reachability Problems, 2014
5. **Co-organiser, Dagstuhl Seminar** on Reachability Problems for Infinite-State Systems, 2014
6. **PC chair, MFPS:** 27th Conf. on the Mathematical Foundations of Programming Semantics, 2011
7. **PC co-chair, FORMATS:** 7th Int'l Conf. on Formal Modelling and Analysis of Timed Systems, 2009
8. **PC member,** over 50 international conferences
9. **Associate Editor,** Journal of Computer and System Sciences, Elsevier

RESEARCH GRANTS

1. **PI** (one of 18 PIs), Collaborative Research Centre 248, German Research Foundation (DFG), *Foundations of Perspicuous Software Systems*, 2018-2022. **EUR 11,000,000**

2. **PI,** Consolidator Grant: ERC, *Analysis, Verification, and Synthesis of Infinite-State Systems*, 2015–2020. **EUR 1,835,000**
3. **Co-I:** EPSRC, UK (PI J. Worrell), *Counter Automata: Verification and Synthesis*, 2014–2017. **GBP 242,000**
4. **PI:** EPSRC, UK, *Graph-Theoretic Algorithms for Separation Logic*, 2012–2014. **GBP 196,000**
5. **PI:** The Leverhulme Trust, UK (Visiting Professor P. Schnoebelen), *Algorithmic Theory of Well-Structured Systems: Applications to Verification*, 2011–2012. **GBP 18,000**
6. **Co-I:** EPSRC, UK (PI D. Kroening), *Verification of Shared-Memory Concurrent Software*, 2009–2013. **GBP 560,000**
7. **PI,** Leadership Fellowship: EPSRC, UK, *Quantitative Verification: From Model Checking to Model Measuring*, 2009–2014. **GBP 1,019,000**
8. **PI:** EPSRC, UK, *Automated Verification of Probabilistic Programs*, 2009–2011. **GBP 360,000**
9. **Co-I:** EPSRC, UK, (PI B. Coecke), *Complexity and Decidability in Unconventional Computational Models*, 2008–2011. **GBP 180,000**
10. **PI:** EPSRC, UK, *Model-Checking Algorithms for Timed Systems*, 2007–2011. **GBP 135,000**
11. **Co-I:** EPSRC, UK (PI A. W. Roscoe), *CSP Model Checking: New Technology and Techniques*, 2007–2011. **GBP 715,000**
12. **Supervisor,** FP6 Marie Curie Intra-European Fellowship: European Commission (Fellow P. Bouyer), *Logical Languages for Embedded Systems*, 2006–2007. **EUR 47,000**

SOFTWARE DEVELOPED

1. **SLAP:** A static livelock analyser for CSP processes (now bundled within FDR), 2009–
2. **APEX:** A verification tool for probabilistic programs, 2007–
3. **MAGIC:** A model checker for sequential and concurrent C programs (implemented by S. Chaki), 2002–