

Franco Raimondi

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EDUCATION

- ◊ **PhD in Computer Science**, University College London, 2006.
- ◊ **MSc in Physics**, Università Statale di Milano, Italy (110/110 cum laude), 1998.
- ◊ **Postgraduate Certificate in Higher Education**, Middlesex University, 2011.

PROFESSIONAL HISTORY

- ◊ 2016-: **Professor of Computer Science**, Middlesex University.
- ◊ 2013-2016: **Associate Professor in Logic and Verification**, Middlesex University.
- ◊ 2009-2013: **Senior Lecturer**, Middlesex University.
- ◊ 2006-2009: **Research Fellow**, University College London.
- ◊ 2002-2004: **Teaching Assistant**, King's College London.
- ◊ 1999-2002: **System administrator and Software Engineer**, Iris SpA, Milan - London.
- ◊ 1999: **Teacher** (Maths, Computing), Milan, Italy.
- ◊ 1998: **Military service**, Italy.

RESEARCH GRANTS AND AWARDS

- ◊ 2015-2017. UK Innovate Knowledge Transfer Partnership with Caritas Anchor House to develop a verified, scalable platform for the charity sector, <http://www.globalnoticeboard.com>, £142,656,
- ◊ 2015-2018. Royal Academy of Engineering Visiting Professorship grant to work in collaboration with an Industry expert on testing, verification and certification of avionic software, £10,000.
- ◊ 2013-2016. EPSRC project VRBMAS (Verification of Resource Bounded Multi-Agent Systems, £318,000), <http://www.vrbmas.org>.
- ◊ 2014. SGT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$8,000): *Model workload in multi-agent systems*.
- ◊ 2013. SGT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$8,000): *Model checking multi-agent systems*.
- ◊ 2013. Spinner project (<http://www.spinner.it>, £12,000) for *Symmetric Synchronized Model-View-Controller*.
- ◊ 2012. EU TEMPUS project (£58,860) for *SSDS: Student Support and Development Services*.
- ◊ 2012. SGT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$8,000): *Model checking multi-agent systems with Java Pathfinder*.

- ◊ 2012. JISC grant (£45,000) for *SLRGuide: a tool to support systematic literature reviews*, Feb-Aug 2012.
- ◊ 2008. ACM distinguished paper award for the paper *Efficient online monitoring of web-service SLAs* (FSE 2008).
- ◊ 2009. SGT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$7,000): *Finite and infinite automata-based model checking for linear temporal logic*.
- ◊ 2008. RIACS at NASA Ames (Mountain View, CA, USA): grant for research activities (\$15,000): *specification based testing for planning domains using temporal logic*.
- ◊ 2007. USS at NASA Ames (Mountain View, CA, USA): grant for research activities (\$10,000): *coverage metrics for specification based testing using temporal logic*.
- ◊ 2006. MCT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$5,000): *formal verification of EUROPA planning models*.
- ◊ 2004. MCT at NASA Ames (Mountain View, CA, USA): grant for research activities (\$8,000): *formal verification of diagnosability of hardware models*.

ENABLING ACTIVITIES

- ◊ Coordinator of the Middlesex Applied Software Engineering research group, <http://mase.cs.mdx.ac.uk>.
- ◊ Reviewer for: UK Engineering and Physical Sciences Research Council (EPSRC); Netherlands Organisation for Scientific Research (NWO); Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR).
- ◊ External PhD Examiner: Mondragon University (Spain), Bilbao University (Spain), Imperial College (UK), King's College (UK), Univeristà di Camerino (Italy), Université catholique de Louvain, Louvain-la-Neuve (Belgium); LIX, Ecole Polytechnique, Paris (France).
- ◊ Program Committee member of AAMAS, IJCAI, AAAI, NFM, AAAI, FASE, The Java Pathfinder Workshop, and several other conferences and workshops.
- ◊ I have reviewed academic books for John Wiley & Sons. I have reviewed papers for a number of journals, including: IEEE Transactions on Software Engineering, ACM Transactions on Software Engineering and Methodology, JAAMAS, IEEE Transactions on Mobile Computing, Artificial Intelligence, Fundamenta Informaticae, Journal of Systems and Software.

RESEARCH PROJECTS

I have worked on the following research projects:

- ◊ 2010-2012: Co-PI on Nominet Trust project Mayot (Mobile Application for Youth Offending Teams) <http://www.mayot.mdx.ac.uk>, Department of Computer Science, Middlesex University, London.
- ◊ 2008-2009: EPSRC project UbiVal (<http://www.ubival.org>), *Fundamental Approaches to Validation of Ubiquitous Computing Applications and Infrastructures*. Department of Computer Science, University College London.
- ◊ 2006-2008: EU project PLASTIC (<http://www.ist-plastic.org/>), *Providing lightweight and adaptable service technology*. Department of Computer Science, University College London.
- ◊ 2004-2006: EPSRC Case project *Verification of multi-agent systems via OBDDs*. Department of Computer Science, King's College and University College London.

INVITED TALKS

- ◊ *Java Pathfinder for model checking Multi-Agent Systems*, Imperial College London, 2016.
- ◊ *Using Java Pathfinder to Reason about Agent Systems*, University of Liverpool, 2015.

- ◇ *An extensible framework for the verification of multi-agent systems* University of Birmingham, 2013.
- ◇ *A new framework for model checking multi-agent systems* Université catholique de Louvain, Louvain-la-Neuve, 2013.
- ◇ *Model checking multi-agent systems: an overview and a proposal*, University of Liverpool, 2012.
- ◇ *On-the-fly hybrid model checking for software verification*, University of Southampton, 2012.
- ◇ *The model checker MCMAS*, University of Nottingham, 2010.
- ◇ *Formal verification of complex and critical systems*, Bedfordshire University, Luton, November 2009.
- ◇ *Efficient Online Monitoring of Web-Service SLAs*, ISEC 2009, Pune, India, February 2009.
- ◇ *Model checking time, knowledge, correct behaviour, and strategies*, Université catholique de Louvain, Louvain-la-Neuve, Belgium, December 2008.

Publications

JOURNAL PAPERS

- ◇ C. Vannucchi, M. Diamanti, G. Mazzante, N. Gorogiannis, Franco Raimondi, et al., *Symbolic verification of eventconditionaction rules in intelligent environments*, to appear in Journal of Reliable Intelligent Environments
- ◇ Gianluca Barbon, Michael Margolis, Filippo Palumbo, Franco Raimondi, Nick Weldin, *Taking Arduino to the Internet of Things: the ASIP programming model*, to appear in Elsevier Computer Communications, 2106.
- ◇ Franco Raimondi, *Using multi-agent systems to go beyond temporal patterns verification*, invited column in ACM SIGLOG News, Volume 3, number 2
- ◇ A. Lomuscio, H. Qu, F. Raimondi, *MCMAS: An open-source model checker for the verification of multi-agent systems*, in Software Tools for Technology Transfer, 2015.
- ◇ S. Busar, C. Pecheur, H. Qu, F. Raimondi, *Reasoning about Memoryless Strategies under Partial Observability and Unconditional Fairness Constraints*, in Information and Computation, 2015.
- ◇ T. Chen, G. Primiero, F. Raimondi, N. Rungta, *A Computationally Grounded, Weighted Doxastic Logic*, in Studia Logica, 2015.
- ◇ A. Bettinelli, L. Liberti, F. Raimondi, D. Savourey, *The Anonymous Subgraph Problem*, in Computers & Operations Research, Elsevier, 2013.
- ◇ M. Sama, F. Raimondi, S. Elbaum, D. Rosenblum, Z. Wang, *Context-Aware Adaptive Applications: Fault Patterns and Their Automated Identification*, IEEE Transactions on Software Engineering, 2010.
- ◇ J. Skene, F. Raimondi, W. Emmerich, *Service-Level Agreements for Electronic Services*, IEEE Transactions on Software Engineering, 2010.
- ◇ A. Lomuscio, F. Raimondi and B. Wozna, *Verification of the TESLA protocol with MCMAS-X*. Fundamenta Informaticae 79 (3-4): 473-486.
- ◇ F. Raimondi, A. Lomuscio, *Automatic verification of multi-agent systems by model checking via OBDD's*, in Journal of Applied Logic, 2007.
- ◇ M. Kacprzak, A. Lomuscio, A. Niewiadomski, W. Penczek, F. Raimondi and M. Szreter, *Comparing BDD and SAT based techniques for model checking Chaum's Dining Cryptographers Protocol*, Fundamenta Informaticae, 72(1-3): 215-234 (2006).

PEER- REVIEWED CONFER- ENCES

- ◇ Thomas Bauereiss, Armando Pesenti Gritti, Andrei Popescu, Franco Raimondi. *CoSMedis: A Distributed Social Media Platform with Formally Verified Confidentiality Guarantees*. IEEE Security & Privacy 2017.

- ◊ Thomas Bauereiss, Armando Pesenti Gritti, Andrei Popescu, Franco Raimondi. *CoSMed: A Confidentiality-Verified Social Media Platform*. ITP 2016: 87-106
- ◊ Neha Rungta, Eric Mercer, Franco Raimondi, Bjorn Krantz, Richard Stocker and Andrew Wallace, *Modeling Complex Air Traffic Management Systems*, 8th Workshop on Modelling in Software Engineering (MiSE2016)
- ◊ Agnieszka M. Zbrzezny, Andrzej Zbrzezny, Franco Raimondi: *Efficient Model Checking Timed and Weighted Interpreted Systems Using SMT and SAT Solvers*. KES-AMSTA 2016: 45-55
- ◊ Jaap Boender, E. Currie, M. Loomes, Giuseppe Primiero, Franco Raimondi. *Teaching Functional Patterns through Robotic Applications*. TFPIE 2016: 17-29
- ◊ Michele Bottone, Filippo Palumbo, Giuseppe Primiero, Franco Raimondi, Richard Stocker. *Implementing Virtual Pheromones in BDI Robots Using MQTT and Jason (Short Paper)*. CloudNet 2016: 196-199.
- ◊ Dalal Khalid Aljaseem, Michael Heeney, Armando Pesenti Gritti, Franco Raimondi. *On-the-Fly Image Classification to Help Blind People*. Intelligent Environments 2016: 155-158
- ◊ Michele Bottone, Giuseppe Primiero, Franco Raimondi, Vincenzo De Florio. *A Model for Trustworthy Orchestration in the Internet of Things*. Intelligent Environments 2016: 171-174
- ◊ N. Alechina, B. Logan, H.N. Nguyen, F. Raimondi, *Symbolic model checking for one-resource RB+-ATL*, in proceedings of IJCAI 2015
- ◊ M. Bordoni, M. Bottone, B. Fields, N. Gorogiannis, M. Margolis, G. Primiero, F. Raimondi, *Towards Cyber-Physical Systems as Services: the ASIP Protocol*, in Proceedings of SEsCPS15
- ◊ R. Stocker, N. Rungta, E. Mercer, F. Raimondi, J. Holbrook, C. Cardoza, M. Goodrich, *An Approach to Quantify Workload in a System of Agents*, in Proceedings of AAMAS 2015
- ◊ N. Alechina, B. Logan, H.N. Nguyen, F. Raimondi, *Symbolic Model-checking for Resource-Bounded ATL* (extended abstract), in Proceedings of AAMAS 2015
- ◊ B. Barn, R. Barn, F. Raimondi, *On the Role of Value Sensitive Concerns in Software Engineering Practice*, in Proceedings of ICSE 2015
- ◊ N. Alechina, B. Logan, H. Nga Nguyen, F. Raimondi, *Decidable Model-Checking for a Resource Logic with Production of Resources*, in Proceedings of ECAI 2014
- ◊ G. Primiero, F. Raimondi, *A typed natural deduction calculus to reason about secure trust*, in Proceedings of PST 2014
- ◊ K. Androutsopoulos, N. Gorogiannis, M. Loomes, M. Margolis, G. Primiero, F. Raimondi, P. Varsani, N. Weldin, A. Zivanovic, *A Racket-Based Robot to Teach First-Year Computer Science*, in Proceedings of the 7th European Lisp Symposium, ELS 2014
- ◊ Balbir S. Barn, Franco Raimondi, Lalith Athappian, Tony Clark, *Slrtool: A Tool to Support Collaborative Systematic Literature Reviews*, in Proceedings of ICEIS 2014
- ◊ Simon Busard, Charles Pecheur, Hongyang Qu, Franco Raimondi, *Improving the Model Checking of Strategies under Partial Observability and Fairness Constraints*, in Proceedings of ICFEM 2014.
- ◊ N. Rungta, F. Raimondi, *Modeling and Verification of Multi-agent Systems*. ICSE 2014 tutorial.
- ◊ G. Primiero, F. Raimondi, N. Rungta, *Model Checking Degrees of Belief in a System of Agents*, in Proceedings of AAMAS 2014.
- ◊ N. Rungta, G. Brat, W. Clancey, C. Linde, F. Raimondi, Chin S. and M. Shafto, *Aviation Safety: Modeling and Analyzing Complex Interactions between Humans and Automated Systems*, in Proceedings of ATACCS 2013

- ◇ S. Busard, C. Pecheur, H. Qu, F. Raimondi, *Reasoning about Strategies under Partial Observability and Fairness Constraints*, to appear in Proceedings of Strategic Reasoning, 2013 (co-located with ETAPS 2013).
- ◇ J. Hunter, F. Raimondi, N. Rungta, R. Stocker, *A Synergistic and Extensible Framework for Multi-Agent System Verification*, to appear in Proceedings of AAMAS 2013.
- ◇ A. Di Marco, F. Gallo, O. Gemikonakli, L. Mostarda, F. Raimondi, *Implementing Adaptation and Reconfiguration Strategies in Heterogeneous WSN*, to appear in Proceedings of the 27th IEEE International Conference on Advanced Information Networking and Applications (AINA-2013).
- ◇ M. Sama, F. Raimondi, *Synchronized Symmetric Model-View-Controller*, Proceedings of ID 2013 (International Workshop on Interference and Dependence), 2013.
- ◇ F. Gallo, A. Di Marco, F. Raimondi, *PROTEUS: a language for Adaptation Plans*, in Proceedings of ADAPTIVE 2012
- ◇ A. von Rhein, S. Apel, F. Raimondi, *Introducing Binary Decision Diagrams in the Explicit-State Verification of Java Code*, in Proceedings of the Java Pathfinder Workshop 2011 (co-located with ASE 2011)
- ◇ F. Roda, L. Liberti, F. Raimondi, *Evaluation of Collaborative Filtering Algorithms Using a Small Dataset*. In proceedings of WEBIST 2011.
- ◇ F. Raimondi, C. Pecheur, G. Brat, *PDVer, a tool to verify PDDL planning domains*. In proceedings of VVPS 2009.
- ◇ J. Cubo, M. Sama, F. Raimondi, D. Rosenblum, *A Model to Design and Verify Context-Aware Adaptive Service Composition*. In IEEE proceedings of SCC 2009.
- ◇ A. Bettinelli, L. Liberti, F. Raimondi, D. Savourey, *The Anonymous Subgraph Problem*. In Proceedings of CTW 2009.
- ◇ F. Roda, L. Liberti, F. Raimondi, *Combinatorial optimization based recommender systems*. In Proceedings of CTW 2009.
- ◇ A. Lomuscio, H. Qu, F. Raimondi, *MCMAS: A Model Checker for the verification of Multi-Agent Systems*. In Proceedings of CAV 2009.
- ◇ C. Pecheur, F. Raimondi, G. Brat, *A Formal Analysis of Requirements-Based Testing*. In Proceedings of ISSTA 2009.
- ◇ M. Sama, F. Raimondi, D. Rosenblum, W. Emmerich, *Algorithms for efficient symbolic detection of faults in context-aware applications*. In IEEE DL proceedings of the ARAMIS 2008, L'Aquila, Italy, 2008.
- ◇ F. Raimondi, J. Skene, W. Emmerich, *Efficient online monitoring of web-service SLAs*. In Proceedings of ACM SIGSOFT/FSE 2008, Atlanta, USA, 2008
- ◇ L. Liberti, F. Raimondi, *The Secret Santa Problem*. In LNCS proceedings of AAIM 2008, Shanghai, China, June 2008.
- ◇ R. Calegari, M. Musolesi, F. Raimondi, C. Mascolo, *CTG: a Connectivity Trace Generator for testing the performance of opportunistic mobile systems*. Proceedings of ESEC/FSE 2007, Dubrovnik, Croatia, September 2007.
- ◇ F. Raimondi, J. Skene, W. Emmerich, B. Wozna, *A Methodology for online monitoring non-functional specification of web-services*. Proceedings of PROVECS 2007 - TOOLS 2007, Zurich, June 2007
- ◇ F. Raimondi, C. Pecheur, G. Brat, *Testing Planning Domains (without Model Checkers)*, ENTCS proceedings of MBT (Model Based Testing), colocated with ETAPS 2007, Braga, Portugal, March 2007
- ◇ A. Lomuscio, C. Pecheur and F. Raimondi, *Verification of knowledge and time with NuSMV*, Proceedings of IJCAI07 (International Conference on Artificial Intelligence), Hyderabad, India, January 2007.

- ◊ A. Lomuscio, F. Raimondi and B. Wozna, *Verification of the TESLA protocol with MCMAS-X*, in Proceedings of CS&P, International Workshop on Concurrency, Specification and Programming. Wandlitz, Germany, September 2006.
 - ◊ C. Pecheur and F. Raimondi, *Symbolic model checking of logics with Actions*, in Proceedings of the Fourth Workshop on model checking artificial intelligence (MoChArt 2006), Springer Verlag LNAI.
 - ◊ F. Raimondi, A.Lomuscio *Model checking knowledge, strategies, and games in multi-agent systems*, in Proceedings of AAMAS06, the Fifth International Joint Conference on Autonomous Agents and Multi-Agent Systems (ACM Press). May 2006, Hakodate, Japan.
 - ◊ F. Raimondi, A.Lomuscio *The complexity of model checking concurrent programs against CTLK specifications* (short paper), in Proceedings of the AAMAS06, Fifth International Joint Conference on Autonomous Agents and Multi-Agent Systems (ACM Press). May 2006, Hakodate, Japan.
 - ◊ A. Lomuscio, F. Raimondi, *MCMAS: a tool for verifying multi-agent systems*, in Proceedings of TACAS 2006, 12th international conference on tools and algorithms for the construction and analysis of systems (Springer Verlag). March 2006, Vienna.
 - ◊ F. Raimondi, A. Lomuscio, *The complexity of symbolic model checking temporal-epistemic logics*, in Proceedings of the Workshop on Concurrency, Specification and Programming (CS&P), September 2005, Poland.
 - ◊ F. Raimondi, C. Pecheur, A. Lomuscio, *Applications of model checking for multi-agent systems: verification of diagnosability and recoverability*, in Proceedings of the Workshop on Concurrency, Specification and Programming (CS&P), September 2005, Poland.
 - ◊ F. Raimondi, A. Lomuscio. *Automatic verification of deontic interpreted systems by model checking via OBDD's*, Proceedings of ECAI04, Sixteenth European Conference on Artificial Intelligence. Valencia, August 2004.
 - ◊ F. Raimondi, A. Lomuscio. *Symbolic model checking of multi-agent systems via OBDDs: an algorithm and its implementation*, Proceedings of the Third International Joint Conference on Autonomous Agents and Multiagent systems. (AAMAS04). New York, August 2004.
 - ◊ F. Raimondi, A. Lomuscio. *Symbolic Model Checking of Deontic Interpreted Systems via OBDD's*, Proceedings of DEON04, Seventh International Workshop on Deontic Logic in Computer Science. Springer Verlag LNCS 3065. Madeira, May 2004.
 - ◊ F. Raimondi, *Model Checking Epistemic Properties of Interpreted Systems*, Proceedings of ESSLLI 03, Vienna, Austria.
 - ◊ A.Lomuscio, F.Raimondi and M.Sergot, *Towards model checking interpreted systems*, (poster) AAMAS 03, Melbourne, Australia.
 - ◊ F. Raimondi, A.Lomuscio, *A Tool For Specification And Verification Of Epistemic Properties In Interpreted Systems*, in Electronic Lecture Notes of Theoretical Computer Science, Vol. 85 (2).
 - ◊ A.Lomuscio, F. Raimondi and M.Sergot, *Towards model checking interpreted systems*, Proceedings of MoChArt 2002, Lyon, France.
- THESES
- ◊ F. Raimondi, *Model Checking Multi-Agent Systems*, PhD thesis, University College London, 2006.
 - ◊ F. Raimondi, *Modelling the physical and chemical evolution of pollutants in the lower atmosphere*, MSc thesis, Università di Milano, Italy, 1998.

Teaching

Year	Subject	Hours	Students
2016/2017	Computer Science (First Year)	184	180
	Computer Science: 1 st year tutor and 1 st year coordinator	72	180
2015/2016	Computer Science (First Year)	172	130
	Computer Science: 1 st year tutor and 1 st year coordinator	72	130
2014/2015	Computer Science (First Year)	128	120
	Computer Science: 1 st year tutor	48	120
	Software Development (Java)	30	120
2013/2014	Information Security Management	72	13
	Computer Science (First Year)	128	120
2012/2013	Information Security Management	72	10
	Validation and Verification	72	20
	Functional programming (Haskell)	72	20
2011/2012	Information Security Management	72	10
	Validation and Verification	72	20
	Functional programming (Haskell)	72	20
2010/2011	Information Security Management	72	10
	Validation and Verification (lectures)	42	30
	Functional programming (Haskell)	108	30
2009/2010	Information Security Management	30	5
	Validation and Verification (lectures)	16	25
	Functional programming (Haskell)	16	25
2008/2009	Validation and Verification (lectures)	6	32
	Compilers (exercise classes)	10	60
2007/2008	Validation and Verification (lectures)	8	30
	Compilers (exercise classes)	10	40
2006/2007	Validation and Verification (lectures)	8	24
2005/2006	Validation and Verification (lectures and exercise classes)	6	20
2003/2004	Agent Communication Languages	12	20
	Database Theories (exercise classes)	12	20
	Artificial Intelligence (exercise classes)	15	60
	Distributed Systems (lectures and exercise classes)	15	120
	Foundations of Computing (exercise classes)	15	120
2002/2003	Agent Communication Languages	12	20
	Data Structures (exercise classes)	12	60
	Distributed Systems (lectures and exercise classes)	15	120
	Foundations of Computing (exercise classes)	15	120