

Franco Raimondi

Department of Computer Science
Middlesex University
The Burroughs
London NW4 4BT
f.raimondi@mdx.ac.uk
<http://www.rmnd.net>, <https://twitter.com/raimondifranco>

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, AAI, NFM, AAI, 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.

IT SKILLS

- ◇ Programming languages used recently: C++, Haskell, Java, Lisp, PHP, Python, Racket.
- ◇ Linux system administration (Apache, MySQL, PostgreSQL, PHP), including networking (iptables).
- ◇ Experience with OpenStack installation and administration.
- ◇ Experience with embedded systems and micro-controllers.
- ◇ Additional details: see the blog and software pages at <http://www.rmnd.net>.

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.

- PEER-REVIEWED
CONFER-ENCES
- ◇ 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).
 - ◇ 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 |