Igor Melatti
Curriculum Vitae

Department of Computer Science, Sapienza University of Rome

Conforme all'art. 4 del Codice in materia di protezione dei dati personali
e all'art. 26 del D. Lgs. 14 marzo 2013, n. 33

2019/08/27

Part I - General Information

Full Name	Igor Melatti
Citizenship	Italian
Spoken Languages	Italian, English

Part II - Education

Type	**Year**	**Institution**	**Notes**
University graduation	2001	Univ. of L'Aquila	Degree in Computer Science with maximum score and *laude*
PhD	2005	Univ. of L'Aquila	PhD in Computer Science and Applications

Part III - Academic Appointments

Dates are in YYYY/MM/DD format.

Start	**End**	**Institution**	**Position**
2005/07/11	2005/12/31	Univ. of Utah (USA)	Post Doctoral Research Associate
2006/07/15	2006/09/15	Univ. of Utah (USA)	Post Doctoral Research Associate
2006/02/01	2010/01/31	Sapienza Univ. of Rome	Post-Doc
2010/05/01	2010/12/29	Sapienza Univ. of Rome	Post-Doc
2010/12/31	Ongoing	Sapienza Univ. of Rome	Assistant Professor (Researcher)

Part IV - Teaching Experience

IVa – Fully Organized Traditional Courses

Igor Melatti was responsible for all lessons and exams of the following courses, all of them inside bachelor degree courses with at least 80 students.

Year	**Institution**	**Course**	**Bachelor Degree Course**
2011/2012	Sapienza Univ. of Rome	Computer Science, 1st year, 9 CFU (Informatica)	Statistics, Economics, Finance, Insurances (Laurea Triennale in Statistica, Economia, Finanza ed Assicurazioni)
2012/2013	Sapienza Univ. of Rome	Computer Science	Statistics, Economics, Finance, Insurances
2013/2014	Sapienza Univ. of Rome	Computer Science	Statistics, Economics, Finance, Insurances
2014/2015	Sapienza Univ. of Rome	Web Programming, 3rd year, 6 CFU (Programmazione per il Web)	Computer Science (Laurea Triennale in Informatica)
2015/2016	Sapienza Univ. of Rome	Web Programming	Computer Science
2015/2016	Sapienza Univ. of Rome	Operating Systems 2nd module, 2nd year, 6 CFU (Sistemi Operativi II modulo)	Computer Science
2016/2017	Sapienza Univ. of Rome	Web Programming	Computer Science
2016/2017	Sapienza Univ. of Rome	Operating Systems 2nd Module	Computer Science
2017/2018	Sapienza Univ. of Rome	Operating Systems 1st Module, 2nd year, 6 CFU (Sistemi Operativi I modulo)	Computer Science
2017/2018	Sapienza Univ. of Rome	Operating Systems 2nd Module	Computer Science
2018/2019	Sapienza Univ. of Rome	Operating Systems 1st Module	Computer Science
2018/2019	Sapienza Univ. of Rome	Operating Systems 2nd Module	Computer Science

IVb – Fully Organized e-Learning Courses

Igor Melatti has recorded all lessons inside the following e-learning courses.

Year	**Institution**	**Course**	**Degree Course**	**#Lessons**
2015	Unitelma University	Operating Systems 1st Module (6 CFU)	Computer Science	27
2017	Unitelma University	Web Programming (6 CFU)	Computer Science	30

Igor Melatti has been the tutor for the following e-learning courses, which also entailed organizing web-seminars for students.

Year	**Institution**	**Course**	**Degree Course**	**#Web-seminars**
2015/2016	Unitelma University	Operating Systems 1st Module	Computer Science	9
2016/2017	Unitelma University	Operating Systems 1st Module	Computer Science	1
2016/2017	Unitelma University	Operating Systems 2nd Module	Computer Science	3
2016/2017	Unitelma University	Web Programming	Computer Science	1
2017/2018	Unitelma University	Operating Systems 1st Module	Computer Science	4
2017/2018	Unitelma University	Operating Systems 2nd Module	Computer Science	3
2018/2019	Unitelma University	Operating Systems 1st Module	Computer Science	2
2018/2019	Unitelma University	Operating Systems 2nd Module	Computer Science	2

IVc – Courses in 2019/2020

For the Academic Year 2019/2020, Igor Melatti will be responsible for the following courses.

Institution	**Course**	**Degree Course**	**CFU**
Sapienza Univ. of Rome	Operating Systems 1st Module	Computer Science (Bachelor)	6 out of 6
Sapienza Univ. of Rome	Operating Systems 2nd Module	Computer Science (Bachelor)	6 out of 6
Unitelma University	Operating Systems 1st Module	Computer Science (Bachelor)	6 out of 6
Unitelma University	Operating Systems 2nd Module	Computer Science (Bachelor)	6 out of 6
Sapienza Univ. of Rome	Formal Methods in Software Development	Computer Science (Master)	3 out of 6

IVd – Courses in Collaboration

Igor Melatti was responsible for part of the lessons and exams of the following courses, all of them inside the Computer Science bachelor degree course.

Year	Institution	Course
2010/2011	Sapienza Univ. of Rome	Operating Systems 2nd Module, 2nd year, 2 CFU out of 6 (Sistemi Operativi II modulo)
2014/2015	Sapienza Univ. of Rome	Programming Methodologies, 1st year, 3 CFU out of 9 CFU (Metodologie di Programmazione)
2015/2016	Sapienza Univ. of Rome	Principles of Programming, 1st year, 3 CFU out of 9 CFU (Fondamenti di Programmazione)
2016/2017	Sapienza Univ. of Rome	Principles of Programming, 1st year, 3 CFU out of 9 CFU

IVe – PhD Programs

Igor Melatti is a member of the Advisors Committee of the PhD School of the Sapienza University of Rome Department of Computer Science since January 2011. Inside such PhD School he:

- has served twice as member of the committee for the admission to the PhD School (2015 and 2017);
- has been part of 2 PhD student committees.

IVf – Bachelor Theses

Igor Melatti has been the advisor of 30 bachelor students of the Computer Science Bachelor Course of Sapienza University of Rome.
He is currently the advisor of a student for the Honour Programme for Bachelor Programme in Computer Science (Percorso di eccellenza per laurea triennale in Informatica).

IVg – Teaching Administrative Roles

Igor Melatti has the following teaching administrative roles inside the Department of Computer Science of Sapienza University of Rome.

Start	End	Role
2011	Ongoing	Member of the Activities Outside University Committee (Commissione Attività ExtraUniversitarie)
2015	Ongoing	Member of the Teaching Committee (Commissione Didattica di Dipartimento)
2018	Ongoing	Member of the Final Exams Committee (Commissione Prova Finale)
2018	Ongoing	Responsible, for the courses of the Department of Computer Science, of all curricular and extra-curricular internships inside national and foreign companies and research centers (Delegato del Preside della Facoltà di Ingegneria dell'Informazione, Informatica e Statistica per la piattaforma JobSoul)

Part V - Society Memberberships, Awards and Honors

Year	Title
2018	Winner of a FFABR (Fondo di finanziamento individuale per le attività base di ricerca)
2018	Qualification for Associate Professor (Abilitazione Scientifica Nazionale II fascia) in both 01/B1 (Informatica) and 09/H1 (Sistemi di Elaborazione delle Informazioni)
2018	Best paper award at ISMIS 2018
2003	Best paper award at CHARME 2003

Part VI - Funding Information

Igor Melatti was responsible of work packages inside the following projects.

Year	Title	Program	Value	Role
2013-2016	SmartHG: Energy Demand-Aware Open Services for Smart Grid Intelligent Automation	European Commission FP7	600 k€ (unit), 3.3 M€ (total)	Investigator (WP leader); member of the co-ordinator unit
2013-2016	PAEON: Model Driven Computation of Treatments for Infertility Related Endocrinological Diseases	European Commission FP7	620 k€ (unit), 2.4 M€ (total)	Investigator (WP leader); member of the co-ordinator unit
2009-2011	ULISSE: USOCs KnowLedge Integration and Dissemination for Space Science Experimentation	European Commission FP7	238 k€ (unit), 4.8 M€ (total)	Investigator (WP leader)

Part VII - Research Activities

VIIa - Research Topics

Keyword	Brief Description
Model Checking	To design algorithm, tools and models for the automatic verification of complex software-based systems
Controller Synthesis	To design algorithm, tools and models for the automatic synthesis of controllers, i.e., correct-by-design reactive programs able to drive a system from any state to a goal state
Services for Smart Grids	To design and implement intelligent services for smart grids, both on the utilities and on the consumers side
Services for Medicine	To design and implement intelligent services for medicine (e.g., algorithms able to automatically instantiate generic medical treatments)

VIIb - Service

He was in the Organizing Committee of the following conferences: CHARME 2003, ETAPS 2013.

He was in the program committee of the SPIN 2015, i.e., the 22nd International SPIN Symposium on Model Checking of Software.

He serves/has served as a reviewer for the following journals:

- Applied Energy (Elsevier)
- IEEE Distributed Systems Online
- International Journal of Parallel Programming (Springer)
- Formal Methods in System Design (Springer)
- Automatica (Elsevier)
- Journal of Logical and Algebraic Methods in Programming (Elsevier)
- International Journal of Business Data Communications and Networking (IGI Global)

He has served as a reviewer for the following conferences:

- HSCC - ACM International Conference on Hybrid Systems: Computation and Control: 2017
- DSD - Euromicro Conference on Digital System Design: 2015
- SPIN - International SPIN Symposium on Model Checking of Software: 2015
- TMS/DEVS - Symposium on Theory of Modeling and Simulation: 2014
- CONCUR - International Conference on Concurrency Theory: 2014
- Gandalf - Internation Symposium on Games, Automata, Logics, and Formal Verification: 2014, 2015
- ICSEA - International Conference on Software Engineering Advances: 2012, 2013, 2014
- PSI - Ershov Informatics Conference: 2011

– ICALP - International Colloquium on Automata, Languages and Programming: 2011

– CAV - International Conference on Computer-Aided Verification: 2010

– SAT - International Conference on Theory and Applications of Satisfiability Testing: 2009

– LICS - ACM/IEEE Symposium on Logic in Computer Science: 2006

– CHARME - Advanced Research Working Conference on Correct Hardware Design and Verification Methods: 2003

VIIb - Research Software

As part of his research, Igor Melatti was the main developer of the following research software:

– QKS (*Quantized Kontrol Synthesizer*, a preliminary version is available at `http://mclab.di.uniroma1.it/software_qks.html`) implements algorithms for automatic synthesis of control software for discrete time hybrid systems.

– NashMV (a preliminary version is available at `http://mclab.di.uniroma1.it/software.html#nashmv`). NashMV is able to check if Multiple Administrative Domain protocols are Nash Equilibria, by properly modifying the NuSMV model checker.

– Parallel Murphi (Eddy_Murphi, available at `http://www.cs.utah.edu/formal_verification/software/murphi/eddy_murphi/`). Eddy_Murphi is a parallel version (i.e., it runs on *computer clusters*) of the model checker Murphi.

– Finite Horizon Probabilistic Murphi (CMurphi 5.4.6, available at `http://mclab.di.uniroma1.it/software.html#cmurphi`). FHP-Murphi (Finite Horizon Probabilistic Murphi) is a model checker able to verify finite horizon probabilistic properties of discrete time stochastic processes.

Part VIII – Summary of Scientific Achievements

Product Type	Number	Database	Start	End
Article	19	Scopus	2003	2019
Conference proceedings	32	Scopus	2003	2019
Total	51	Scopus	2003	2019
Total impact factor	44.36	Scopus (CiteScore)	2003	2019
Average impact factor per product	0.87	Scopus (CiteScore)	2003	2019
Total citations	455	Scopus	2003	2019
Average citations per product	8.9	Scopus	2003	2019
Hirsch (H) index	12	Scopus	2003	2019
Normalized Hirsch (H) index	0.7	Scopus	2003	2019

The following table shows Igor Melatti's achievements with respect to the National Scientific Qualification requirements, as from the Sapienza IRIS Catalog.

Habilitation Type	Indicator	Value	Threshold	Result
II fascia	1	7	4	PASS
II fascia	2	299	157	PASS
II fascia	3	11	7	PASS
II fascia	overall			PASS
I fascia	1	10	9	PASS
I fascia	2	423	304	PASS
I fascia	3	11	10	PASS
I fascia	overall			PASS
commissario	1	10	11	FAIL
commissario	2	423	391	PASS
commissario	3	11	11	PASS
commissario	overall			PASS

Part IX – Selected Publications

1. T. Mancini, F. Mari, I. Melatti, I. Salvo, and E. Tronci. "An efficient algorithm for network vulnerability analysis under malicious attacks" In Foundations of Intelligent Systems – Proc. of ISMIS 2018, pp. 302–312, 2018. Notes: Best Paper

   – Type (Scopus): Conference Paper

   – Impact factor (Scopus CiteScore): 1.06

- Citations (Scopus): 1

2. V. Alimguzhin, F. Mari, I. Melatti, I. Salvo, and E. Tronci. "Linearising Discrete Time Hybrid Systems." IEEE Transactions on Automatic Control 62(10), 2017, pp. 5357–5364.

   - Type (Scopus): Article
   - Impact factor (Scopus CiteScore): 5.9
   - Citations (Scopus): 5

3. T. Mancini, F. Mari, A. Massini, I. Melatti, I. Salvo, and E. Tronci. "On minimising the maximum expected verification time" Information Processing Letters, Vol. 122, June 2017, pp. 8–16

   - Type (Scopus): Article
   - Impact factor (Scopus CiteScore): 1.03
   - Citations (Scopus): 5

4. B. P. Hayes, I. Melatti, T. Mancini, M. Prodanovic, and E. Tronci. "Residential demand management using individualized demand aware price policies" IEEE Transactions On Smart Grid 8(3), 2017, pp. 1284–1294

   - Type (Scopus): Article
   - Impact factor (Scopus CiteScore): 9.02
   - Citations (Scopus): 26

5. T. Mancini, F. Mari, A. Massini, I. Melatti, and E. Tronci. "Anytime system level verification via parallel random exhaustive hardware in the loop simulation." Microprocessors and Microsystems 41, 2016, pp. 12–28.

   - Type (Scopus): Article
   - Impact factor (Scopus CiteScore): 1.11
   - Citations (Scopus): 7

6. T. Mancini, F. Mari, A. Massini, I. Melatti, and E. Tronci. "SyLVaaS: System Level Formal Verification as a Service." Fundamenta Informaticae 149(1-2), 2016, pp. 101–132

   - Type (Scopus): Article
   - Impact factor (Scopus CiteScore): 0.86
   - Citations (Scopus): 2

7. V. Alimguzhin, F. Mari, I. Melatti, E. Tronci, E. Ebeid, S. A. Mikkelsen, R. H. Jacobsen, J. K. Gruber, B. Hayes, F. Huerta, and M. Prodanovic. "A Glimpse of SmartHG Project Test-bed and Communication Infrastructure." In Proc. of DSD 2015, pp. 225–232

   - Type (Scopus): Conference Paper
   - Impact factor (Scopus CiteScore): –
   - Citations (Scopus): 7

8. T. Mancini, E. Tronci, I. Salvo, F. Mari, A. Massini, and I. Melatti. "Computing Biological Model Parameters by Parallel Statistical Model Checking." Proc. of IWBBIO 2015, 2015, pp. 542554

   - Type (Scopus): Conference Paper
   - Impact factor (Scopus CiteScore): 0.37
   - Citations (Scopus): 9

9. E. Tronci, T. Mancini, F. Mari, I. Melatti, I. Salvo, M. Prodanovic, J. K. Gruber, B. Hayes, and L. Elmegaard. "Demand-Aware Price Policy Synthesis and Verification Services for Smart Grids." In Proc. of SmartGridComm 2014

   - Type (Scopus): Conference Paper
   - Impact factor (Scopus CiteScore): –
   - Citations (Scopus): 16

10. F. Mari, I. Melatti, I. Salvo, and E. Tronci. “Model Based Synthesis of Control Software from System Level Formal Specifications.” ACM Transactions On Software Engineering and Methodology 23(1), 2014, pp. 6:1–6:42

    – Type (Scopus): Article

    – Impact factor (Scopus CiteScore): 2.85

    – Citations (Scopus): 17

11. Toni Mancini, Federico Mari, Annalisa Massini, Igor Melatti, and Enrico Tronci. “System Level Formal Verification via Distributed Multi-Core Hardware in the Loop Simulation.” In Proc. of Parallel, Distributed and Network-Based Processing 2014, pp. 734–742

    – Type (Scopus): Conference Paper

    – Impact factor (Scopus CiteScore): –

    – Citations (Scopus): 19

12. E. Tronci, T. Mancini, I. Salvo, S. Sinisi, F. Mari, I. Melatti, A. Massini, F. Davì, T. Dierkes, R. Ehrig, S. Röblitz, B. Leeners, T. H. C. Krüger, M. Egli, F. Ille. “Patient-Specific Models from Inter-Patient Biological Models and Clinical Records.” In Proc. FMCAD 2014, pp. 207–214

    – Type (Scopus): Conference Paper

    – Impact factor (Scopus CiteScore): –

    – Citations (Scopus): 11

Place and Date	Signature (authentication not required as for art. 39 del D.P.R. 28.12.2000, n. 445)
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