

# Ivano Malavolta

Assistant professor

+31(0)205983100  
✉ [i.malavolta \[at\] vu.nl](mailto:i.malavolta@vu.nl)

*"Two or more, use a for" - Edsger W. Dijkstra*

## Personal information

Date of birth July 19th, 1983  
Nationality Italian  
Website <http://www.ivanomalavolta.com>

## Research interests

(Empirical) Software Engineering  
Software architecture  
Model-driven engineering  
Mobile applications development  
Robotics

## Current positions

from May 2016 **Assistant professor**, Vrije University Amsterdam, The Netherlands  
Research areas: Software Architectures, Model-Driven Engineering, Mobile-enabled systems, Robotics.

from May 2016 **Member**, Amsterdam Data Science, The Netherlands  
Mission of the initiative: to develop world-class data science talent and technology within the Amsterdam region (focal point for research, innovation and education).  
Partners: main Amsterdam-based knowledge institutes (CWI, AUAS/HvA, UvA, VU)  
My research areas: Energy, Informatics.

## Research experiences

Apr 2014–Apr 2016 **Post Doc researcher**, Gran Sasso Science Institute (GSSI), L'Aquila  
Research areas: Software Architectures, Model-Driven Engineering, Mobile-enabled systems, Cyber-physical systems.

Mar 2012–Jun 2016 **Lecturer**, Department of Information Engineering, Computer Science and Mathematics at University of L'Aquila  
Activities: instructor of the "Mobile applications development" course for both bachelor and master students.

Aug 2012–Apr 2016 **Post Doc researcher**, Center of Excellence DEWS

- Mar 2012–Mar 2014 Research areas: Model-Driven Engineering approaches for Wireless Sensor Networks  
**Research fellow**, Computer Science Department at University of L'Aquila
- Jun–Sept 2011 Research areas: software architecture Modeling, ISO/IEC/IEEE 42010 standard concepts, Model-Driven Engineering, WSN Modeling.  
**Doctoral guest student**, *Computer Communications Department, Middlesex University, London, UK.*  
 Collaboration with dr. Leonardo Mostarda. Main Subject: design and development of a generic framework to develop Wireless Sensor Networks (WSNs).
- Sept–Oct 2010 **Doctoral guest student**, *Software Engineering Group, VU University, Amsterdam, The Netherlands.*  
 Collaboration with prof. Patricia Lago. Main Subject: design and specification of a study on the usage of ADLs in industry.
- May–Oct 2009 **Visitor researcher**, *Software Engineering Research Group, Istituto di Scienza e Tecnologie dell'Informazione A. Faedo (ISTI) - CNR (the Italian National Research Council), Pisa, Italy.*  
 Collaboration for studying extensibility and change propagation between architecture description languages.
- Apr 2009 **Doctoral student**, *Attended the MDD4DRES - 4th International School on Model-Driven Development for Distributed Realtime Systems, Centre Paul Langevin, Aussois (France).*  
 My activities: presentation about architectural interoperability through automated model transformations, tool demo on DUALLY
- Sept–Oct 2008 **Doctoral guest student**, *School of Innovation, Design and Engineering. Mälardalen University, Västerås, Sweden.*  
 Successfully completed the course "Research Methods in Natural Sciences and Engineering", level: Specialized/Phd, teacher: dr. Gordana Dodig-Crnkovic.
- May–Aug 2008 **Doctoral guest student**, *MRTC Research Labs at Department of Computer Science and Electronics, Mälardalen University, Västerås, Sweden.*  
 Collaboration with prof. Ivica Crnkovic. Main Subject: interoperability between real-time, embedded systems.

## Education

- Apr 2017 **University Teaching Qualification**, *Vrije Universiteit Amsterdam, The Netherlands.*  
 Called "Basiskwalificatie Onderwijs" (BKO) in Dutch, it is recognized by all Dutch universities as proof of the ability to develop and teach courses at university level.
- Nov 2013 **StartUp Program Boot Camp**, *MIP - School of Management of the Politecnico di Milano, Italy.*  
 Intensive course on how to setup and run successful entrepreneurial projects.
- 2008–2012 **PhD in Computer Science**, *Facoltà di Scienze MM. FF. NN. (Faculty of Sciences) of the University of L'Aquila with the maximum score.*  
 PhD Thesis: "Software Architecture Modeling by Reuse, Composition and Customization"  
 Supervisor: dr. Henry Muccini

Available as a scientific book here: <http://amzn.com/3659198765>, ISBN: 978-3659198762

2005–2008 **Master Degree in Computer Science**, *Facoltà di Scienze MM. FF. NN. (Faculty of Sciences) of the University of L'Aquila with the maximum score "cum laude"*.

Thesis: "DUALLY: an Eclipse platform for architectural languages interoperability"

Supervisor: dr. Henry Muccini

Available as a scientific book here: <http://amzn.com/3846534102>, ISBN: 978-3-8465-3410-6

2002–2005 **Bachelor Degree in Computer Science**, *Facoltà di Scienze MM. FF. NN. (Faculty of Sciences) of the University of L'Aquila with the maximum score "cum laude"*.

Thesis: "A tamper resistant Intrusion Detection System: a CORBA implementation"

Supervisors: prof. Paola Inverardi, dr. Leonardo Mostarda

Available as a scientific book here: <http://amzn.com/3846542660>, ISBN: 978-3-8465-4266-8

1997–2002 **Maturità scientifica (high-school degree)**, *Liceo Scientifico "A. Einstein", Teramo (Italy)*, 70/100.

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## Past work experiences

Dec 2011 –  
Aug 2015

### **Freelance**

Business sector: Mobile and Web Applications

Provided services: Design and Development of Mobile and Web Applications

Dec 2011 – June  
2012

### **Corporate Tutor**, University of L'Aquila, BusOnAir project

Business sector: IT systems for public transportation.

Provided Services: Research and Development of web services for public transportation systems.

Project website: <http://www.busonair.eu>

May 2010 –  
March 2011

### **Software Architect & Project Manager**, Tribe ICT (<http://www.tribeict.it>)

Business sector: Geographic Information Systems

Team size (other than me): 5 developers, 1 domain expert

Main responsibilities: design, management, and technological support for the development of a distributed, extensible and customizable GIS framework. The system is based on the uDig platform (<http://www.udig.org>) and exploits the following technologies: Java, Eclipse (RCP, EMF, JFace), JTS, Geoserver, Geonetwork.

Oct–Feb 2008

### **Developer**, Medea ICT (<http://www.medeaiict.it>)

Business sector: Information technologies, document management systems.

Team size (other than me): 3 developers, 1 project manager

Main responsibilities: development of a document management system in accordance with Italian security laws for the Regione Abruzzo. The system has been implemented as a J2EE web application using the following technologies: Java, JSF, IBM DB2, Eclipse, Jboss, Hibernate, Acegi Security, Ja-sig CAS single sign-on system.

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## Publications

- [1] Roberto Verdecchia, Giuseppe Procaccianti, Ivano Malavolta, Patricia Lago, and Joost Koedijk. Estimating energy impact of software releases and deployment strategies: the kpmg case study. In *Proceedings of the 11th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement, ESEM 2017, Toronto, Canada, November 9-10, 2017*, page to appear, 2017.
- [2] Ivano Malavolta and Rafael Capilla. Current Research Topics and Trends in the Software Architecture Community: ICSA 2017 Workshops Summary. In *2017 IEEE International Conference on Software Architecture Workshops (ICSAW)*, pages 1–4, April 2017.
- [3] Sébastien Gérard, Dimitrios S. Kolovos, Ivano Malavolta, and Henry Muccini. Report from the 1st International Workshop on Collaborative Modelling in MDE (COMMitMDE 2016). *SIGSOFT Softw. Eng. Notes*, 42(1):26–27, March 2017.
- [4] Ivano Malavolta, Giuseppe Procaccianti, Paul Noorland, and Petar Vukmirovic. Assessing the Impact of Service Workers on the Energy Efficiency of Progressive Web Apps. In *Proceedings of the International Conference on Mobile Software Engineering and Systems, MOBILESoft '17, Buenos Aires, Argentina, May, 2017*, pages 35–45, 2017.
- [5] Giona Granchelli, Mario Cardarelli, Paolo Di Francesco, Ivano Malavolta, Ludovico Iovino, and Amleto Di Salle. MicroART: A Software Architecture Recovery Tool for Maintaining Microservice-based Systems. In *Proceedings of the 14th International Conference on Software Architecture (ICSA)*, pages 298–302. IEEE, 2017.
- [6] Giona Granchelli, Mario Cardarelli, Paolo Di Francesco, Ivano Malavolta, Ludovico Iovino, and Amleto Di Salle. Towards Recovering the Software Architecture of Microservice-based Systems. In *2017 IEEE International Conference on Software Architecture Workshops, ICSA Workshops 2017, Gothenburg, Sweden, April 5-7, 2017*, pages 46–53, April 2017.
- [7] Paolo Di Francesco, Ivano Malavolta, and Patricia Lago. Research on Architecting Microservices: Trends, Focus, and Potential for Industrial Adoption. In *2017 IEEE International Conference on Software Architecture, ICSA 2017, Gothenburg, Sweden, April 3-7, 2017*, pages 21–30, April 2017.
- [8] Gian Luca Scoccia, Ivano Malavolta, Marco Autili, Amleto Di Salle, and Paola Inverardi. User-centric Android Flexible Permissions. In *Proceedings of the 39th International Conference on Software Engineering Companion*, pages 365–367. IEEE Press, May 2017.
- [9] Mirco Franzago, Ivano Malavolta, Davide Di Ruscio, and Henry Muccini. Envisioning the future of collaborative model-driven software engineering. In *Proceedings of the 39th International Conference on Software Engineering Companion, ICSE-C '17*, pages 219–221, Piscataway, NJ, USA, May 2017. IEEE Press.
- [10] Federico Ciccozzi, Davide Di Ruscio, Ivano Malavolta, Patrizio Pelliccione, and Jana Tumova. Engineering the Software of Robotic Systems. In *Proceedings of the 39th International Conference on Software Engineering Companion*, pages 507–508. IEEE Press, May 2017.
- [11] Federico Ciccozzi, Ivica Crnkovic, Davide Di Ruscio, Ivano Malavolta, Patrizio Pelliccione, and Romina Spalazzese. Model-Driven Engineering for Mission-Critical IoT Systems. *IEEE Software*, 34(1):46–53, Jan 2017.
- [12] Ivano Malavolta. Beyond Native Apps: Web Technologies to the Rescue! (Keynote). In *Proceedings of the 1st International Workshop on Mobile Development, Mobile! 2016*, pages 1–2. ACM, 2016.

- [13] Federico Ciccozzi, Davide Di Ruscio, Ivano Malavolta, and Patrizio Pelliccione. Adopting MDE for Specifying and Executing Civilian Missions of Mobile Multi-Robot Systems. *IEEE Access*, PP(99):1–1, 2016.
- [14] Teerath Das, Massimiliano Di Penta, and Ivano Malavolta. A quantitative and qualitative investigation of performance-related commits in android apps. In *2016 IEEE International Conference on Software Maintenance and Evolution, ICSME 2016, Raleigh, NC, USA, October 2-7, 2016*, pages 443–447, 2016.
- [15] Davide Di Ruscio, Ivano Malavolta, Patrizio Pelliccione, and Massimo Tivoli. Automatic Generation of detailed Flight Plans from High-level Mission Descriptions. In *ACM/IEEE 19th International Conference on Model Driven Engineering Languages and Systems (MODELS)*, pages 45–55. ACM/IEEE, Oct 2016.
- [16] Darko Bozhinoski, Antonio Bucchiarone, Ivano Malavolta, Annapaola Marconi, and Patrizio Pelliccione. Leveraging Collective Run-time Adaptation for UAV-based Systems. In *42th Euromicro Conference on Software Engineering and Advanced Applications (SEAA)*, pages 214–221. IEEE, Aug 2016.
- [17] Andrea Salini, Ivano Malavolta, and Fabrizio Rossi. Leveraging Web Analytics for Automatically Generating Mobile Navigation Models. In *IEEE International Conference on Mobile Services, MS 2016, San Francisco, CA, USA, June 27 - July 2, 2016*, pages 103–110. Institute of Electrical and Electronics Engineers (IEEE), June 2016.
- [18] Ivica Crnkovic, Ivano Malavolta, Henry Muccini, and Mohammad Sharaf. On the Use of Component-Based Principles and Practices for Architecting Cyber-Physical Systems. In *19th International ACM SIGSOFT Symposium on Component-Based Software Engineering (CBSE)*, pages 23–32. Springer-Verlag, April 2016.
- [19] Ivano Malavolta. Web-based hybrid mobile apps: state of the practice and research opportunities. In *Proceedings of the International Conference on Mobile Software Engineering and Systems, MOBILESoft '16, Austin, Texas, USA, May 14-22, 2016*, pages 241–242, 2016.
- [20] Darko Bozhinoski, Davide Di Ruscio, Ivano Malavolta, Patrizio Pelliccione, and Massimo Tivoli. FLYAQ: Enabling Non-Expert Users to Specify and Generate Missions of Autonomous Multicopters. In *Automated Software Engineering (ASE), 2015 30th IEEE/ACM International Conference on*, pages 801–806. IEEE, 9-13 November 2015.
- [21] Darko Bozhinoski, Ivano Malavolta, Antonio Bucchiarone, and Annapaola Marconi. Sustainable safety in mobile multi-robot systems via collective adaptation. In *Self-Adaptive and Self-Organizing Systems (SASO), 2015 IEEE 9th International Conference on*, pages 172–173. IEEE, 2015.
- [22] Marco Autili, Ivano Malavolta, Alexander Perucci, and Gian Luca Scoccia. Perspectives on static analysis of mobile apps (invited talk). In *Proceedings of the 3rd International Workshop on Software Development Lifecycle for Mobile, DeMobile 2015, Bergamo, Italy*, pages 29–30. ACM, 2015.
- [23] Ivano Malavolta, Henry Muccini, and Mohammad Sharaf. A Preliminary Study on Architecting Cyber-Physical Systems. In *Proceedings of the 2015 European Conference on Software Architecture Workshops, ECSAW '15*, pages 20:1–20:6. ACM, 2015.
- [24] Ivano Malavolta, Henry Muccini, and Marco Sebastiani. Automatically bridging UML profiles to MOF metamodels. In *Software Engineering and Advanced Applications (SEAA), 2015 41st Euromicro Conference on*, pages 259–266. IEEE, Aug 2015.
- [25] Ivano Malavolta, Stefano Ruberto, Valerio Terragni, and Tommaso Soru. End Users' Perception of Hybrid Mobile Apps in the Google Play Store. In *Mobile Services (MS), 2015 IEEE International Conference on*, pages 25–32. Institute of Electrical and Electronics Engineers (IEEE), June 2015.
- [26] Ivano Malavolta, Stefano Ruberto, Tommaso Soru, and Valerio Terragni. Hybrid mobile apps in the google play store: An exploratory investigation. In *Mobile Software Engineering and Systems (MOBILESoft), 2015 2nd ACM International Conference on*, pages 56–59, May 2015.

- [27] Mirco Franzago, Ivano Malavolta, and Henry Muccini. Stakeholders, Viewpoints and Languages of a Modelling Framework for the Design and Development of Data-Intensive Mobile Apps. In *MobilENG 2014 Workshop, in conjunction with 5th international conference on Complex Systems Design & Management (CSD&M) 2014, Paris, France*, page arXiv preprint arXiv:1502.04014, 2014.
- [28] Davide Di Ruscio, Ivano Malavolta, and Patrizio Pelliccione. A family of Domain-Specific Languages for specifying Civilian Missions of Multi-Robot Systems. In *Proceedings of the 1st International Workshop on Model-Driven Robot Software Engineering (MORSE)*, pages 13–26, 2014.
- [29] Davide Di Ruscio, Ivano Malavolta, and Patrizio Pelliccione. The role of parts in the system behaviour. In *Software Engineering for Resilient Systems - 6th International Workshop, SERENE 2014, Budapest, Hungary, October 15-16, 2014. Proceedings*, pages 24–39, 2014.
- [30] Ivano Malavolta, Henry Muccini, and V. Smrithi Rekha. Enhancing architecture design decisions evolution with group decision making principles. In *Software Engineering for Resilient Systems - 6th International Workshop, SERENE 2014, Budapest, Hungary, October 15-16, 2014. Proceedings*, pages 9–23, 2014.
- [31] Patricia Lago, Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Antony Tang. The road ahead for architectural languages. *Software, IEEE*, 32(1):98–104, 2015.
- [32] Ivano Malavolta and Henry Muccini. A Study on MDE Approaches for Engineering Wireless Sensor Networks. In *Software Engineering and Advanced Applications (SEAA), 2014 40th EUROMICRO Conference on*, pages 149–157. IEEE, Aug 2014.
- [33] Ivano Malavolta and Henry Muccini. A Survey on the Specification of the Physical Environment of Wireless Sensor Networks. In *Software Engineering and Advanced Applications (SEAA), 2014 40th EUROMICRO Conference on*, pages 245–253. IEEE, Aug 2014.
- [34] Giampiero Di Paolo, Ivano Malavolta, and Henry Muccini. How do You Feel Today? Buggy! In *Software Engineering and Advanced Applications (SEAA), 2014 40th EUROMICRO Conference on*, pages 391–391. IEEE, 2014.
- [35] Mirco Franzago, Henry Muccini, and Ivano Malavolta. Towards a collaborative framework for the design and development of data-intensive mobile applications. In *Proceedings of the 1st International Conference on Mobile Software Engineering and Systems*, pages 58–61. ACM, 2014.
- [36] Alessandro Baroni, Henry Muccini, Ivano Malavolta, and Eoin Woods. Architecture Description Leveraging Model Driven Engineering and Semantic Wikis. In *Software Architecture (WICSA), 2014 IEEE/IFIP Conference on*, pages 251–254. IEEE, 2014.
- [37] Ivano Malavolta, Patricia Lago, Henry Muccini, Patrizio Pelliccione, and Antony Tang. What Industry Needs from Architectural Languages: A Survey. *IEEE Transactions on Software Engineering*, 39(6):869–891, June 2013.
- [38] Davide Di Ruscio, Ivano Malavolta, and Patrizio Pelliccione. Engineering a Platform for Mission Planning of Autonomous and Resilient Quadrotors. In *Software Engineering for Resilient Systems - Fifth International Workshop, SERENE 2013*, pages 33–47. Springer Berlin Heidelberg, 2013.
- [39] Ludovico Iovino and Alfonso Pierantonio and Ivano Malavolta. On the Impact Significance of Metamodel Evolution in MDE. *Journal of Object Technology*, 11(3):3–1, 2012.
- [40] Rich Hilliard, Ivano Malavolta, Henry Muccini, and Patrizio Pelliccione. On the Composition and Reuse of Viewpoints across Architecture Frameworks. In *10th Working IEEE/IFIP Conference on Software Architecture (WICSA) & 6th European Conference on Software Architecture (ECSA) - WICSA/ECSA 2012*, pages 131–140, aug 2012.
- [41] Davide Di Ruscio, Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Alfonso Pierantonio. Model-Driven Techniques to Enhance Architectural Languages Interoperability. In *Fundamental Approaches to Software Engineering (FASE)*, Lecture Notes in Computer Science, pages 26–42. Springer Berlin / Heidelberg, 2012.

- [42] Krishna Doddapaneni, Enver Ever, Ivano Malavolta, Leonardo Mostarda, and Henry Muccini. A Model-Driven Engineering Framework for Architecting and Analysing Wireless Sensor Networks. In *Proceedings of the 3rd ICSE Workshop on Software Engineering for Sensor Network Applications (SESENA 2012)*, Zurich, Switzerland, pages 1–7. ACM, July 2012.
- [43] Krishna Doddapaneni, Enver Ever, Ivano Malavolta, Leonardo Mostarda, and Henry Muccini. Path Loss Effect on Energy Consumption in a WSN. In *14th International Conference on Modelling and Simulation (UKSIM)*, pages 569–574. IEEE, March 2012.
- [44] Ivano Malavolta. *Software Architecture Modeling by Reuse, Composition and Customization*. PhD thesis, Computer Science Department, 2012.
- [45] Ivano Malavolta. *A tamper resistant Intrusion Detection System: a CORBA implementation*. LAP Lambert Academic Publishing, 2011.
- [46] Ivano Malavolta. *DUALLY: an Eclipse platform for architectural languages interoperability*. LAP Lambert Academic Publishing, 2011.
- [47] Paul Clements, Maria J. Escalona, Paola Inverardi, Ivano Malavolta, and Eda Marchetti. Exploiting Software Architecture to support Requirements Satisfaction Testing. In *Proceedings of the the 8th joint meeting of the European software engineering conference and the ACM SIGSOFT symposium on The foundations of software engineering*, ESEC/FSE '11, pages 484–487. ACM, 2011.
- [48] Ivano Malavolta, Henry Muccini, and V. Smrithi Rekha. Supporting Architectural Design Decisions Evolution through Model Driven Engineering. In *Proceedings of the 3rd International Workshop on Software Engineering for Resilient Systems (SERENE 2011)*, pages 63–77. ACM Digital Library, September 2011.
- [49] Fabio Calvarese, Ivano Malavolta, and Antinisca Di Marco. Towards a graphical representation for the Æmilia Architecture Description Language. In *2nd Quantitative Information Workshop (infQ)*, 2011.
- [50] Romina Eramo, Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Alfonso Pierantonio. A model-driven approach to automate the propagation of changes among Architecture Description Languages. *Software and Systems Modeling*, 11:29–53, 2012. 10.1007/s10270-010-0170-z.
- [51] Ivano Malavolta. A model-driven approach for managing software architectures with multiple evolving concerns. In *ECSA 2010 (Doctoral Symposium), 4th European Conference on Software Architecture*, pages 4–8, aug 2010.
- [52] Davide Di Ruscio, Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Alfonso Pierantonio. ByADL: an MDE framework for building extensible Architecture Description Languages. In *4th European Conference on Software Architecture (ECSA 2010)*, pages 527–531, aug 2010.
- [53] Davide Di Ruscio, Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Alfonso Pierantonio. Developing next generation ADLs through MDE techniques. In *32nd International Conference on Software Engineering (ICSE 2010)*, pages 85–94, may 2010.
- [54] Ivano Malavolta. Providing support for creating next generation software architecture languages. In *ACM Student Reseach Competition, Poster session at ICSE 2010*, pages 517–518, 2010.
- [55] Ivano Malavolta, Henry Muccini, Patrizio Pelliccione, and Damien Tamburri. Providing Architectural Languages and Tools Interoperability through Model Transformation Technologies. *IEEE Transactions on Software Engineering*, 36(1):119–140, jan 2010.
- [56] Rich Hilliard, Ivano Malavolta, Henry Muccini, and Patrizio Pelliccione. Realizing architecture frameworks through megamodelling techniques. In *25th IEEE/ACM International Conference on Automated Software Engineering (ASE 2010)*, pages 305–308, 2010.
- [57] Ivica Crnkovic, Ivano Malavolta, and Henry Muccini. A Model-Driven Engineering Framework for Component Models Interoperability. In Iman Poernomo Christine Hofmeister, Grace A. Lewis, editor, *Proceedings of the 12th International Symposium on Component-Based Software Engineering (CBSE 2009)*, pages 36–53, Berlin, Heidelberg, June 2009. Springer-Verlag.

- [58] Ivano Malavolta, Henry Muccini, and Patrizio Pelliccione. Integrating AADL within a Multi-domain Modeling Framework. In *IEEE International Conference on Engineering of Complex Computer Systems*, volume 0, pages 341–346, Los Alamitos, CA, USA, 2009. IEEE Computer Society.
- [59] Ivano Malavolta, Henry Muccini, and Patrizio Pelliccione. DUALLY: a framework for Architectural Languages and Tools Interoperability. In *23rd IEEE/ACM International Conference on Automated Software Engineering (ASE2008)*, pages 483–484. IEEE Computer Science Press, 15-19 September 2008.
- [60] Ivano Malavolta. DUALLY: un Framework per l'Interoperabilita' tra Linguaggi e Tool Architeturali. In *Student Track Demo of the Third Italian Workshop on Eclipse Technologies, Eclipse-IT*. CEUR, nov 2008.

## Given seminars and presentations

- June 2017 “Are service workers draining my battery?”, AmsterdamJS (first dedicated JavaScript conference in Amsterdam, partners: Microsoft, Google, Uber, Udacity), Amsterdam, The Netherlands.
- May 2017 “Engineering the Software of Robotic Systems”, technical briefing at ICSE 2017, Buenos Aires, Argentina.
- May 2017 “Assessing the Impact of Service Workers on the Energy Efficiency of Progressive Web Apps” at MOBILESoft 2017, Buenos Aires, Argentina.
- November 2016 “Mission Planning of Autonomous Quadrotors”, seminar at the Department of Information Engineering, Computer Science and Mathematics, University of L’Aquila, Italy.
- June 2016 “Leveraging Web Analytics for Automatically Generating Mobile Navigation Models” at Mobile Services 2016, San Francisco, California, USA.
- May 2016 “Web-based Hybrid Mobile Apps: State of the Practice and Research Opportunities” at MobileSoft 2016, Austin, Texas, USA.
- November 2015 “Enabling Non Expert Users to Model and Execute Self-Adaptable Missions of Autonomous Drones”, seminar at MRTC Research Labs at Department of Computer Science and Electronics, Mälardalen University, Västerås, Sweden.
- November 2015 “Enabling Non Expert Users to Model and Execute Self-Adaptable Missions of Autonomous Drones”, seminar at the Department of Computer Science and Engineering, Chalmers University of Technology, Gothenburg, Sweden.
- November 2015 “Enabling Non Expert Users to Model and Execute Self-Adaptable Missions of Autonomous Drones”, seminar at the Department of Computer Science, Vrije University, Amsterdam, the Netherlands.
- August 2015 “Automatically bridging UML profiles to MOF metamodels” at SEAA 2015, Funchal, Portugal.
- June 2015 “End Users’ Perception of Hybrid Mobile Apps in the Google Play Store” at Mobile Services 2015, New York, USA.
- April 2015 “Speeding up mobile web apps” at Password: Open Source 2015, L’Aquila, Italy.
- February 2015 “Cross-platform mobile apps with Apache Cordova” at dotNet day 2015, L’Aquila, Italy.
- September 2014 “Mashups and web analytics to enhance, promote and improve tourism offers” at Tur.n 2.0 Project Summit, Pescara, Italy.
- August 2014 “A Survey on the Specification of the Physical Environment of Wireless Sensor Networks” at SEAA 2014, Verona, Italy.



- August 2014 "A Study on MDE Approaches for Engineering Wireless Sensor Networks" at SEAA 2014, Verona, Italy.
- August 2014 "The road ahead for architectural languages" at ECSA 2014, Vienna, Austria.
- July 2014 "A family of Domain-Specific Languages for specifying Civilian Missions of Multi-Robot Systems" at MORSE 2014, York, UK.
- July 2014 "Guidelines for the technological development in the e-health application domain" at E-Health Technology Project Summit, Pescara, Italy.
- May 2014 "Fast mobile web apps" at GDG MeetsU 2014, L'Aquila, Italy.
- March 2014 "HTML5: the new frontier of the web" at Commit Software (<http://www.commitsoftware.it>), Florence, Italy.
- January 2014 "The mobile ecosystem and technological strategies" at WebRatio (<http://www.webratio.com>), Milano, Italy.
- January 2014 "These mobile apps will let you totally rethink hybrid app development" at WebRatio (<http://www.webratio.com>), Milano, Italy.
- January 2014 "Apache Cordova: APIs and instruments" at WebRatio (<http://www.webratio.com>), Milano, Italy.
- January 2014 "Developing maintainable Apache Cordova applications" at WebRatio (<http://www.webratio.com>), Milano, Italy.
- January 2014 "How to develop fast Apache Cordova applications" at WebRatio (<http://www.webratio.com>), Milano, Italy.
- November 2013 "Time.zip: developing an Android-iOS, smartphone-tablet app in one month" at HTML5 Frontend Development 2013, L'Aquila, Italy.
- October 2013 "Engineering a Platform for Mission Planning of Autonomous and Resilient Quadrotors" at SERENE 2013, Kiev, Ukraine.
- June 2013 "The mobile ecosystem & technological strategies" at Intecs SpA (<http://www.intecs.it/eng/>), IBM Business Partner, L'Aquila, Italy.
- May 2013 "A4WSN: An Architecting environment for Wireless Sensor Networks", seminar at Scuola di Scienze e Tecnologie, University of Camerino, Camerino, Italy.
- Jan 2013 "A4WSN: An Architecting environment for Wireless Sensor Networks", seminar at Computer Communications Department, Middlesex University, London, UK.
- June 2012 "A Model-Driven Engineering Framework for Architecting and Analysing Wireless Sensor Networks" at SESENA 2012, Zurich, Switzerland.
- May 2010 "A model-driven approach for managing software architectures with multiple evolving concerns" at ICSE 2010, Cape Town, South Africa.
- May 2010 "Developing next generation ADLs through MDE technique" at ICSE 2010, Cape Town, South Africa.
- June 2009 "Integrating AADL within a multi-domain modeling framework" at UML&AADL 2009, Potsdam, Germany.
- May 2008 "DUALLY: a framework for Architectural Languages and Tools Interoperability", seminar at MRTC Research Labs at Department of Computer Science and Electronics, Mälardalen University, Västerås, Sweden.

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## Invited talks and keynotes

- October 2016 “Beyond Native Apps: Web Technologies to the Rescue! (Keynote)” at the 1st International Workshop on Mobile Development, co-located with the SPLASH 2016 conference, Amsterdam, The Netherlands.
- April 2016 “The Road Ahead for Architectural Languages” at the 3rd Architecture Centric Virtual Integration (ACVI) workshop, co-located with the WICSA 2016 conference, Venice, Italy.
- Nov 2014 “Collaborative design and development of cross-platform mobile applications” at MOBILEng International workshop, organized by IBM and co-located with the Complex Systems Design & Management academic-industrial conference (CDSM 2014), Paris, France.

## Program committees, chairing and reviewing activities

### 2018

- o **Social media chair** of ICSE 2018, the 40th International Conference on Software Engineering, Gothenburg, Sweden.
- o **New Ideas Track chair** of MobileSoft 2018, the 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems, Gothenburg, Sweden.
- o **Program committee member** of MobileSoft 2018, the 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems, Gothenburg, Sweden.
- o **Program committee member** of ICSEA 2018, the 15th International Conference on Software Architecture, Seattle, USA.
- o **Program committee member** of SOFTENG 2018, the 4th International Conference on Advances and Trends in Software Engineering, Athens, Greece.

### 2017

- o **Workshop chair** of ICSEA 2017, the 14th International Conference on Software Architecture (former WICSA/CompArch), Gothenburg, Sweden.
- o **Publicity chair** of MobileSoft 2017, the 4th IEEE/ACM International Conference on Mobile Software Engineering and Systems, Buenos Aires, Argentina.
- o **Organizer** of COMMitMDE 2017, 2nd International Workshop on Collaborative Modelling in MDE (co-located with MODELS 2017), Austin, USA.
- o **Organizer** of ModComp 2017, 4th International Workshop on Interplay between Model-Driven and Component-Based Software Engineering (co-located with MODELS 2017), Austin, USA.
- o **Program committee member** of ICSEA 2017, the the 14th International Conference on Software Architecture (former WICSA/CompArch), Gothenburg, Sweden.
- o **Program committee member** of MobileSoft 2017, the 4th IEEE/ACM International Conference on Mobile Software Engineering and Systems, Buenos Aires, Argentina.
- o **Program committee member** of ICWE 2017, the 17th International Conference on Web Engineering (Demo track), Rome, Italy.
- o **Program committee member** of PROFES 2017, the 18th International Conference on Product-Focused Software Process Improvement (Short papers track), Innsbruck, Austria.
- o **Program committee member** of ICISOFT-EA 2017, the 12th International Conference on Software Engineering and Applications, Madrid, Spain.
- o **Program committee member** of the ModelCyPhy track on Model-driven Engineering: Theory and Practice at the 14th International Conference on Information Technology: New Generations (ITNG 2017), Las Vegas, Nevada, USA.

- o **Program committee member** of AIMS 2017, the 6th IEEE International Conference on AI & Mobile Services, Honolulu, Hawaii, USA.
- o **Program committee member** of ISEC 2017, the 10th Innovations in Software Engineering Conference (Mobile Software Engineering track), Jaipur, India.
- o **Program committee member** of SOFTENG 2017, the 3rd International Conference on Advances and Trends in Software Engineering, Venice, Italy.
- o **Program committee member** of EnWoT 2017, the 1st International Workshop on Engineering the Web of Things (co-located with ICWE 2017), Rome, Italy.
- o **Program committee member** of UsARE 2017, the 4th International Workshop on Usability and Accessibility focused Requirements Engineering (co-located with RE 2017), Lisbon, Portugal.
- o **Reviewer** of the journal on Information and Software Technology (IST).
- o **Reviewer** of the IEEE Transactions on Intelligent Transportation Systems (ITS).
- o **External Reviewer** of ICSE 2017 (both Main and SEIP tracks), the 39th International Conference on Software Engineering, Buenos Aires, Argentina.
- o **External Reviewer** of ECSA 2017, 11th European Conference on Software Architecture, Canterbury, UK.
- o **External Reviewer** of ESOC 2017, 6th European Conference on Service-Oriented and Cloud Computing, Oslo, Norway.

## 2016

- o **Workshop chair** and **program committee member** of ICT4S, the 4th International Conference on ICT for Sustainability, Amsterdam, The Netherlands.
- o **Organizer** of COMMitMDE 2016, 1st International Workshop on Collaborative Modelling in MDE (co-located with MODELS 2016), Saint-Malo, France.
- o **Organizer** of ModComp 2016, 3rd International Workshop on Interplay between Model-Driven and Component-Based Software Engineering (co-located with MODELS 2016), Saint-Malo, France.
- o **Program committee member** of WICSA and CompArch 2016, the 13th Working IEEE/IFIP Conference on Software Architecture & 10th Federated Conference Series on Component-Based Software Engineering and Software Architecture, Venice, Italy.
- o **Program committee member** of CBSE 2016, the 19th International ACM Sigsoft Symposium on Component-Based Software Engineering, Venice, Italy.
- o **Program committee member** of QoSA 2016, the 12th International ACM Sigsoft Conference on the Quality of Software Architectures, Venice, Italy.
- o **Program committee member** of MobileSoft 2016, the 3rd IEEE/ACM International Conference on Mobile Software Engineering and Systems, Austin, Texas, USA.
- o **Program committee member** of ICWE 2016, the 16th International Conference on Web Engineering (Demo track), Lugano, Switzerland.
- o **Program committee member** of IEEE MS 2016, the 5th International Conference on Mobile Services, San Francisco, USA.
- o **Program committee member** of FiCloud 2016, the 4th International Conference on Future Internet of Things and Cloud (Software Architecture and Middleware track), Vienna, Austria.
- o **Program committee member** of ICSOFT-EA 2016, the 11th International Conference on Software Engineering and Applications, Lisbon, Portugal.
- o **Program committee member** of the ModelCyPhy track on Model-Driven Engineering for Cyber-Physical Systems at the 13th International Conference on Information Technology: New Generations (ITNG 2016), Las Vegas, Nevada, USA.

- o **Program committee member** of SOFTENG 2016, the 2nd International Conference on Advances and Trends in Software Engineering, Lisbon, Portugal.
- o **Reviewer** of the IEEE Transactions on Software Engineering (TSE).
- o **Reviewer** of the journal on Information and Software Technology (IST).
- o **Reviewer** of the Journal of Software: Evolution and Process (JSME), Wiley.
- o **Reviewer** of the international Journal of Systems and Software (JSS), Elsevier.
- o **Reviewer** of the Software and Systems Modeling (SoSyM) journal, Springer.
- o **Reviewer** of the Empirical Software Engineering (EMSE) journal, Springer.
- o **Reviewer** of the IET Software journal.
- o **Reviewer** of the international journal on Frontiers of Computer Science (FCS), Springer.
- o **Reviewer** of the Computer Languages, Systems and Structures (COMLAN) journal, Elsevier.
- o **Reviewer** for the Computer Science Discovery Grant of the Natural Sciences and Engineering Research Council of Canada (NSERC).
- o **Reviewer** for the IWT funding of industrial projects of the Flanders Innovation & Entrepreneurship (VLAIO).
- o **External Reviewer** of FSE 2016, 24th ACM SIGSOFT Symposium on the Foundations of Software Engineering, Seattle, WA, USA.
- o **External Reviewer** of iFM 2016, 12th International Conference on integrated Formal Methods, Reykjavik, Iceland.

## 2015

- o **Program committee member** of CSMS 2015, the 1st International Workshop on Cloud and Service Management and Simulation, Limassol, Cyprus.
- o **Program committee member** of IEEE MS 2015, the 4th International Conference on Mobile Services, New York, USA.
- o **Program committee member** of DeMobile 2015, the 3rd International Workshop on Software Development Lifecycle for Mobile, Bergamo, Italy.
- o **Program committee member** of WICSA 2015, the 12th Working IEEE/IFIP Conference on Software Architecture, Montreal, Canada.
- o **Reviewer** of the international Journal of Systems and Software (JSS), Elsevier.
- o **Reviewer** of the PeerJ Computer Science open access journal.
- o **External reviewer** of ASE 2015, 30th IEEE/ACM International Conference on Automated Software Engineering, Lincoln, Nebraska, USA.
- o **External Reviewer** of MODELS 2015, the 18th ACM/IEEE International Conference on Model Driven Engineering Languages and Systems, Ottawa, Canada.
- o **External reviewer** of MobileSoft 2015, the 2nd ACM International Conference on Mobile Software Engineering and Systems, Florence, Italy.
- o **External reviewer** of SERA 2015, the 13th International Conference on Software Engineering Research, Management and Applications, Hammamet, Tunisia.
- o **Reviewer** of the book "Mastering JavaScript" authored by Ben Fhala for Packt Publishing.

## 2014

- o **Program committee member** of EEEWSN 2014, the 1st International Workshop on Engineering Energy Efficient WSNs, Victoria, Canada.

- o **Program committee member** of LABEM 2014, the 1st International Workshop on lowering the adoption barrier of enterprise modelling, Geneva, Switzerland.
- o **Reviewer** of the Computer Science Review international journal (COSREV), Elsevier.
- o **External Reviewer** of FASE 2015, 17th International Conference on Fundamental Approaches to Software Engineering, London, UK.
- o **External Reviewer** of ICSE 2015, the 37th International Conference on Software Engineering, Firenze, Italy.
- o **Reviewer** of the international Journal of Systems and Software (JSS), Elsevier.
- o **Reviewer** of the IEEE Software magazine, special issue on Software Engineering for Internet Computing (SWSI).
- o **External Reviewer** of ASE 2014, 29th IEEE/ACM International Conference on Automated Software Engineering, Västerås, Sweden.
- o **External Reviewer** of ECSA 2014, 8th European Conference on Software Architecture, Vienna, Austria.
- o **External Reviewer** of the international journal on Empirical Software Engineering (EMSE), Springer.
- o **External Reviewer** of MODELS 2014, the 17th ACM/IEEE International Conference on Model Driven Engineering Languages and Systems, Valencia, Spain.
- o **External Reviewer** of CBSE 2014, the 17th International ACM Sigsoft Symposium on Component-Based Software Engineering, Lille, France.
- o **External Reviewer** of MobileSoft 2014, the 1st ACM International Conference on Mobile Software Engineering and Systems, Hyderabad, India.
- o **External Reviewer** of FormaliSE 2014, the 2nd FME Workshop on Formal Methods in Software Engineering, Hyderabad, India.
- o **External Reviewer** of GREENS 2014, the 3rd International Workshop on Green and Sustainable Software, Hyderabad, India.
- o **External Reviewer** of ISSTA 2014, the International Symposium on Software Testing and Analysis, San Jose, California, USA.

## 2013

- o **External Reviewer** of WICSA 2014, the 11th Working IEEE/IFIP Conference on Software Architecture, Sydney, Australia.
- o **External Reviewer** of ICSE 2014, the 36th International Conference on Software Engineering, Hyderabad, India.
- o **Track committee member** of ITNG 2014, 11th International Conference on Information Technology: New Generations. Special track on MDCBSE: Model-Driven, Component-Based Software Engineering, Las Vegas, Nevada, USA.
- o **External Reviewer** of itAIS 2013, 10th Conference of the Italian Chapter of AIS - Empowering society through digital innovations, Milan, Italy.
- o **Reviewer** of the book "Backbone.js Cookbook" authored by Vadim Mirgorod for Packt Publishing.
- o **External Reviewer** of ICSEA 2013, 8th International Conference on Software Engineering Advances, Venice, Italy.
- o **Reviewer** of the international Journal of Systems and Software (JSS), Elsevier.
- o **External Reviewer** of the Transactions On Software Engineering And Methodology (TOSEM), ACM.
- o **External Reviewer** of ECSA 2013, 7th European Conference on Software Architecture, Montpellier, France.

- o **External Reviewer** of SEAA 2013, 39th Euromicro Conference on Software Engineering and Advanced Applications, Santander, Spain.
- o **Publicity chair** of SERENE 2013, the 5th International Workshop on Software Engineering for Resilient Systems, Kyiv, Ukraine.
- o **Program committee member** of MOBS 2013, the 1st International Workshop on the Engineering of Mobile-Enabled Systems, San Francisco, California, USA.
- o **Program committee member** of IWCMC 2013, the 9th International Wireless Communications & Mobile Computing Conference, Cagliari, Italy.
- o **Reviewer** of the international journal of Science of Computer Programming (SCP), Elsevier.
- o **External Reviewer** of FASE 2013, 16th International Conference on Fundamental Approaches to Software Engineering, Rome, Italy.
- o **External Reviewer** of TACAS 2013, 19th International Conference on Tools and Algorithms for the Construction and Analysis of Systems, Rome, Italy.

## 2012

- o **External Reviewer** of FSE 2012, 20th ACM SIGSOFT Symposium on the Foundations of Software Engineering, Cary, North Carolina, USA.
- o **Reviewer** of the international Journal of Systems and Software (JSS), Elsevier.
- o **External Reviewer** of the international Journal Science of Computer Programming (SCP), Elsevier.
- o **External Reviewer** of the international Journal of Software Testing, Verification and Reliability (STVR), Wiley.
- o **External Reviewer** of WICSA/ECSA 2012, Joint Working IEEE/IFIP Conference on Software Architecture & European Conference on Software Architecture, Helsinki, Finland.
- o **External Reviewer** of AST 2012, 7th International Workshop on Automation of Software Test, Zurich, Switzerland.
- o **External Reviewer** of ICST 2012, 5th International Conference on Software Testing, Verification and Validation, Montreal, Canada.

## 2011

- o **External Reviewer** of the Journal of Systems and Software (JSS), Elsevier.
- o **External Reviewer** of ECSA 2011, 5th European Conference on Software Architecture, Essen, Germany.
- o **External Reviewer** of ESEC/FSE 2011, 8th joint meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering, Szeged, Hungary.
- o **External Reviewer** of QSIC 2011, 11th International Conference On Quality Software, Madrid, Spain.
- o **External Reviewer** of the Software Engineering in Practice Track at ICSE 2011, the 33rd International Conference on Software Engineering, Honolulu, Hawaii, USA.
- o **External Reviewer** of the Software Testing, Verification and Reliability (STVR) Journal, Wiley InterScience.

## 2010

- o **External Reviewer** of ASE 2010, 25th IEEE/ACM International Conference on Automated Software Engineering, Antwerp, Belgium.
- o **External Reviewer** of CBSE 2010, 13th International Symposium on Component Based Software Engineering, Prague, Czech Republic.

- o **External Reviewer** of FSE 2010, 18th International Symposium on the Foundations of Software Engineering, Santa Fe, New Mexico, USA.
- o **External Reviewer** of ICSOFT 2010, 5th International Conference on Software and Data Technologies, Athens, Greece.
- o **External Reviewer** of ICST 2010, 3rd International Conference on Software Testing, Verification and Validation, Paris, France.
- o **External Reviewer** of MDI 2010, 1st Workshop on Model Driven Interoperability, Oslo, Norway.
- o **External Reviewer** of ACM SAC 2010, 25th Symposium On Applied Computing, Sierre, Switzerland.
- o **External Reviewer** of SERENE 2010, 2nd International Workshop on Software Engineering for Resilient Systems, London, UK.
- o **External Reviewer** of SHARK 2010, 5th Workshop on SHaring and Reusing architectural Knowledge, Cape Town, South Africa.
- o **External Reviewer** of the Software and Systems Modeling (SoSyM) journal, Springer.
- o **External Reviewer** of CBSE 2009, 12th International Symposium on Component Based Software Engineering, East Stroudsburg, Pennsylvania, USA.
- o **External Reviewer** of ICSOFT 2009, 4th International Conference on Software and Data Technologies, Sofia, Bulgaria.
- o **External Reviewer** of ICST 2009, 2nd International Conference on Software Testing, Verification and Validation, Denver, Colorado, USA.
- o **External Reviewer** of WICSA/ECSA 2009, Joint Working IEEE/IFIP Conference on Software Architecture & European Conference on Software Architecture, Cambridge, UK.

## Technical events organization

### 2015

- o **Member of the organization board** of the dotNet 2015, L'Aquila, Italy.

### 2014

- o **Member of the organization board** of the Google Developer Group event (GDG MeetsU 2014), the first Google Developer event organized in L'Aquila, supported by Google.

### 2013

- o **Organizer** of the HTML5 Frontend Development Workshop in L'Aquila, sponsored by Smyrtle, Ikran, Master in Web Technologies (L'Aquila).
- o **Organizer** of the Firefox OS Workshop 2013 in L'Aquila, sponsored by the Mozilla Foundation.
- o **Member of the organization board** of the Android University Hackathon (AUH 2013), the first inter-university hackathon in the world, sponsored by Google Italia.

### 2012

- o **Member of the organization board** of AQHackathon 2012, the first programming contest of the University of L'Aquila.

### 2010

- o Member of the **student volunteer** program of ECSA 2010, the 4th European Conference on Software Architecture.

o Member of the **student volunteer** program of ICSE 2010, the 32nd International Conference on Software Engineering.

2008

o Member of the **supporting staff** of ASE 2008, the 23rd IEEE/ACM International Conference on Automated Software Engineering.

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## Research Projects

### CRAFTERS

The project proposes a computing environment for many-core systems derived from vertical domains that will enable the evolution to horizontal domains by providing common methods, tools and reference platforms for embedded many-core applications.

Period: 2012-2015

ARTEMIS Call 2011 Project - Project Nr. 295371- ASP5: Computing environments for embedded systems

My contributions include the application and adaptation of the DUALy framework with the aim to effectively integrate the various software models involved during the design and development of embedded many-core applications.

<http://www.crafters-project.org/>

### E-Health Technology

Project funded by the Abruzzo region within the POR FESR 2007-2013 - Activity I.1.1 for supporting the implementation of projects of industrial research and experimental development. The domain of this project is that of e-health, with a special focus on providing innovative services through web-based services and mobile technologies. The strategic objective of the project is to design and develop a solution in the cloud which is capable of delivering services related to the health-care domain by following the platform as a service (PaaS) paradigm.

Period: 2013-2015

My contributions included the design of the software architecture of the platform aimed at fulfilling the main goals of the project, and consulting activities to support the development of the software platform itself.

<http://www.polosa.it/e-health-technology>

### Turn 2.0

Project funded by the Abruzzo region within the POR FESR 2007-2013 - Activity I.1.1 for supporting the implementation of projects of industrial research and experimental development. The strategic objective of the project is to build a new model of communication and marketing of the products of local tourism through the creation of a technological platform aimed at the development of activities of social networking.

Period: 2013-2014

My contributions included the design of the software platform aimed at fulfilling the main goals of the project, and consulting activities to support the development of the software platform itself.



<http://www.polosa.it/tur-n-2-0-turismo-e-networking>

### ArtDeco

ArtDeco is a nationally funded long term research project (MiUR FIRB 2005, project code RBNE05C3AH). The project aims at developing techniques and methods for the diffusion of "networked enterprises" among the Italian Small and Medium Enterprises.

Period: 2005-2010

My contributions included the design and development of a modelling framework for managing (i) the integration of multiple and heterogeneous models, and (ii) their consistency and completeness.

<http://artdeco.elet.polimi.it/>

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## Developed tools

### FLYAQ

FLYAQ proposes an open-source platform to support missions planning of autonomous quadrotors. FLYAQ will allow users to define missions at a high level of abstraction and the will automatically synthesize the code for each quadrotor that will be involved in the mission. In this way FLYAQ will allow an easy and error-prone definition of the missions, thus effectively supporting human personnel during missions.

<http://www.flyaq.it>

### A4WSN

A4WSN is a novel modelling and analysis platform to support an architecture-driven development of WSNs. The platform leverages a multi-view architectural approach based on three modeling languages to describe a WSN from different viewpoints. The modeling framework is supported by a programming framework that enables the implementation of analysis and code generation plugins by third party developers.

<http://a4wsn.di.univaq.it>

### MEGAF

MEGAF is an infrastructure for realizing architecture frameworks with a focus on reusing already defined viewpoints and languages and considering stakeholders and their concerns as part of the framework itself.

<http://megaf.di.univaq.it>

### byADL

byADL is a framework for developing next generation ADLs according to their evolved requirements. Emerging requirements include: support for domain specific concerns, support for multiple views, extensibility, analysis features, interoperability with other ADLs, promote architecture-centric development and tool-support. byADL is implemented in Eclipse and it is built on model-driven technologies.

<http://byadl.di.univaq.it>

### DUALLy

DUALLY is an Eclipse based framework to create interoperability among UML2 and Architectural Description Languages (ADLs). DUALLY works at two abstraction levels: meta-modeling (via AMW weaving models), and modeling (via UML, Ecore models and ATL transformations)

<http://dually.di.univaq.it>

### WinKnocks

WinKnocks is an encrypted(DES) port knocking tool. Knock sequences are defined through XML files; users specify: number of packets of each knock sequence, payload and header of each packet. Logging capability. Generation of smoke packets. No replay-attack.

<http://winknocks.sourceforge.net>

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## Teaching

### Lectures

- Feb–Mar 2017 Software modelling, Vrije Universiteit Amsterdam, 80 students, Bc level (full course, 30h)
- Nov 2016 Software systems and services, immigration course, Gran Sasso Science Institute, 10 students, PhD level (shared course, 12h)
- Sep–Oct 2016 Green Lab (empirical software engineering for energy efficiency), Vrije Universiteit Amsterdam, 15 students, MSc level (shared course, 20h)
- Sep–Oct 2016 Introduction to Information, Multimedia and Management, Vrije Universiteit Amsterdam, 15 students, Mc level (shared course, 8h)
- Mar–Jun 2016 Mobile Applications Development, University of L'Aquila, 70 students, Bc and MSc levels (full course, 60h)
- Oct–Dec 2015 Software systems and services, immigration course, Gran Sasso Science Institute, 10 students, PhD level (shared course, 18h)
- Jul 2015 Mobile Computing, Master in Web Technologies - University of L'Aquila, 25 students, MSc level (full course, 28h)
- Mar–Jun 2015 Mobile Applications Development, University of L'Aquila, 50 students, Bc and MSc levels (full course, 60h)
- Oct–Dec 2014 Software systems and services, immigration course, Gran Sasso Science Institute, 10 students, PhD level (shared course, 14h)
- Nov 2014 Advanced Software Engineering, guest lecture, University of L'Aquila, 25 students, MSc level (2h)
- Nov 2014 Embedded Systems, guest lecture, University of L'Aquila, 15 students, Bc and MSc levels (2h)
- May–Jul 2014 Mobile Applications Development, Master of Science in Web Technology, University of L'Aquila, 30 students, Bc and MSc levels (full course, 40h)
- Mar–Jun 2014 Mobile Applications Development, University of L'Aquila, 30 students, Bc and MSc levels (full course, 60h)
- Oct 2013 Advanced Software Engineering, University of L'Aquila, 25 students, MSc level (6h)
- Mar–Jun 2013 Mobile Applications Development, University of L'Aquila, 70 students, Bc and MSc levels (full course, 60h)
- Jan 2013 Databases, guest lecture, University of L'Aquila, 40 students, Bc level (2h)

- Oct–Dec 2012 Advanced Software Engineering, University of L'Aquila, 20 students, MSc level (8h)
- Mar–Jun 2012 Mobile Applications Development, University of L'Aquila, 100 students, Bc and MSc levels (full course, 60h)
- Mar–Apr 2011 Analysis and Testing of Component-based Systems, University of L'Aquila, 25 students, MSc level (6h)
- Oct–Nov 2009 Advanced Software Engineering, University of L'Aquila, 25 students, MSc level (6h)
- Nov 2008 Advanced Software Engineering, University of L'Aquila, 25 students, MSc (2h)

### Project supervision

- 2016–2017 Software modelling, Bc level, Vrije Universiteit Amsterdam
- 2015–2016 Green Lab (empirical software engineering for energy efficiency), MSc level, Vrije Universiteit Amsterdam
- 2015–2016 Software systems and services, PhD level, Gran Sasso Science Institute
- 2014–2015 Mobile Computing, MSc levels, Master in Web Technologies - University of L'Aquila
- 2014–2015 Mobile Applications Development, Bc and MSc levels, University of L'Aquila
- 2014–2015 Software systems and services, PhD level, Gran Sasso Science Institute
- 2014–2015 Advanced Software Engineering, MSc level, University of L'Aquila
- 2013–2014 Mobile Applications Development, Bc and MSc levels, University of L'Aquila
- 2013–2014 Advanced Software Engineering, MSc level, University of L'Aquila
- 2012–2013 Mobile Applications Development, Bc and MSc levels, University of L'Aquila
- 2012–2013 Advanced Software Engineering, MSc level, University of L'Aquila
- 2011–2012 Mobile Applications Development, Bc, MSc level, University of L'Aquila
- 2010–2011 Analysis and Testing of Component-based Systems, MSc level, University of L'Aquila
- 2008–2009 Advanced Software Engineering, MSc level, University of L'Aquila
- 2009–2010 Advanced Software Engineering, MSc level, University of L'Aquila

### Thesis supervision

- 2017 Bojan Filipovic Granchelli, *"Maintainability Evolution of Open-source Android applications"*. MSc.  
Amaka Atoyebi, *"Exploring how location-awareness is realized in Android mobile apps"*. MSc.  
Cheng-yu Lam, *"A Python framework for automating experiments on Android"*. Bc.  
Giona Granchelli, *"Architecture Recovery of Microservice-based Systems"*. MSc.  
Mario Cardarelli, *"Agility of Microservice Architectures: a Metrics-based Approach"*. MSc.  
Lorenzo Di Cola, *"Estensione di un framework open-source per App mobili cross-platform modulari ed efficienti"*. Bc.
- 2016 Valentina Di Cristofaro, *"Design e sviluppo di un'applicazione web per la consultazione, ricerca e inserimento di app mobili di tipo ibrido"*. Bc.  
Andrea Salini, *"Leveraging Web Analytics for Automatically Generating Mobile Navigation Models"*. MSc.  
Valter Papile, *"Ingegnerizzazione di sistemi informativi per trasposto pubblico: real-time tracking, responsive web, and open-data"*. MSc.

- Silvio Calcagni, *"Dai database relazionali ai database NoSQL"*. Bc.
- 2015 Giulio Cattivera, *"Model-Driven Engineering for Mobile Robotic Systems: a Systematic Mapping Study"*. MSc.
- Giuseppina Casalaro, *"Model-Driven Engineering for Mobile Robotic Systems: a Systematic Mapping Study"*. MSc.
- Francesco Ioannone, *"Prenotazione e-ticket per dispositivi mobili: progetto e sviluppo di un prototipo"*. Bc.
- Stefano Maglione, *"Sviluppo di un'applicazione web per la visualizzazione e manipolazione di costruzioni geometriche"*. MSc.
- Federico Cicerone, *"Automatic synthesis of data-intensive mobile apps via MDE techniques"*. MSc.
- Gabriele Martini, *"Identificazione automatica di app mobile ibride e i relativi framework di sviluppo"*. Bc.
- Matteo Giannangeli, *"Sviluppo dell'app di CARE-me in ambiente Android"*. Bc.
- 2014 Luca Traini, *"Design e sviluppo di un'app mobile in un progetto industriale nel dominio eHealth"*. Bc.
- Guerino Marcozzi, *"Analisi automatica del Bytecode di applicazioni Android"*. Bc.
- Lorenzo Sfarra, *"Real-time monitoring and delay management of a transport information system"*. MSc.
- Gian Luca Scoccia, *"Analisi e sviluppo di un framework per la UI design di applicazioni per dispositivi mobili"*. MSc.
- Andrea Loddo, *"Accessing Web services from mobile clients - Copernica on mobile devices"*. MSc.
- Roberto Gagliardi, *"Realizzazione di un'applicazione Web per la visualizzazione in tempo reale dei dati di telemetria di quadrotori autonomi"*. MSc.
- Alessandra Di Sario, *"FLYAQ-Parrot: sviluppo di un controller remoto per istruire flotte di quadrotori autonomi"*. MSc.
- Valentina Giffi, *"Realizzazione di un'infrastruttura basata su OpenXC, Cordova e tecnologie Web per la diagnostica in tempo reale in ambito automotive"*. MSc.
- Alessio Felicioni, *"Progettazione e sviluppo cross-platform di un'app mobile di messaggistica multi-modale"*. Bc.
- Giovanni Lima, *"Realizzazione di un benchmark di valutazione al fine di comparare PhoneGap e Android nativo"*. Bc.
- Michele Spaziani, *"Applicazioni mobile come controller per l'interazione con smart TV attraverso Web socket"*. Bc.
- Sergio De Bei, *"Design e sviluppo di un'applicazione Web per la visualizzazione e ricerca di informazioni su servizi di trasporto pubblico"*. Bc.
- Simone Durante, *"GOTCHA! Un'app di alternate reality game"*. Bc.
- Tiziano Lombardi, *"Un'applicazione Web per la specifica di missioni di monitoraggio ambientale mediante droni autonomi"*. Bc.
- 2013 Stefano Di Biase, *"Design e sviluppo di un Puzzle Game con meccaniche RPG su piattaforma mobile"*. Bc.
- Silvio D'Orazio, *"Design e sviluppo di una Web application per smart TV. Un caso di studio in ambito accademico"*. Bc.

- Matteo Blasioli, *"Sviluppo di un'applicazione mobile per il censimento di oggetti relativi alle problematiche di illuminazione pubblica"*. Bc.
- Matteo Comignani, *"Sviluppo di un back-end RESTful di un'applicazione mobile per il censimento di oggetti relativi alle problematiche di illuminazione pubblica"*. Bc.
- Kristina Stefanova, *"Design and development of a mobile mashup application for geo-localized news visualization"*. MSc.
- Manuel Dell'Elce, *"Backbone Debugger: estendere Chrome per il debugging di applicazioni web basate su Backbone"*. Bc.
- Giorgio Lattanzi, *"Realizzazione di un'applicazione mobile per la raccolta, divulgazione e preservazione del patrimonio dialettale italiano"*. Bc.
- Davide Nespoli, *"Development of a code generator engine from A4WSN models to Castalia simulation scripts"*. Bc.
- Mirco Franzago, *"Engineering the navigation design of mobile applications: a dedicated modeling framework"*. MSc.
- Giona Granchelli, *"Controllo Automatizzato di quadrorotori e grado di automazione raggiungibile"*. Bc.
- Francesco Palumbo, *"AQMeter: un esperimento di collaborazione sociale per la stima dello stato di ricostruzione della città dell'aquila"*. Bc.
- Daniele Corvaglia, *"Integrazione di tecniche di gamification in applicazioni mobile di tipo radiofonico"*. Bc.
- Andrea lafrate, *"Sviluppo di un layer di sicurezza per un'applicazione di Social-Shopping basata su servizi RESTful"*. Bc.
- Simone Battistelli, *"Design e sviluppo di un'applicazione mobile per percorsi turistici, tour di trekking e passeggiate in montagna"*. Bc.
- Luca Scipioni, *"Eventz: Un'applicazione mobile per il social discovery di eventi geocalizzati"*. Bc.
- 2012 Giampiero Di Paolo, *"Uso di Twitter e Github per analizzare la correlazione tra umore e produttività nello sviluppo di progetti open source"*. Bc.
- Dario Mazzelli, *"Analisi degli approcci Model-Driven per la progettazione di Wireless Sensor Networks"*. Bc.
- Vincenzo Buccardo, *"Analisi e sviluppo di un back-end RESTful per un'applicazione di Social-Shopping"*. Bc.
- Simone Monaco, *"Analisi e sviluppo di un'applicazione mobile per il trasporto urbano"*. Bc.
- Michele Rastelli, *"BusOnAir - Un sistema informativo per trasporti pubblici: modelli, algoritmi e tecnologie"*. MSc.
- Fabrizio Di Giuseppe, *"Generazione automatica di codice per la stima della life-time di una Wireless Sensor Network con Omnet++"*. MSc.
- Lorenzo Salvatore, *"Progettazione e Realizzazione di un editor grafico per l'environment di una Wireless Sensor Network"*. Bc.
- 2010 Marco Parlati, *"Realizzazione di un editor grafico di modellazione architettuale utilizzando GMF ed Eugenia"*. Bc.

Genny Bitondo, *"Integrazione di AADL in un framework di modellazione multi-dominio"*. MSc

Marco Sebastiani, *"Development of an automatic bridge between UML profiles and EMF metamodels"*. MSc

2009 Fabrizio Di Giuseppe, *"DUALLYzzazione ArchiTrio: definizione di regole di trasformazione per modelli architetturali"*. Bc.

Gianluca Croce, *"DUALLYzzazione AADL: definizione di regole di trasformazione per modelli architetturali"*. Bc.

Guido Barcaroli, *"DUALLYzzazione KLAPER: definizione di regole di trasformazione per modelli architetturali"*. Bc.

Sara Panella, *"DUALLYzzazione ArchStudio: definizione di regole di trasformazione per modelli architetturali"*. Bc.

MSc: Master course, Bc: Bachelor course

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## Grants and fundings

2017 Winner of a research voucher "Science meets Business" by the Network Institute VU Amsterdam and the Innovation Exchange Amsterdam. Amount of the grant: 5,000 euro.

2014 Winner of the grant proposed by Fondazione Cassa di Risparmio della Provincia dell'Aquila for social utility and the promotion of economic development. Name of the proposed project: BusOnAir. Amount of the grant: 3,000 euro.

2012 Winner of the grant: "20 talenti per l'Italia", Working Capital 2012 of Telecom Italia. Name of the proposed project: FLYAQ (<http://www.flyaq.it>). The project have been selected among more than 800 applicants. Amount of the grant: 25,000 euro.

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## Awards and scholarships

2017 Distinguished paper award at MOBILESoft 2017 for the paper titled "Assessing the Impact of Service Workers on the Energy Efficiency of Progressive Web Apps".

2017 Nomination for best paper award at ICSA 2017 for the paper titled "Research on Architecting Microservices: Trends, Focus, and Potential for Industrial Adoption".

2014 Finalist of "White Information 2014", the most important event for industries and companies of the central area of Italy. Name of the proposed project: Musicatch.

2013 Finalist of the 2013 edition of "Innovact", the European forum for innovative start-ups. Name of the proposed project: FLYAQ.

2013 Finalist of "White Information 2013", the most important event for industries and companies of the central area of Italy. Name of the proposed project: Abruzzo Travel Book.

2013 Finalist of the "Mob App Awards Roma 2013", as one of the most innovative consumer apps of the central area of Italy. Name of the proposed project: Abruzzo Travel Book.

2012 Selected for participation to EUHackathon, the second hackathon event within the premises of the European Institutions. Main sponsors: Google, Facebook, Orange, Vodafone.

- 2011 Selected for participation to EUHackathon, the first hackathon event within the premises of the European Institutions. Main sponsors: Google and Skype.
- 2011 1<sup>st</sup> prize (as Team Leader) in the Business Plan Competition 2010/2011 organized by the Technology transfer, patents, spin-offs office of the University of L'Aquila (Italy). Name of the proposed project: BusOnAir (<http://www.busonair.eu>).
- 2010 ACM Student Research Competition (SRC) Travel Award. The work proposed in this competition is titled: "Providing support for creating next generation software architecture languages".
- 2007 "Homo Sapiens Sapiens" scholarship for university and professional education. Promoted by the National Institute of Social Security and Welfare of the Public Employee.
- 2006 "Homo Sapiens Sapiens" scholarship for university and professional education. Promoted by the National Institute of Social Security and Welfare of the Public Employee.
- 2005 "Homo Sapiens Sapiens" scholarship for university and professional education. Promoted by the National Institute of Social Security and Welfare of the Public Employee.
- 2005 Annual scholarship for students with the highest score and with no delays in their study plan. Promoted by Micron Technology inc.
- 2004 Annual scholarship for students with the highest score and with no delays in their study plan. Promoted by Micron Technology inc.

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## Other Information

since April 2012 **Member** of the Association for Computer Machinery (ACM) and IEEE Computer Society

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## Technical knowledge

- + Advanced knowledge about the Eclipse platform, (meta)modeling in Eclipse and developing Eclipse-based Rich Client Applications.
- + Advanced knowledge of Model-Driven Engineering (MDE) techniques.
- + Advanced knowledge about metamodeling, model transformations, weaving models and megamodeling.
- + Modelling software architectures using ADLs and UML.
- + Empirical Software Engineering.
- + Advanced UML modelling using profiles.
- + User-centred Design of Mobile and Web Applications.
- + Advanced Cross-Platform Mobile Web Applications Development.
- + Mobile Applications Development for Android devices.
- + Mobile Applications Development for iOS devices.
- + Mobile Applications Development for Firefox OS devices.
- + Advanced skills on the development of web applications with HTML5, JavaScript, and CSS3.
- + Advanced knowledge about JavaScript front-end applications using MVC patterns and the object-oriented paradigm.
- + Programming languages: Java(J2EE, J2SE, J2ME), JavaScript, Objective-C, C, C++, PHP, SQL, Assembler,  $\LaTeX$ .
- + Development of REST-based applications (both server and client sides).
- + Development of ROS-compliant robotics software.
- + Development of CORBA-based applications.

- + Development of Java applications adopting design patterns.
- + Good knowledge about design, execution and analysis phased of questionnaire-based surveys.
- + Good knowledge about Dependable systems development, performance evaluation, reliable systems modeling and non-functional validation.
- + Good knowledge about developing both the cartographic and database aspects of Geographic Information Systems (GIS).
- + Security and cryptography (either Web and networks).
- + Development of distributed (client-server and peer-to-peer) applications.
- + Good knowledge about protocols and ISO-OSI stack, TCP/IP stack, LANs, wireless LANs and other types of networks.
- + Develop graphical user interfaces (GUI) using theoretical usability concepts.
- + Development and management of databases (MySql, Access, Interbase, Postgres, SQLServer, IBM DB2 and ORM based technologies such as Hibernate).
- + Good knowledge about telecommunications, phone networks, and related technologies.
- + Development of applications written in C for UNIX platforms.
- + Good knowledge about operative research problems.
- + Good knowledge about combinatorial optimization, analysis and creation of algorithms graph-based and non graph-base; complexity analysis, dynamic programming, PL, PLI, GAP technics and approximation schemes.
- + Good knowledge about formal languages.
- + Good knowledge about neural networks, compression algorithms and clusterization.