Liliana Pasquale

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Blackrock, Dublin Co.
Ireland

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EDUCATION

Politecnico di Milano, Milan, Italy   **Feb 18, 2011**

Ph.D. in Information and Communication Technology.
Thesis advisor: Prof. Luciano Baresi.
Thesis title: "A Goal-Oriented Methodology for Self-Supervised Service Compositions."

Politecnico di Milano, Milan, Italy   **Jul 26, 2007**

Master of Science in Computer Engineering.
Thesis advisor: Prof. Luciano Baresi.
Thesis title: "A Rule-Based System for Self-Healing BPEL Processes."
Mark: 110 cum laude/110.

Politecnico di Bari, Bari, Italy   **Nov 12, 2004**

Bachelor of Science in Computer Engineering.
Mark: 110 cum laude/110.

EXPERIENCE

University College Dublin   **June 2016 - present**
Lecturer
Topics: Software Engineering.

Lero - the Irish Software Engineering Research Centre   **April 2015 - present**
Research Fellow.
Research Group Leader: Prof. Bashar Nuseibeh.
Topics: Requirements Engineering, Adaptive Software, Security, Privacy, and Digital Forensics.

Lero - the Irish Software Engineering Research Centre   **July 2011 - March 2015**
PostDoctoral Researcher.
Research Group Leader: Prof. Bashar Nuseibeh.
Topics: Requirements Engineering, Adaptive Software, Security, Privacy, and Digital Forensics.
I have been working in close collaboration with the industry (IBM, United Technology Research) to identify theoretical and practical solutions for engineering self-adaptive systems that continue to satisfy their security and privacy requirements, and that are forensic ready.

Politecnico di Milano and San Raffaele Hospital   **Jan-Jun 2011**
Research Assistant.
Research Group Leader: Prof. Luciano Baresi.
Topics: Requirements Engineering and Surgical Robots.
I have been working in collaboration with a group of bio-medical engineers at San Raffaele hospital to identify novel ways to elicit, model, and implement the requirements of surgical actions and support their automation.

Politecnico di Milano   **2008-2010**
Ph.D. Candidate in Computer Science.
Supervisor: Prof. Luciano Baresi.
Topics: Requirements Engineering, Adaptive Software.
My PhD thesis provides a requirements-based solution to design adaptive service compositions. A goal model is used to represent the business goals and adaptation actions to oversee and enforce the reliability of service compositions. Goals are translated into executable service compositions and supervision directives performed at runtime.

IBM TJ Watson Research Center, Hawthorne, NY, USA   **Jun-Dec 2008**
Summer intern.
Supervisors: Dr. Kamal Bhattacharya, Dr. Heiko Ludwig and Mr. Jim Laredo.
During my internship I developed an approach for distributed service configuration management. In particular, I employed RESTful access to configuration information and ATOM-based distribution of updates as a novel foundation for service management processes. The findings of my work at IBM are protected under the US patent n. 20110082920 titled Change Management in Multi-Domain Environments.

HONORS and AWARDS

Best Paper Award   **2014**
for the paper titled "User-centric Adaptation of Multi-tenant Services: Preference-based Analysis for Service Reconfiguration" by Jesús García-Galán, Liliana Pasquale, Pablo Trinidad, and Antonio Ruiz Cortés at the 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2014).

Windows Azure for Research Award   **2014**
for the project titled "Minority Report: Using the Cloud to Enable Proactive Digital Forensic Investigations". The estimated total market value of the award is USD $40000.

Best Poster Award   **2013**
for the poster titled "Requirements-Driven Adaptive Digital Forensics" by Liliana Pasquale, Yijun Yu, Mazeiar Salehie, Luca Cavallaro, Thein Than Tun, and Bashar Nuseibeh at the 21th International Requirements Engineering Conference (RE 2013).

IBM PhD Fellowship   **2010**
The IBM Ph.D. Fellowship Awards Program is an intensely competitive worldwide program, which "honors exceptional Ph.D. students who have an interest in solving problems that are important to IBM and fundamental to innovation in many academic disciplines and areas of study." The value of the award is USD $20000.

Best Student Paper Award   **2009**
for the paper titled "Distributed Cross Domain Change Management" by Bruno Wassermann, Heiko Ludwig, Jim Laredo, Kamal Bhattacharya, Liliana Pasquale, at the 7th International Conference on Web Services (ICWS 2009).

PhD Scholarship   **2008-2010**
Funded by the Italian Government, Politecnico di Milano.

INGENIO Scholarship   **Mar-Dec 2007**
INGENIO is a financial aid funded by Regione Lombardia (Italy) that supports people engaged in research in the creation of an enterprise or in technological transfer.

PUBLICATIONS

Patents

System and Method for Adapting Application Security in Real-Time. Mazeiar Salehie, Liliana Pasquale, Claudio Menghi, Inah Omoronyia, Bashar Nuseibeh. US Patent, N° 9330262, May 18, 2016.

Change Management in Multidomain Environments. Heiko Ludwig, Jim Laredo, Kamal Bhattacharya, Liliana Pasquale, Bruno Wassermann. US Patent, N° 7975031, Oct 21, 2009.

Journals

2016

"Topology Aware Access Control of Cyber-Physical Spaces." Liliana Pasquale, Carlo Ghezzi, Edoardo Pasi, Christos Tsigkanos, Menouer Boubekeur, Blanca Florentino, Tarik Hadzic, Bashar Nuseibeh. *IEEE Computer*, In Press.

"On the Interplay Between Cyber and Physical Spaces for Adaptive Security." Christos Tsigkanos, Liliana Pasquale, Carlo Ghezzi, Bashar Nuseibeh. *IEEE Transactions on Dependable and Secure Computing*, In Press.

"Adaptive Evidence Collection in the Cloud Using Attack Scenarios." Liliana Pasquale, Sorren Hanvey, Mark Mcgloin, and Bashar Nuseibeh. *Computers and Security Journal*, Vol. 59, pp. 236-254, 2016.

2015

"User-centric Adaptation Analysis of Multi-tenant Services." Jesús García-Galán, Liliana Pasquale, Pablo Trinidad, and Antonio Ruiz Cortés. *ACM Transactions on Autonomous and Adaptive Systems*, in press.

"Automating Trade-Off Analysis of Security Requirements." Liliana Pasquale, Paola Spoletini, Mazeiar Salehie, Luca Cavallaro, Bashar Nuseibeh. *Requirements Engineering Journal*, Vol. 20, pp. 1-24, 2015.

2014

"Fuzzy Time in Linear Temporal Logic." Achille Frigeri, Liliana Pasquale, Paola Spoletini. *ACM Transactions on Computational Logic*, Vol. 15, No. 4, 2014.

2012

"Service-Oriented Dynamic Software Product Lines with DyBPEL." Luciano Baresi, Sam Guinea, Liliana Pasquale. *IEEE Computer*, Vol. 45, No. 10, 2012.

Conferences

2017

"Are you Ready? Towards the Engineering of Forensic-Ready Systems." George Grispos, Jesús García-Galán, Liliana Pasquale, Bashar Nuseibeh. To appear in *Proceedings of the 11th International Conference on Research Challenges in Information Science (RCIS 2017)*, Brighton, UK, May 11-12, 2017.

2016

"Towards Adaptive Compliance." Jesús García-Galán, Liliana Pasquale, George Grispos, Bashar Nuseibeh. In *Proceedings of the 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2016)*, Austin, Texas, USA, May 16-17, pp. 108-114, ACM, 2016.

2014

"Engineering Topology Aware Adaptive Security: Preventing Requirements Violations at Runtime." Christos Tsigkanos, Liliana Pasquale, Claudio Menghi, Carlo Ghezzi, Bashar Nuseibeh. In *Proceedings of the 22nd International Requirements Engineering Conference (RE 2014)*, Karlskrona, Sweden, August 25-29, pp. 203-212, IEEE Computer Society, 2014.

"User-centric Adaptation of Multi-tenant Services: Preference-based Analysis for Service Reconfiguration." Jesús García-Galán, Liliana Pasquale, Pablo Trinidad, and Antonio Ruiz Cortés. In *Proceedings of the 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems, (SEAMS 2014)*, Hyderabad, India, June 2-3, pp. 65-74, ACM, 2014.
Best Paper Award.

"Topology Aware Adaptive Security." Liliana Pasquale, Carlo Ghezzi, Claudio Menghi, Christos Tsigkanos, Bashar Nuseibeh. In *Proceedings of the 9th International Symposium on Software Engineering for Adaptive and Self-Managing Systems, (SEAMS 2014)*, Hyderabad, India, June 2-3, pp. 43-48, ACM, 2014.

2013

"Engineering Adaptive Privacy: On the Role of Privacy Awareness Requirements." Inah Omoronyia, Luca Cavallaro, Mazeiar Salehie, Liliana Pasquale, Bashar Nuseibeh. In *Proceedings of the 35th International Conference on Software Engineering (ICSE 2013)*, San Francisco, CA, USA, May 18-26, pp. 632-641, IEEE Computer Society, 2013.

"Requirements Engineering Meets Physioterapy: An Experience with Motion-Based Games." Liliana Pasquale, Paola Spoletini, Dario Pometto, Francesco Blasi, Tiziana Redaelli. In *Proceedings of the 19th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2013)*, Essen, Germany, USA, April 8-11, pp. 315-330, Springer, 2013.

2012

"Requirements-Driven Adaptive Security: Protecting Variable Assets at Runtime." Mazeiar Salehie, Liliana Pasquale, Inah Omoronyia, Raian Ali, Bashar Nuseibeh. In *Proceedings of the 20th International Requirements Engineering Conference (RE 2012)*, Chicago, IL, USA, May 24-28, pp. 111-120, IEEE Computer Society, 2012.

"Towards Automated Surgical Robotics: A Requirements Engineering Approach." Marcello Bonfè, Fabrizio Boriero, Riccardo Dodi, Paolo Fiorini, Angelica Morandi, Riccardo Muradore, Liliana Pasquale, Alberto Sanna, Christian Secchi. In *Proceedings of the 4th International Conference on Biomedical Robotics and Biomechatronics (BioRob)*, Rome, Italy, Jun 24-27, pp. 56-61, IEEE Computer Society, 2012.

"On the Role of Primary and Secondary Assets in Adaptive Security: An Application in Smart Grids." Liliana Pasquale, Mazeiar Salehie , Raian Ali, Inah Omoronyia, Bashar Nuseibeh. In *Proceedings of 7th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2012)*, Zurich, Switzerland, Jun 4-5, pp. 165-170, ACM, 2012.

2010

"Fuzzy Goals for Requirements-driven Adaptation." Luciano Baresi, Liliana Pasquale, Paola Spoletini. In *Proceedings of the 18th International Requirements Engineering Conference (RE 2010)*, Sydney, Australia, Sep 27 - Oct 1, pp. 125-134, IEEE Computer Society, 2010.

"Adaptive Goals for Self-Adaptive Service Compositions." Luciano Baresi, Liliana Pasquale. In *Proceedings of the 8th International Conference on Web Services (ICWS 2010)*, Miami, FL, USA, Jul 5-10, pp. 353-360, IEEE Computer Society, 2010.

"Live Goals for Adaptive Service Compositions." Luciano Baresi, Liliana Pasquale. In *Proceedings of the 5th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2010)*, Cape Town, South Africa, May 3-4, pp. 114-123, ACM, 2010.

2009

"Distributed Cross-Domain Configuration Management." Liliana Pasquale, Jim Laredo, Heiko Ludwig, Kamal Bhattacharya, Bruno Wassermann. In *Proceedings of the 7th International Conference on Service Oriented Computing (ICSOC-ServiceWave 2009)*, Stockholm, Sweden, Nov 23-27, pp. 622-636, Springer Berlin Heidelberg, 2009.

"Distributed Cross-Domain Change Management." Bruno Wassermann, Heiko Ludwig, Jim Laredo, Kamal Bhattacharya, Liliana Pasquale. In *Proceedings of the 7th International Conference on Web Services (ICWS 2009)*, Los Angeles, CA, USA, Jul 6-10, pp. 59-66, IEEE Computer Society, 2009. **Best Student Paper Award.**

"From Goals to Service Compositions." Liliana Pasquale. *PhD Symposium co-located with the 17th International Conference on Requirements Engineering (RE 2009)*, Atlanta, GE, USA, Aug 31, 2009.

"REST-based management of loosely coupled services." Heiko Ludwig, Jim Laredo, Kamal Bhattacharya, Liliana Pasquale, Bruno Wassermann. In *Proceedings of the 18th International Conference on World Wide Web (WWW 2009)*, Madrid, Spain, April 20-24, pp. 931-943, ACM, 2009.

2008

"Integrated and Composable Supervision of BPEL Processes." Luciano Baresi, Sam Guinea, Liliana Pasquale. In *Proceedings of the 6th International Conference on Service Oriented Computing (ICSOC 2008)*, Sydney, Australia, Dec 1-5, pp. 614-619, Springer Berlin Heidelberg, 2008.

Tool Demos

"Ariadne: Topology Aware Adaptive Security for Cyber-Physical Systems." Christos Tsigkanos, Liliana Pasquale, Carlo Ghezzi, Bashar Nuseibeh. In *Proceedings of the 37th International Conference on Software Engineering (ICSE 2015)*, Florence, Italy, May 20-22, pp. 729-732, IEEE Computer Society, 2015.

"IRET: Requirements Engineering for Service Platforms." Luciano Baresi, Gianluca Ripa, Liliana Pasquale. In *Proceedings of the 21st International Requirements Engineering Conference (RE 2013)*, Rio de Janeiro, Brazil, Jul 15-19, pp. 336-337, IEEE Computer Society, 2013.

"SecuriTAS: A Tool for Engineering Adaptive Security." Liliana Pasquale, Claudio Menghi, Mazeiar Salehie, Luca Cavallaro, Inah Omoronyia, Bashar Nuseibeh. In *Proceedings of the 20th International Symposium on the Foundations of Software Engineering (FSE 2012)*, Cary, NC, USA, Nov 11-16, pp. 19-22, ACM, 2012.

"Caprice: A Tool for Engineering Adaptive Privacy." Inah Omoronyia, Liliana Pasquale, Mazeiar Salehie, Luca Cavallaro, Gavin Doherty, Bashar Nuseibeh. In *Proceedings of 27th International Conference on Automated Software Engineering (ASE 2012)*, Essen, Germany, Sep 3-7, pp. 354-357, ACM, 2012.

Posters

"Requirements-Driven Adaptive Digital Forensics." Liliana Pasquale, Yijun Yu, Mazeiar Salehie, Luca Cavallaro, Thein Than Tun, Bashar Nuseibeh. In *Proceedings of the 21st International Requirements Engineering Conference (RE 2013)*, Rio de Janeiro, Brazil, Jul 15-19, 2013. **Best Poster Award**

Book Chapters

2014

"Living with Uncertainty in the Age of Runtime Models." Holger Giese, Nelly Bencomo, Liliana Pasquale, Andres J. Ramirez, Paola Inverardi, Sebastian Wätzoldt, Siobhán Clarke. In *Models@run.time: Foundations, Applications, and Roadmaps* edited by Nelly Bencomo, Robert France, Betty H. C. Cheng, Uwe Aßmann, pp. 47-100, Springer, 2014.

2011

"The eGovernment Use Case Scenario." Giampaolo Armellin, Annamaria Chiasera, Ganna Frankova, Liliana Pasquale, Francesco Torelli, Gabriele Zacco. In *Service Level Agreements for Cloud Computing* edited by Philipp Wieder, Joe M. Butler, Wolfgang Theilmann, Ramin Yahyapour, pp. 343-357, Springer, 2011.

"A Generic Platform for Conducting SLA Negotiations." Edwin Yaqub, Philipp Wieder, Constantinos Kotsokalis, Valentina Mazza, Liliana Pasquale, Juan Lambea Rueda, Sergio García Gómez, Augustín Escámez Chimeno. In *Service Level Agreements for Cloud Computing* edited by Philipp Wieder, Joe M. Butler, Wolfgang Theilmann, Ramin Yahyapour, pp. 187-206, Springer, 2011.

"Adaptation Goals for Adaptive Service-oriented Architectures." Luciano Baresi, Liliana Pasquale. In *Relating Software Requirements and Architecture* edited by P. Avgeriou, J. Grundy, J. G. Hall, P. Lago and I. Mistrik, pp. 161-181, Springer-Verlag, 2011.

Workshops

2017

"Software Engineering Challenges For Investigating Cyber-Physical Incidents." Faeq Alrimawi, Liliana Pasquale, Bashar Nuseibeh. To appear in *Proceedings of the 3rd International Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS 2017)*, Buenos Aires, Argentina, May 20, 2017.

2016

"Adding Static and Dynamic Semantics to Building Information Models." Christos Tsigkanos, Timo Kehrer, Carlo Ghezzi, Liliana Pasquale, Bashar Nuseibeh. In *Proceedings of the 2nd International Workshop on Software Engineering for Smart Cyber-Physical Systems (SEsCPS 2016)*, Austin, Texas, USA, May 16, 2016.

2012

"Adaptive Security and Privacy in Smart Grids: A Software Engineering Vision." Mazeiar Salehie, Liliana Pasquale, Inah Omoronyia, Bashar Nuseibeh. In *Proceedings of the 1st International Workshop on Software Engineering for the Smart Grid (SE4SG 2012)*, Zurich, Switzerland, Jun 3, 2012.

"Towards Self-protecting Smart Metering: Investigating Requirements links to Autonomic Architecture." Mazeiar Salehie, Liliana Pasquale, Inah Omoronyia, Bashar Nuseibeh. In *Proceedings of the 9th International Conference and Workshop on the Engineering of Autonomic and Autonomous Systems (EASe 2012)*, Novi Sad, Serbia, Apr 11-13, 2012.

2011

"Towards Adaptive Systems through Requirements@Runtime." Liliana Pasquale, Luciano Baresi, Bashar Nuseibeh. In *Proceedings of the 6th International Workshop on MODELS@Runtime*, Wellington, New Zealand, Oct 17, 2011.

"An Eclipse Plug-In to Model System Requirements and Adaptation Capabilities." Luciano Baresi, Liliana Pasquale. In Proceedings of the 6th Workshop of the Italian Eclipse Community (Eclipse-IT 2011), Milano, Italy, Sep 22-23, 2011.

"Monitoring Fuzzy Temporal Requirements for Service Compositions: Motivations, Challenges and Experimental Results." Liliana Pasquale, Paola Spoletini. In *Proceedings of the Workshop on Requirements Engineering for Systems, Services and Systems-of-Systems (RESS 2011)*, Trento, Italy, Aug 30, 2011.

2008

"Towards a Unified Framework for the Monitoring and Recovery of BPEL Processes." Luciano Baresi, Sam Guinea, Liliana Pasquale. In *Proceedings of the 4th Workshop on Testing, Analysis and Verification of Web Services and Applications (TAV-WEB 2008)*, Seattle, WA, USA, Jul 21, 2008.

"Self-Healing BPEL Processes with Dynamo and the JBoss Rule Engine." Luciano Baresi, Sam Guinea, Liliana Pasquale. In *Proceedings of the 4th International Workshop on the Engineering of Software Services for Pervasive Environments (ESSPE 2007)*, Dubrovnik, Croatia, Sep 4, 2007.

Technical Reports

"Engineering Adaptive Digital Investigations Using Forensic Requirements." Liliana Pasquale, Yijun Yu, Luca Cavallaro, Mazeiar Salehie, Thein Than Tun, Bashar Nuseibeh. arXiv:1402.0997, 2014. Available at `http://arxiv.org/abs/1402.0997`.

"Fuzzy Time in LTL." Achille Frigeri, Liliana Pasquale, Paola Spoletini. arXiv:1203.6278, 2012. Available at `http://arxiv.org/abs/1203.6278`.

INVITED TALKS

2017

"The Rocky Road to Forensic Readiness." IFIP Working Group 2.9 on Software Requirements Engineering, Stellenbosch, South Africa, Feb 13-17, 2017.

2016

"Topology Aware Adaptive Security." IFIP Working Group 2.9 on Software Requirements Engineering, Porto de Galinhas, Pernambuco, Brazil, Feb 22-25, 2016.

2015

"Requirements Engineering Meets Digital Forensics." IFIP Working Group 2.9 on Software Requirements Engineering, Playa del Carmen, Mexico, Feb 16-20, 2015.

2014

"Engineering Topology Aware Adaptive Security: Preventing Requirements Violations at Runtime." Best of Requirements Engineering Specialist Group, organised by E. Letier, BCS Building, London, UK, Dec 4, 2014.

"Topology Aware Adaptive Security." GI Dagstuhl Seminar on Software Engineering for Self-Adaptive Systems, organised by A. Gorla, M. Tichy, T. Vogel, Dagstuhl, Germany, Oct 19-24, 2014.

"Engineering Adaptive Digital Investigations using Forensic Requirements." Security Centre Seminar, organised by A. Rashid, University of Lancaster, UK, Apr 24, 2014.

"Topology Aware Adaptive Security." International Workshop on Software Engineering for Smart Cities, organised by B. Nuseibeh and D. Svetinovic, Masdar Institute, Abu Dhabi, UAE, Apr 20-21, 2014.

2013

"An Asset-Centric Approach for Engineering Adaptive Security." SSRC Seminar, Bournemouth University, UK, Dec 2, 2013.

"Automating Digital Forensic Investigations." NII Shonan Meeting on Engineering Autonomic Systems (EASy), organized by J. Mylopoulos, H. Muller, Y. Yu, and S. Honiden, Shonan Village Center, Japan, Sep 9-12, 2013.

"An Asset-Centric Approach for Engineering Adaptive Security." Symposium on Augmenting Software Developer Support to Improve Productivity, organized by Harald Gall and Andreas Zeller, Monte Verità, Switzerland, Mar 10-15, 2013.

2012

"An Asset-Centric Approach for Engineering Adaptive Security." Lunchtime Seminar in the Computing Department, The Open University, Milton Keynes, UK, Nov 22, 2012.

"Securitas: A Framework for Engineering Adaptive Security." Ready-Set-Transfer track at the 20th International Requirements Engineering Conference (RE 2012), Chicago, IL, USA, Sep 27, 2012.

"Models@Runtime for Engineering Adaptive Systems." Software Systems Research Centre Seminar, Bournemouth University, UK, Jul 4, 2012.

"Towards Engineering Adaptive Digital Forensics." NII-Lero-Open University Workshop on Adaptation, Privacy and Security, The Open University, Milton Keynes, UK, Jul 2-3, 2012.

"An Asset-Centric Approach for Engineering Adaptive Security." NII Shonan Meeting on Engineering Autonomic Systems (EASy), organized by A. Bandara, S. Honiden, and Y. Yu, Shonan Village Center, Japan, May 15-17, 2012.

"Engineering Adaptive Security for the Cloud." Lero Industry Event on Security and Privacy, EMC, Cork, Ireland, Apr 20, 2012.

2011

"Models@Runtime for Self-Adaptation and Self-Protection." Dagstuhl Seminar on Models@Runtime, organized by U. Assmann, N. Bencomo, B. H. C. Cheng, and R. France, Dagstuhl, Germany, Nov 27- Dec 2, 2011.

"A Temporal Fuzzy Framework to Reason on the Satisfaction Level of Requirements." Lero-NII-OU Workshop on Evolving Critical Systems, University of Limerick, Ireland, Jun 9-10, 2011.

"A Goal-Oriented Methodology for Self-supervised Service Compositions." Lero Seminars, University of Limerick, Ireland, Mar 16, 2011.

"Bridging the Gap Between Evolving Requirements and Service Compositions", SMSCom Meeting, Dipartimento di Elettronica e Informazione, Politecnico di Milano, Milan, Italy, Feb 1, 2011.

2010

"Towards Self-supervised Service Compositions." IBM awards DEI, Politecnico di Milano, Milan, Italy, Nov 26, 2010.

2009

"Towards Goal-Driven Business Services." Gruppo di Interesse in Ingegneria del Software, Salerno, Italy, Sep 14-15, 2009.

2008

"Smart Configuration Items and Distributed Cross-Domain Change Management." IBM TJ Watson Research Center, Dec 12, 2008.

SERVICE

2016 - to present
Editorial Board Member, IET Software Journal.

2017
Workshops Co-Chair at the 40th International Conference on Software Engineering (ICSE 2017) Buenos Aires, 6-14 May 2017.

Tutorials Co-Chair at the 25th International Requirements Engineering Conference (RE 2017)

Workshop Co-Organizer of the 1st International Workshop on Software Engineering and Digital Forensics (SERF 2017), co-located with the 11th Joint Meeting of the European Software Engineering Conference and the ACM Sigsoft Symposium on the Foundations of Software Engineering (ESEC/FSE 2017), Padeborn, Germany, 4/5 September 2017.

2016

Workshop Co-Organizer of the 1st International Workshop on Requirements Engineering for Investigating and Countering Crime (iRENIC 2016), co-located with the 24th International Requirements Engineering Conference (RE 2016), Beijing, China, 12 September 2016.

2012

Posters and Demos Co-Chair at the 20th International Requirements Engineering Conference (RE 2012)
Chicago, 24-28 September 2012.

2011

Workshop Co-Organizer of the International Workshop on Systems, Services, and Systems-of-Systems (RESS 2011), co- located with the 19th International Requirements Engineering Conference (RE 2011), Trento, Italy, 30 August 2011.

PC Member

2017

- Workshop Committe for the 40th International Conference on Software Engineering (ICSE 2018).
- New Ideas and Emerging Results (NIER) Track of the 40th International Conference on Software Engineering (ICSE 2018).
- 24th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2018).

2017

- 11th Joint Meeting of the European Software Engineering Conference and the ACM Sigsoft Symposium on the Foundations of Software Engineering (ESEC/FSE 2017).
- 23rd International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2017).
- Demos Track at the 40th International Conference on Software Engineering (ICSE 2017).
- Posters Track at the 40th International Conference on Software Engineering (ICSE 2017).
- Workshop Committe for the 25th International Requirements Engineering Conference (RE 2017).
- 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2017), co-located with the 39th International Conference on Software Engineering (ICSE 2017).
- FME Workshop on Formal Methods in Software Engineering (FormaliSE 2017) co-located with the 39th International Conference on Software Engineering (ICSE 2017).
- International Workshop on Engineering IoT Systems: Architectures, Services, Applications, and Platforms (IoT-ASAP), co-located with the International Conference of Software Architectures (ICSA 2017).
- 1st International Workshop on Requirements Prioritization and Enactment (PrioRE'17), co-located with the 23rd International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2017).
- 1st International Workshop on the Engineering the Web of Things (EnWoT 2017) co-located with the 17th International Conference on Web Engineering (ICWE 2017).

2016

- 7th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EU-SPN 2016).
- 24th International Requirements Engineering Conference (RE 2016), Review Committee.

- Workshop Committe for the 24th International Requirements Engineering Conference (RE 2016).
- Posters and Demos Track at the 24th International Requirements Engineering Conference (RE 2016).
- Student Contest on Software Engineering (SCORE 2016), co-located with the 38th International Conference on Software Engineering (ICSE 2016).
- 11th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2016), co-located with the 38th International Conference on Software Engineering (ICSE 2016).
- 1st International Workshop on Variability and Complexity in Software Design (VACE 2016), co-located with the 38th International Conference on Software Engineering (ICSE 2016).
- 6th International Model-Driven Requirements Engineering Workshop (MoDRE 2016), co-located with the 24th International Requirements Engineering Conference (RE 2016).

2015
- Tool Dmonstrations Track at the 10th Joint Meeting of the European Software Engineering Conference and the ACM SIGSOFT Symposium on the Foundations of Software Engineering (ESEC/FSE 2015).
- 23rd International Requirements Engineering Conference (RE 2015).
- Workshop Committee at the 23rd International Requirements Engineering Conference (RE 2015).
- New Ideas and Emerging Results (NIER) Track of the 37th International Conference on Software Engineering (ICSE 2015).
- Italian Student Contest in Software Engineering (SCORE-it) co-located with the 37th International Conference on Software Engineering (ICSE 2015).
- 2nd International Workshop on Multiagent Foundations of Social Computing (MSFC 2015) c0-located with the 14th International Conference on Autonomous Agents & Multiagent Systems. (AAMAS 2015).
- 5th International Model-Driven Requirements Engineering Workshop (MoDRE 2015), co-located with the 23th International Requirements Engineering Conference (RE 2015).

2014
- New Ideas and Emerging Results (NIER) Track of the 36th International Conference on Software Engineering (ICSE 2014).
- 22nd International Requirements Engineering Conference (RE 2014).
- Posters and Demos Track at the 22nd International Requirements Engineering Conference (RE 2014).
- Doctoral Symposium Track at the 22nd International Requirements Engineering Conference (RE 2014).
- 4th International Workshop on Model-Driven Requirements Engineering (MoDRE 2014), co-located with the 22nd International Requirements Engineering Conference (RE 2014).
- 13th International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA 2014), co-located with the 25th Conference on Concurrency Theory (CONCUR 2014).

2013
- 12th International Workshop on Foundations of Coordination Languages and Self-Adaptive Systems (FOCLASA 2013), co-located with the European Conference on Service-Oriented and Cloud Computing (ESOCC 2013).
- 3rd International Workshop on Model-Driven Requirements Engineering (MoDRE 2013), co-located with the 21st International Requirements Engineering Conference (RE 2013).

- 8th International Symposium on Software Engineering for Adaptive and Self-Managing Systems (SEAMS 2013), co-located with the 35th International Conference on Software Engineering (ICSE 2013).
- Student Contest on Software Engineering (SCORE 2013), co-located with the 35th International Conference on Software Engineering (ICSE 2013).
- Posters and Demos Track at the 21st International Requirements Engineering Conference (RE 2013).
- 3rd International Model-Driven Requirements Engineering Workshop (MoDRE 2013), co-located with the 21st International Requirements Engineering Conference (RE 2013).
- 1st European Workshop on Mobile Engineering (ME 2013).

2012
- 38th Euromicro Conference on Software Engineering and Advanced Applications (SEAA 2012)

2011
- 4th International Workshop on Monitoring, Adaptation and Beyond (MONA+ 2011), co-located with 4th European Conference on ServiceWave 2011.

Scientific Reviewer of the following peer-reviewed conference/journals
- IEEE Transactions on Software Engineering (TSE).
- ACM Transactions on Software Engineering and Methodologies (TOSEM).
- Transactions on Information Forensics & Security (TIFS).
- ACM Transactions on Autonomous and Adaptive Systems (TAAS).
- IEEE Transactions on Service Computing (TSC).
- Journal of Software and Systems (JSS).
- Requirements Engineering Journal (REJ).
- Journal of Software and Systems Modeling (SoSyM).
- Springer Computing Journal.
- Journal of Service Computing and Applications (SOCA).

AWARDED PROJECT PROPOSALS

SFI Starting Investigator Research Grant   2016-2020
Funded by: Science Foundation Ireland
Project Title: Forensic Investigations for Cyber-Physical Incidents (For-CoPS)
Objective: The For-CoPS project aims to develop a framework to engineer forensically ready cyber and physical systems capable of recording data in a privacy preserving manner and adaptively for use by law enforcement agencies in future investigations. The For-CoPS project will also develop automated mechanisms for retrieving data that might constitute relevant evidence and for generating and prioritising plausible hypotheses about criminal activities.
Award: Euros 379, 262.

SFI Research Centres Programme   2015-2020
Funded by: Science Foundation Ireland
Project Title: Lero - the Irish Software Research Centre
Objective: Fund large-scale research centres that will provide major economic impact for Ireland
Award: Euros 25 millions.

Within this program, in collaboration with Prof. B. Nuseibeh, I contributed to the definition of :
- **Platform Research on Security and Privacy** to investigate methodologies for engineering adaptive security, privacy and forensics as well as calculi and models for security, privacy and the design of secure and private spaces.

- **Targeted Projects in collaboration with industrial partners:**
    - *Topology Driven Forensic Readiness* in collaboration with United Technology Research. This project aims to use a representation of a building topology for engineering systems that are forensic ready, i.e. they support the identification and collection of evidence at runtime.
    - *Adaptive Compliance in the Cloud* in collaboration with IBM Labs. This project aims to develop a framework able to identify changing jurisdictions where cloud data resides and to apply adaptation actions that maximise the satisfaction of security and privacy requirements and regulations.

Windows Azure for Research Award   2014

Funded by: Microsoft
Project Title: Minority Report: using the Cloud to Enable Proactive Digital Forensic Investigations
Objective: Develop and release an open source toolset to support proactive digital investigations in large and distributed systems.
Award: 32 small compute instances for cloud services or virtual machines (Windows or Linux), 10 TB of storage, 1 billion storage transactions, 10 shared websites, 10 shared mobile services, 100 million service bus messages, 100 GB SQL database, 2 TBs network egress/month. The estimated total market value of the award is USD $40000.

Aging In Place: Seed Program to Promote Collaborative Research   2014

Funded by: Georgia Tech HomeLab
Project Title: Supporting aging with REFIT
Objective: Design a requirements elicitation and modelling technique for the development of applications aimed to support daily physical training of older adults.
Award: Access to Georgia Tech HomeLab resources consisting of a network of older adults (age 50+) and a team of researchers with expertise in designing and executing research studies in the homes of older adults.

The proposal was written in collaboration with Dr. P. Spoletini when she was visiting Georgia Tech during her sabbatical year.

TSA - Technical Service Agreement   Oct 2014 - June 2015

Funded by: United Technology Research
Project Title: Topology Aware Access Control
Objective: Develop an approach and associated tools, to support the specification and evolution of policies for regulating access to physical spaces based on a runtime model of their topology.
Award: Euros 75000

This proposal was written in collaboration with Prof. B. Nuseibeh.

TSA - Technical Service Agreement   2013

Funded by: United Technology Research
Project Title: Evolving Access Control Policies
Objective: Develop an approach to support the evolution of access control policies in legacy systems based on the application of machine learning techniques.
Award: Euros 75000

This proposal was written in collaboration with Prof. B. Nuseibeh.

TSA - Technical Service Agreement   2012

Funded by: United Technology Research
Project Title: Requirements-driven Adaptive Access Control Systems
Objective: Provide a requirements-driven methodology to define flexible access control policies that can adapt when requirements and their priority change or when emergency situations arise.
Award: Euros 75000

This proposal was written in collaboration with Prof. B. Nuseibeh.

OTHER PROPOSALS

During my PhD I contributed in writing a successful project proposal for the **Indenica EU Project (Strep project FP7-ICT-2009-5 / 257483)**[1]. In particular, my background on requirements and service engineering was beneficial to the workpackage on Requirements Engineering & Methodology for Interoperable Service Platforms. My post-doctoral research also provided beneficial inputs to the development of the **ASAP (ERC-291652)** project awarded to Prof. B Nuseibeh.

I have just submitted a **Horizon 2020, FET-Open, Research and Innovation Action** proposal titled **i-FINder** (An Intelligent Forensic Investigation Platform) in collaboration with partners from University College London (UK), Imperial College London (UK), Universitat Rovira i Virgili (Spain), IBM i2 (UK), and Consiglio Nazionale delle Ricerche (Italy). This proposal is currently under review.

Recently I have also submitted four project proposals that were not funded: 1) **EU Horizon2020, FET Open RIA**, titled **i-FINder** (An Intelligent Forensic Investigation Platform) with partners from Imperial College London (UK), University College London (UK), Universitat Rovira et Virigili (Spain), CNR (Italy), IBM i2 (UK). 2) **EU Horizon2020, CHIST-ERA, Topic: Resilient Trustworthy Cyber-Physical Systems (RTCPS)**, titled **DAS** (Dependable Adaptive Security for Cyber-Physical Systems) in collaboration with partners from the Open University (UK) and KTH Royal Institute of Technology (Sweden). 3) **EU Horizon2020, Call: ICT-2014-1, Topic: ICT-9, PRADO** (Perpetual Requirements for Advanced Development of Complex Systems) in collaboration with partners from the University of Manchester and CLMS (UK), BOC Asset Management GMBH (Austria), Danaos Shipping company LTD (Cyprus), and Alpha Bank (Greece). 4) **EU Strep Proposal (FP7 ICT Call 10)**, **SoCloud** (Social Cloud), in collaboration with both academic (University of Bournemouth and University of Trento) and industrial partners (ALTEC Greece and Portugal Telecom).

RESEARCH PROJECTS

ASAP (ERC-291652)   Oct 2012 - present

ASAP (Adaptive Security and Privacy)[2] is is an ERC Advanced Investigator Grant, awarded to Prof. Bashar Nuseibeh, which aims to radically re-conceptualise software engineering for ubiquitous computing in ways that are cognisant of the changing needs of users, of the changing threats to user assets, and of the changing relationships between them. This project proposes to deliver adaptive software capabilities for supporting users in managing their privacy requirements, and adaptive software capabilities to deliver secure software that underpin those requirements.

MANSEC   Nov 2011 - present

MANSEC (Managing the Security of Evolving and Adaptive Systems)[3] is a SFI (Science Foundation Ireland) funded project in collaboration with IBM and University College Dublin (UCD) aimed to design and adapt software to facilitate forensic investigations focusing on cloud computing environments. In the first months, I worked in collaboration with a master student on identifying and implementing possible scenarios of adaptive security for SaaS cloud deployments. Currently, I have been working on identifying investigative requirements, especially evidence collection and analysis requirements, in order to automate and adapt digital forensics processes.

Topology Aware Access Control   Nov 2014 - June 2015

This project is funded by United Technology Research and aims to develop an approach, and associated demonstrator tools, to support the specification and evolution of access control policies for regulating access to physical spaces. I am investigating feasibility and expected benefits of maintaining an explicit (but possibly changing) topology of the physical space, including the agents and assets that move through it. In the last part of the project I will apply the approach on UTRC specific scenarios in both physical and cyber-physical systems, such as building automation systems.

Evolving Access Control Policies   Jan-Dec 2013

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[1] http://www.indenica.eu
[2] http://www.open.ac.uk/ASAP
[3] http://www.lero.ie/project/mansec

This project is funded by United Technology Research and aims to develop an approach to support the evolution of access control policies. In collaboration with my colleagues at Lero, I investigated how data mining techniques (e.g., association rule learning algorithms) can be adopted to help the security administrator in the formulation of access control policies, given some access control lists. This technique was subsequently applied to legacy access control systems in order to manage the evolution of their policies.

Requirements-driven Adaptive Access Control Systems   **Jan-Dec 2012**

This project is funded by United Technology Research and aims to provide better support for access control management in cyber-physical systems, especially in smart buildings. In collaboration with my colleagues at Lero, I investigated how the notion of assets and requirements awareness can make the access control systems engineered by UTC more flexible. Furthermore, I have explicitly used security policies to check the correctness of the configuration of security controls applied by the system. The proposed requirements-driven methodology was implemented and applied on a real physical access control system.

I-SUR (FP7-270396)   **March-Jul 2011**

I-SUR (Research in Automating Surgery)[4] is aimed to develop general methods for cognitive surgical robots capable of combining sensing, dexterity and cognitive capabilities to carry out autonomously simple surgical actions, such as puncturing, cutting and suturing. I collaborated with a group of bio-medical engineers at S. Raffaele Hospital in Milan to apply the requirement-driven methodology developed in my PhD thesis to design and configure the activities of adaptive surgical robots, which perform their actions semi-automatically and handle potential exceptions.

SMSCom (ERC-227977)   **Jan 2009-Dec 2010**

SMSCom (Self-Managing Situated Computing)[5] is an ERC Advanced Investigator Grant, awarded to Prof. Carlo Ghezzi, which aims at developing a consistent, integrated, and homogeneous set of methods and tools for the design, validation, and operation of dependable evolvable autonomous software systems. I contributed to this project by developing the methodology proposed in my PhD thesis, which uses a live requirement model (goal model) to support adaptation and evolution of service-based applications.

S-Cube (FP7-215483)   **Jan 2009-Dec 2010**

S-Cube[6] is the European Network of Excellence in Software Services and Systems. It aims at establishing an integrated and multidisciplinary research community for helping shape the software service-based Internet, which is the backbone of the future interactive society. I contributed to this project by developing an engine (DyBPEL) that supports the execution, adaptation, and evolution of service compositions.

SLA@SOI project (FP7-216556)   **Jan 2009-Dec 2010**

SLA@SOI (Empowering the service industry with SLA-aware infrastructures)[7] is aimed to research, engineer, and demonstrate technologies that can embed SLA-aware infrastructures into the service economy. I contributed to this project during the early stages of my PhD by working on supervised service compositions. I also collaborated with the other projects members on a e-Government use case, which aimed to assess the applicability of the framework to the management of hybrid services, which involve both automated and human-based activities, as is typical in the government domain.

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[4] http://www.isur.eu
[5] http://www.erc-smscom.org
[6] http://www.s-cube-network.eu
[7] http://sla-at-soi.eu/

TEACHING

University College Dublin, Ireland   Spring 2017
Lecturer for the undergraduate **Software Engineering Project 1** course of the Computer Science Bachelor Program.
This course focuses on the development and testing of a big group project using C and distributed software repositories. This module is 100% continuous assessment, whereby each student has individual practical tasks alongside a group software engineering project.

University College Dublin, Ireland   Fall 2016
Lecturer for the graduate **Software Engineering** course of the Electronic Engineering Master Program.
This course focuses on the processes and techniques fundamental to the creation of reliable, software systems. The course covers agile methods and software reuse, along with coverage of 'traditional' plan-driven software engineering. This module is 100% continuous assessment, whereby each student has several small practical tasks alongside a group software engineering project.

University of Limerick, Ireland   Fall 2013
Lecturer for the graduate **Requirements Engineering** course of the Software Engineering Master Program.
I customised the design of the course program, I defined and evaluated group projects aimed to apply requirements elicitation and modelling techniques taught during the course on realistic software development problems, and I also designed and evaluated the students' final exams.

University of Limerick, Ireland   Fall 2011
Guest lecturer for the graduate **Requirements Engineering** course of the Computer Science master program.
I gave lectures on requirements modelling, traceability, validation and verification.

Politecnico di Milano   Fall 2010
Teaching assistant for the undergraduate **Fundamentals of Informatics** course of the Physics Engineering bachelor program, taught by Prof. Alfonso Fuggetta.
For each lecture I proposed a set of exercises that employ the notions and concepts explained in the theory lectures. Students had to solve each exercise on a workstation by coding a program in C. I evaluated the students at the end of each lecture.

Politecnico di Milano   Fall 2010
Teaching Assistant for the undergraduate **Fundamentals of Informatics** course of the Math Engineering bachelor program, taught by Dr. Alessandro Campi.
For each lecture I proposed a set of exercises that employ the notions and concepts explained in the theory lectures. Students had to solve each exercise on a workstation by coding a program in C. I evaluated the students at the end of each lecture.

Politecnico di Milano   Spring 2010
Teaching Assistant for the undergraduate **Computer Architectures and Operative Systems** course of the Computer Engineering bachelor program, taught by Prof. Luciano Baresi.
I gave lectures on the operative system kernel (threads and concurrency, program execution, memory management, disk access, and file system), computer architectures, and assembly. Each lecture complemented theoretical notions with a set of simple exercises. I also designed and evaluated the students' final exams.

Politecnico di Milano   Fall 2009
Teaching Assistant for the undergraduate **Fundamentals of Informatics** course of the Math Engineering bachelor program, taught by Dr. Sam Guinea.
For each lecture I proposed a set of exercises on the concepts explained in the theory lectures, i.e. computer arithmetics, fundamentals of programming in C, recursion, and abstract data types. I also designed and evaluated the students' final exams.

Politecnico di Milano   **Spring 2009**

Teaching Assistant for the undergraduate **Software Engineering** course of the Computer Engineering bachelor program, taught by Prof. Luciano Baresi.

Together with the other teaching assistants of the course, I designed a modular course project that the students could progressively develop during each lecture. I also evaluated all students' projects at the end of the course.

Politecnico di Milano   **Spring 2008**

Teaching Assistant for the undergraduate **Software Engineering** course of the Computer Engineering bachelor program, taught by Prof. Luciano Baresi.

Together with the other teaching assistants of the course, I designed a modular course project that the students could progressively develop during each lecture. I also evaluated all students' projects at the end of the course.

STUDENTS SUPERVISION

- Faeq Al-Rimawi, PhD Student, University of Limerick (Ireland), Nov 2015 - ongoing.
- Lei Zhang, *Adaptive Privacy Management: Suggesting the Right Audience for Information Sharing*, Master Thesis, University of Limerick (Ireland), 2016.
- Xiaochen Wu, *Cloud Forensics: Two Case Studies of Attacks Based on OpenStack*, Master Thesis, University of Limerick (Ireland), 2014.
- Michael Dore, *Adaptive Security: A Machine Learning Based Approach for Physical Access Control*, Master Thesis, University of Limerick (Ireland), 2014.
- Joseph Ozigbu, *An Adaptive Security Approach for Android Devices*, Master Thesis, University of Limerick (Ireland), 2014.
- Bujin Li, *Ubiquitous Monitors*, Master Thesis, University of Limerick (Ireland), 2013.
- Chun Li, *A Graphical Tool for Security Trade-offs Analysis*, Master Thesis, University of Limerick (Ireland), 2013.
- Marco Zanini, *Engineering Adaptive Security for the Cloud: An experience with Google Apps*, Master Thesis, Politecnico di Milano (Italy), 2012.
- Claudio Menghi, *Contextual, Requirements-Driven, Adaptive Access Control*, Master Thesis, Politecnico di Milano (Italy), 2012.
- Patrik Montinari, *A Non-Obtrusive Method for the Dynamic Adaptation of BPEL Processes*, Master Thesis, Politecnico di Milano (Italy), 2011.
- Diego Bignoli and Lorenzo Caniato, *A Graphical Front-end for the Design of Goal Models*, Bachelor Thesis, Politecnico di Milano (Italy), 2010.

REFERENCES

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