

# Luca Mottola

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Curriculum vitæ et studiorum<sup>1</sup>

## Personal Data

*Date of Birth:* September 12<sup>th</sup>, 1980  
*Place of Birth:* Milan (Italy)  
*Languages:* Italian (native), English (fluent), German (base)  
*Office:* Electrum building, floor B6  
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## Current and Past Positions

*January 2009 -* **Post-doctoral Researcher**  
Networked Embedded Systems Group  
Swedish Institute of Computer Science (SICS), Stockholm (Sweden)

*June 2008 - December 2008* **Post-doctoral Researcher**  
Dipartimento di Ingegneria e Scienza dell'Informazione - University of Trento (Italy)  
and Embedded Systems Unit - Bruno Kessler Foundation, Trento (Italy)

*September 2006 - April 2007* **Research Scholar**  
University of Southern California, Los Angeles (CA, USA).  
Host: Prof. Viktor K. Prasanna

*March 2005 - May 2008* **Ph.D. Student**  
Dipartimento di Elettronica e Informazione, Politecnico di Milano (Italy).  
Advisor: Prof. Gian Pietro Picco

## Education

*March 2005 - May 2008* **Ph.D. in Computer Engineering**  
Dipartimento di Elettronica e Informazione, Politecnico di Milano (Italy).  
  
Ph.D. Thesis (Major Research Topic):  
*Programming Wireless Sensor Networks: From Physical to Logical Neighborhoods*  
Advisor: Prof. Gian Pietro Picco  
Opponent: Prof. Matt Welsh (Harvard University, USA)  
  
Minor Research Topic:  
*Accurate Verification of Publish-Subscribe Architectures*  
Advisor: Prof. Carlo Ghezzi

*March 2002 - May 2005* **M.Sc. in Computer Science**  
University of Illinois at Chicago  
GPA: 5.0/5.0

*September 1999 - December 2004* **Laurea degree (equivalent to M.Sc.) in Computer Engineering**  
Politecnico di Milano  
Thesis: *Overlay Management for Publish-Subscribe in Mobile Environments*  
Advisor: Prof. Gian Pietro Picco. Grade: 100/100 cum laude.

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<sup>1</sup>Last update: February 25<sup>th</sup>, 2010.

## Research Interests

**Programming Abstractions for Wireless Sensor Networks.** Wireless Sensor Networks (WSNs) are distributed systems composed of battery-powered tiny devices with sensing and acting facilities, small amounts of memory, limited processing power, and narrow-bandwidth wireless interfaces. Each of these devices can hardly perform any useful task if left alone. Rather, it is the collective collaboration of a high number of nodes that makes WSNs a viable solution to sense from—and act on—the real world.

Because of the characteristics of devices employed in WSNs, the requirements and mode of operation of these systems inherently differ from traditional distributed computing. Issues arise in different fields, from routing to resource management. In particular, developing distributed applications for WSNs still requires knowledge and abilities that domain-experts, i.e., the intended users of WSNs, are typically not provided with. Therefore, high-level programming abstractions are needed to manage complexity and hide distribution. In this field, Luca Mottola's research activity focuses on providing high-level programming abstractions to ease the development of WSN applications without sacrificing efficiency. To achieve this goal, Luca Mottola's approach is one where programming constructs are co-designed with the underlying system-level mechanisms required to implement their semantics. Luca Mottola's main contribution in this field include the Logical Neighborhood abstraction [22, 23] and the TeenyLIME middleware [30, 14].

Logical Neighborhoods enable a notion of scoping in WSNs whereby programmers can identify subsets of nodes based on application requirements and interact with the nodes in these subsets. This notion of scoping can be applied at different levels. Sense-and-react applications can be built directly atop Logical Neighborhoods, e.g., as we showed at the prestigious SenSys conference where Logical neighborhoods won the Best Demo Award [13] in 2007. Scoping can be used to implement system-level mechanisms, as we showed by applying it to software reconfiguration in sensor networks [12]. Differently, higher-level abstractions can be built on top of Logical Neighborhoods. For instance, in [15, 16] we embedded scoping within a sensor network macro-programming framework, while in [29] we enabled a notion of "virtual node" that leverages off Logical Neighborhoods. To enable efficient run-time performance in these contexts, we devised novel distributed protocols [19] that also enjoy wider applicability.

The TeenyLIME middleware brings the tuple space abstraction in the WSN context by adapting the model and the underlying implementation to the requirements at stake [14, 5, 30]. Novel programming constructs have also been added to meet the challenges arising in WSN applications. The resulting programming model enables great decoupling among different functionality and fosters code re-use. TeenyLIME has been used in several deployments to build efficient real-world WSNs. For instance, the Torre Aquila deployment [11], which received the Best Paper Award at IPSN/SPOTS in 2009, is entirely based on TeenyLIME.

In the context of WSN programming, Luca Mottola also prepared, along with G. P. Picco, an extensive tutorial on WSN programming largely based on his Ph.D. thesis [33]. The tutorial has been presented at major venues in the field, as illustrated next.

**Formal Verification of Distributed Architectures.** Modern distributed architectures are based on loosely coupled interactions and evolvable, mobile environments. The design and validation of these systems remain an open problem. Indeed, the behavior of single components is easy to validate, but it is hard to understand how the global federation of components behaves.

In this field, previous research focused on formal specification techniques for components and their interactions, and model checking for verification of global properties. The assumptions made on the underlying distributed infrastructure are, however, too strong and not realistic. Therefore, there is a need for extending the existing methodology to more realistic communication infrastructures.

To address these issues, Luca Mottola is currently exploring the development of domain-specific model checkers, whose input language and internal mechanisms are targeted to the particular scenario at stake. This way, it is possible to achieve fine-grained models of the underlying communication infrastructure without incurring in state explosion problems. The Loupe model checker [17, 21, 26, 2] adopts this approach to enable accurate and efficient verification of applications built on top of Publish-Subscribe architectures.

## Awards & Scholarships

- In 2009, Best Paper Award at *ACM/IEEE International Conference on Information Processing in Wireless Sensor Networks (IPSN/SPOTS)*, San Francisco (CA, USA).
- In 2009, EWSN/CONET Best Ph.D. Thesis Award, given at *European Conference on Wireless Sensor Networks (EWSN)*, Cork (Ireland).
- In 2007, Best Demonstration Award at *ACM International Conference on Networked Embedded Sensor Systems (SENSYS)*, Sydney (Australia).
- In 2005, winner of a Ph.D. scholarship granted by *Italian Ministry of Education, University and Research* by ranking first among the Ph.D. applicants at Politecnico di Milano (Italy).
- In 2004, selected among the best 70 European students in Computer Science for the *1<sup>st</sup> IBM Top EMEA Student Recognition Event*, Nice (France).

## Professional Service

Program committee member in the following scientific events:

- 29<sup>th</sup> *IEEE International Symposium on Reliable Distributed Systems (SRDS10)*.
- 13<sup>th</sup> *Euromicro Conference on Digital System Design—Special Session on Wireless Sensor Networks (DSD10)*.
- 1<sup>st</sup> *Int. Workshop on Networks of Cooperating Objects (CONET10 - colocated with CPSWEEK10)*.
- 5<sup>th</sup> *IEEE Int. Workshop on Practical Issues in Building Sensor Network Applications (SENSEAPP10)*.
- 72<sup>nd</sup> *IEEE Vehicular Technology Conference (VTC Fall 2010)*.
- 2<sup>th</sup> *International Conference on Ad-Hoc Networks (AdHocNets10)*.
- 6<sup>th</sup> *International Conference on Distributed Computing in Sensor Systems (DCOSS10)*.
- 9<sup>th</sup> *Int. Workshop on Real Time Networks (RTN10)*.
- 1<sup>st</sup> *International Workshop on Software Engineering for Sensor Network Applications (SESENA10 - co-located with ICSE10)*.
- 3<sup>rd</sup> *IEEE Int. Conference on Sensor Networks, Ubiquitous, and Trustworthy Computing (SUTC10)*.
- 9<sup>th</sup> *ACM/IEEE Int. Conference on Information Processing in Sensor Networks (IPSN10)*.
- 7<sup>th</sup> *European Conference on Wireless Sensor Networks (EWSN10)*.
- 34<sup>th</sup> *IEEE Int. Conference on Local Computer Networks (LCN09)*.
- 4<sup>th</sup> *Int. Workshop on Middleware Tools, Services and Run-Time Support for Sensor Networks (MidSens09)*.
- 2<sup>nd</sup> *Wireless Sensing Showcase (WSS09)*.
- 8<sup>th</sup> *Int. Workshop on Real Time Networks (RTN09)*.
- 1<sup>st</sup> *Int. Workshop on Middleware for Sensing and Actuation Augmented Pervasive Systems (MSAPS09)*.
- 2<sup>nd</sup> *Wireless Sensing Demonstrator Showcase (WSDS09)*.
- 4<sup>th</sup> *IEEE Int. Workshop on Practical Issues in Building Sensor Network Applications (SENSEAPP09)*.
- 1<sup>st</sup> *Int. Conference on Sensor Networks Applications, Experimentation and Logistics (SENSAPPEAL09)*.
- 1<sup>st</sup> *Int. Workshop on Protocols and Algorithms for Reliable and Data Intensive Sensor Networks (PARIS07 - colocated with IEEE MASS07)*.

Organization committee member in the following scientific events:

- Sponsorship chair for the 8<sup>th</sup> *Int. Conference on Embedded Networked Sensor Systems (SenSys10)*.
- Local chair for the 1<sup>st</sup> *Int. Workshop on Networks of Cooperating Objects (CONET10 - colocated with CPSWEEK10)*.
- Publication chair for the 1<sup>st</sup> *Int. Conference on Sensor Systems and Software (SCUBE09)*.

Reviewer for the following scientific conferences and journals: *IEEE Transaction on Mobile Computing*, *IEEE Transaction on Software Engineering*, *IEEE Journal on Selected Areas in Communications (JSAC)*, *IEEE Communication Surveys and Tutorials*, *Proceedings of IEEE*, *Elsevier Pervasive and Mobile Computing Journal (PMC)*, *Elsevier Computer Networks*, *Elsevier Journal of Network and Computer Applications*, *Elsevier Computer Communications*, and *Springer Wireless Networks*.

## Public Talks

### Keynote Speeches

- “Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment”, keynote speech at the 2<sup>nd</sup> *Wireless Sensing Showcase*, London (UK), July 2009.

## WSN Programming Tutorials

Luca Mottola's tutorial on WSN programming, largely based on his Ph.D. thesis [33], has been presented in different versions at major scientific venues, summer schools, and graduate courses, including:

- the 1<sup>st</sup> International School on Cyber-Physical and Sensor Networks (SensorNets), Monastir (Tunisia), December 2009.
- the 6<sup>th</sup> European Wireless Sensor Network Conference (EWSN), Cork (Ireland), February 2009.
- the 7<sup>th</sup> ACM/USENIX International Middleware Conference, Leuven (Belgium), December 2008.
- the GII doctoral school in Computer Engineering, L'Aquila (Italy), September 2008.

## Invited Talks

- "Real-World Applications of WSN and RFID systems", the 1<sup>st</sup> International School on Cyber-Physical and Sensor Networks (SensorNets), Monastir (Tunisia), December 2009.
- "An Overview on State of The Art and Real-World Deployments of Wireless Sensor Networks", guest lecture in the graduate course on "Distributed Information Systems" at Uppsala University, Uppsala (Sweden), December 2009.
- "WSN Programming: From Abstractions to Running Code", guest lecture in the graduate course on "Principles of Wireless Sensor Networks" at KTH, Stockholm (Sweden), September 2009.
- "Operating Systems for Networked Embedded Devices", the 1<sup>st</sup> Int. CONET Summer School from Sensor Networks to Networked Intelligent Objects, Bertinoro (Italy), July 2009.
- "Real-World Deployments of WSN Applications", the 1<sup>st</sup> Int. CONET Summer School from Sensor Networks to Cooperating Objects, Bertinoro (Italy), July 2009.
- "WSN Programming Abstractions: Five Reasons for a Bottom-Up Approach", the Int. WASP/CONET Workshop, Darmstadt (Germany), March 2009.
- "Virtual Nodes: Abstracting Physical Devices in Wireless Sensor Networks", the Italian Software Engineering Days 2007, host Prof. Carlo Ghezzi, Como (Italy), September 2007.
- "Logical Neighborhoods: A Programming Abstraction for Wireless Sensor Networks", the 1<sup>st</sup> International Summer School on Wireless Sensor Networks (selected as student presentation of ongoing research), Ottawa (Canada), August 2006.

## Departmental Talks

- "A Short Introduction to Contiki Operating System", public talk at University College London, host Prof. Yang Yang, London (UK), February 2009.
- "Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment", public talk at University College London, host Prof. Yang Yang, London (UK), February 2009.
- "Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment", public talk at ETH Zurich, host Dr. Kay Roemer, Zurich (Switzerland), January 2009.
- "Moving WSN Programming Abstractions into the Real World", public talk at University of Cambridge, host Dr. Cecilia Mascolo, Cambridge (UK), August 2008.
- "Moving WSN Programming Abstractions into the Real World", public talk at University of Warwick, host Dr. Arshad Jhumka, Warwick (UK), August 2008.
- "Programming Wireless Sensor Networks: From Physical to Logical Neighborhoods", public talk at University College London, host Dr. Cecilia Mascolo, London (UK), February 2008.
- "Scoping in Sensor Networks: from Programming Abstractions to Routing", public talk at University of Southern California, host Prof. Viktor K. Prasanna, Los Angeles (CA, USA), September 2006.
- "Logical Neighborhoods: A Programming Abstraction for Wireless Sensor Networks", public talk at ETH Zurich, host Dr. Kay Roemer, Zurich (Switzerland), May 2006.

## Conference Talks

- "On Consistent Neighborhood Views in Wireless Sensor Networks", the 28<sup>th</sup> IEEE International Symposium on Reliable Distributed Systems (SRDS), Niagara Falls (NY, USA), September 2009.
- "Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment", the 8<sup>th</sup> ACM/IEEE International Conference on Information Processing in Wireless Sensor Networks (IPSN/-SPOTS), San Francisco (CA, USA), April 2009. Recipient of the *Best Paper Award*.

- “FiGaRo: Fine-Grained Software Reconfiguration in Wireless Sensor Networks”, the 5<sup>th</sup> European Conference on Wireless Sensor Networks (EWSN), Bologna (Italy), January 2008.
- “Programming Wireless Sensor Networks with The TeenyLIME Middleware”, the 6<sup>th</sup> ACM/USENIX International Middleware Conference, Newportbeach (CA, USA), November 2007.
- “Programming Wireless Sensor Networks with Logical Neighborhoods: A Road Tunnel Use Case”, public demonstration at the 5<sup>th</sup> ACM International Conference on Embedded Networked Sensor Systems (SENSYS07), Sydney (Australia), November 2007. Recipient of the *Best Demo Award*.
- “Enabling Scope-Based Interactions in Sensor Network Macro-programming”, the 4<sup>th</sup> IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS07), Pisa (Italy), October 2007.
- “Playing with Time in Publish-Subscribe using a Domain-Specific Model Checker”, the 6<sup>th</sup> International Workshop on Specification and Verification of Component-Based Systems (SAVCBS07 - colocated with 6<sup>th</sup> ACM European Software Engineering Conference ESEC07), Dubrovnik (Croatia), September 2007.
- “On Accurate Automatic Verification of Publish-Subscribe Architectures”, the 29<sup>th</sup> International Conference on Software Engineering (ICSE07), Minneapolis (MN, USA), May 2007.
- “The RUNES Middleware and its Application in a Disaster Management Scenario”, the 5<sup>th</sup> IEEE International Conference on Pervasive Computing and Communications (PERCOM07), New York (NY, USA), March 2007.
- “Using Logical Neighborhoods to Enable Scoping in Wireless Sensor Networks”, the 3<sup>rd</sup> ACM International Middleware Doctoral Symposium (MDS06 - colocated with ACM/USENIX Middleware), Melbourne (Australia), December 2006.
- “Pervasive Games in a Mote-Enabled Virtual World Using Tuple Space Middleware”, the 5<sup>th</sup> ACM International Workshop on Network & System Support for Games (NETGAMES06), Singapore, November 2006.
- “Lightweight Information Dissemination in Inter-Vehicular Networks”, the 3<sup>rd</sup> International Workshop on Vehicular Ad-hoc Networks (VANET06 - colocated with ACM Mobicom06), Los Angeles (CA, USA), September 2006
- “Logical Neighborhoods: A Programming Abstraction for Wireless Sensor Networks”, the 2<sup>nd</sup> International Conference on Distributed Computing in Sensor Systems (DCOSS06), San Francisco (CA, USA), June 2006.
- “Logical Neighborhoods: A Programming Abstraction for Wireless Sensor Networks”, the 1<sup>st</sup> International Conference on Integrated Internet Ad-Hoc and Sensor Networks (INTERSENSE06), Nice (France), May 2006.

## Teaching Activities

Lecturer for the following courses:

- Spring 2008 - Politecnico di Milano (CEFRIEL), Italy:
  - *Introduction to Middleware* (graduate course).
- Fall 2007 - Politecnico di Milano (CEFRIEL), Italy:
  - *Introduction to Middleware* (graduate course).
- Spring 2007 - Politecnico di Milano (CEFRIEL), Italy:
  - *Introduction to Middleware* (graduate course).

Teaching assistant for the following courses:

- Spring 2008 - University of Trento, Italy:
  - *Programming Wireless Sensor Networks* (in English - Ph.D. course taught by Prof. Gian Pietro Picco).
- Fall 2007 - University of Trento, Italy:
  - *Middleware and Application-Level Protocols* (in English - graduate course taught by Prof. Gian Pietro Picco).
- Spring 2006 - Politecnico di Milano, Italy:
  - *Distributed Computing Systems* (in English - graduate course taught by Prof. Gian Pietro Picco).
  - *Theoretical Computer Science I* (undergraduate course taught by Prof. Matteo Pradella).
- Fall 2006 - Politecnico di Milano, Italy:

- *Distributed Computing Systems* (graduate course taught by Prof. Gian Pietro Picco).
- *Programming Fundamentals I* (undergraduate course taught by Prof. Dino Mandrioli).
- Spring 2005 - Politecnico di Milano, Italy:
  - *Theoretical Computer Science I* (undergraduate course taught by Prof. Matteo Pradella).

Thesis supervision:

- C. Olsson, *Programming Disconnected Operations in Wireless Sensor Networks*, Master Thesis, Swedish Institute of Computer Science (Sweden) and KTH (Sweden), 2009.
- E. Öström, *Building and Experimentally Evaluating a Smart Antenna for Low-Power Wireless Communication*, Master Thesis, Swedish Institute of Computer Science (Sweden) and Mälardalen University (Sweden), 2009.
- M. Zimmerling, *Automatic Parameter Optimization of Sensor Network MAC Protocols*, Master Thesis (co-supervised with Thiemo Voigt), Swedish Institute of Computer Science (Sweden) and Technische Universität Dresden (Germany), 2009. *Best M.Sc. Thesis Award* at the 1<sup>st</sup> International School on Cyber-Physical and Sensor Networks (SensorNets), Monastir (Tunisia), December 2009.
- F. Pompermaier, *Accurate Estimation of Residual Lifetime in WSNs*, Master Thesis, University of Trento (Italy), 2008.
- G. Khasanova, *High-level Programming of WSNs Using Distributed Abstract Data Types*, Master Thesis, University of Trento (Italy), 2008.
- E. Bisoffi, *Understanding Over-the-air Reprogramming in WSNs: A Case Study with the Deluge Protocol*, Master Thesis, University of Trento (Italy), 2008.
- C. Benoni, *Time Synchronization for the TeenyLIME Middleware*, Bachelor Thesis, University of Trento (Italy), 2007.
- A. Amjad, *Routing for Fine-Grained Code Deployment in Sensor Networks*, Master Thesis, University of Trento (Italy), 2007.
- G. Pedrazza, *A Comparative Analysis of MANETs Simulators*, Master Thesis, Politecnico di Milano (Italy), 2007.
- G. Gerosa, *Analyzing Temporal Aspects in the Automated Verification of Publish-Subscribe Architectures*, Master Thesis, Politecnico di Milano (Italy), 2007.
- A. Ungari, *Code Deployment in Heterogeneous Wireless Sensor Networks*, Master Thesis, Politecnico di Milano (Italy), 2006.
- P. Ciriello, *Routing to Multiple Sinks in Wireless Sensor Networks*, Master Thesis, Politecnico di Milano, 2006.
- A. Bellemo, *Design and Implementation of a Tool for Monitoring Sensor Network Deployments*, Bachelor Thesis, Politecnico di Milano (Italy), 2006.
- G. Turconi and D. Sormani, *Probabilistic Routing in Vehicular Networks*, Bachelor Thesis, Politecnico di Milano (Italy), 2006.

## Publications<sup>2</sup>

### International Journals

- [1] Luca Mottola and Gian Pietro Picco. *Programming Wireless Sensor Networks: Fundamental Concepts and State of the Art*. (To appear) in *ACM Computing Surveys*.
- [2] Luciano Baresi, Carlo Ghezzi, and Luca Mottola. *Loupe: Verifying Publish-Subscribe Architectures with a Magnifying Lens*. (To appear) in *IEEE Transactions on Software Engineering*.
- [3] Luca Mottola, Gianpaolo Cugola, and Gian Pietro Picco. *A Self-Repairing Tree Topology Enabling Content-Based Routing in Mobile Ad-Hoc Networks*. In *IEEE Transactions on Mobile Computing*, Volume 7, Issue 8. August 2008.
- [4] Paolo Costa, Geoff Coulson, Cecilia Mascolo, Luca Mottola, Gian Pietro Picco and Stefanos Zachariadis. *A Reconfigurable Component-Based Middleware of Networked Embedded Systems*. In *International Journal of Wireless Information Networks*, Volume 14, Issue 2. June 2007. Springer.

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<sup>2</sup>The standard ordering of authors in Italy is alphabetical.

## Book Chapters

- [5] Paolo Costa, Luca Mottola, Amy L. Murphy, and Gian Pietro Picco. Tuple Space Middleware for Wireless Networks. Invited contribution to the book *Middleware for Network Eccentric and Mobile Applications*. Benoit Gabinato, Hugo Miranda, and Louis Rodrigues eds., Springer Press, 2008.

## International Conferences

- [6] Luca Mottola. Programming Storage-centric Sensor Networks with Squirrel. (To appear) in *Proceedings of the 9<sup>th</sup> ACM/IEEE International Conference on Information Processing in Wireless Sensor Networks - IP Track (IPSN/IP)*, Stockholm (Sweden), April 2010.
- [7] Erik Öström, Luca Mottola, Martin Nilsson, and Thiemo Voigt. Smart Antennas Made Practical: The SP-IDA Way. (To appear) as *Public demonstration in Proceedings of the 9<sup>th</sup> ACM/IEEE International Conference on Information Processing in Wireless Sensor Networks - IP Track (IPSN/IP)*, Stockholm (Sweden), April 2010.
- [8] Bence Pasztor, Luca Mottola, Cecilia Mascolo, Gian Pietro Picco, Stephen W. Ellwood, and David A. Macdonald. Selective Reprogramming of Mobile Sensor Networks through Social Community Detection. In *Proceedings of the 7<sup>th</sup> European Conference on Wireless Sensor Networks (EWSN)*, Coimbra (Portugal), February 2010.
- [9] Carlo Alberto Boano, Thiemo Voigt, Nicolas Tsiftes, Luca Mottola, Kay Römer, and Marco Zuniga. Making Sensornet MAC Protocols Robust Against Interference. In *Proceedings of the 7<sup>th</sup> European Conference on Wireless Sensor Networks (EWSN)*, Coimbra (Portugal), February 2010.
- [10] Arshad Jhumka and Luca Mottola. On Consistent Neighborhood Views in Wireless Sensor Networks. In *Proceedings of 28<sup>th</sup> IEEE International Symposium on Reliable Distributed Systems (SRDS)*, Niagara Falls (NY, US), September 2009.
- [11] Matteo Ceriotti, Luca Mottola, Gian Pietro Picco, Amy L. Murphy, Stefan Guna, Michele Corrá, Matteo Pozzi, Daniele Zonta, and Paolo Zanon. Monitoring Heritage Buildings with Wireless Sensor Networks: The Torre Aquila Deployment. In *Proceedings of the 8<sup>th</sup> ACM/IEEE International Conference on Information Processing in Wireless Sensor Networks - SPOTS Track (IPSN/SPOTS)*, San Francisco (CA, US), April 2009. *Best Paper Award*
- [12] Luca Mottola, Gian Pietro Picco, and Adil Amjad. Fine-Grained Software Reconfiguration in Wireless Sensor Networks. In *Proceedings of the 5<sup>th</sup> European Conference on Wireless Sensor Networks (EWSN)*, Bologna (Italy), January 2008.
- [13] Luca Mottola and Gian Pietro Picco. Programming Wireless Sensor Networks with Logical Neighborhoods: A Road Tunnel Use Case. Public demonstration in *Proceedings of the 6<sup>th</sup> ACM International Conference on Sensor Systems (SENSYS)*, Sydney (Australia), November 2007. *Best Demo Award*.
- [14] Paolo Costa, Luca Mottola, Amy L. Murphy, and Gian Pietro Picco. Programming Wireless Sensor Networks with the TeenyLIME Middleware. In *Proceedings of the 8<sup>th</sup> ACM/USENIX International Middleware Conference*, Newport Beach (CA, USA), November 2007.
- [15] Luca Mottola, Animesh Pathak, Amol Bakshi, Viktor K. Prasanna, and Gian Pietro Picco. Enabling Scope-Based Interactions in Sensor Network Macroprogramming. In *Proceedings of the 4<sup>th</sup> IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS)*, Pisa (Italy), October 2007.
- [16] Animesh Pathak, Luca Mottola, Amol Bakshi, Viktor K. Prasanna, and Gian Pietro Picco. A Compilation Framework for Macroprogramming Networked Sensors. In *Proceedings of the 3<sup>rd</sup> ACM/IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS)*, Santa Fe (NM, USA), June 2007.
- [17] Luciano Baresi, Carlo Ghezzi and Luca Mottola. On Accurate Automatic Verification of Publish-Subscribe Architectures. In *Proceedings of the 29<sup>th</sup> International Conference on Software Engineering (ICSE)*, Minneapolis (MN, USA), May 2007.
- [18] Paolo Costa, Geoff Coulson, Richard Gold, Manish Lad, Cecilia Mascolo, Luca Mottola, Gian Pietro Picco, Thirunavukkarasu Sivaharan, Nirmal Weerasinghe, and Stefanos Zachariadis. The RUNES Middleware for Networked Embedded Systems and its Application in a Disaster Management Scenario. In *Proceedings of*

the 5<sup>th</sup> IEEE International Conference on Pervasive Computing and Communications (PERCOM), New York (NY, USA), March 2007.

- [19] Pietro Ciciriello, Luca Mottola, and Gian Pietro Picco. Efficient Routing from Multiple Sources to Multiple Sinks in Wireless Sensor Networks. In *Proceedings of the 4<sup>th</sup> European Conference on Wireless Sensor Networks (EWSN)*, Delft (The Netherlands), January 2007.
- [20] Geoff Coulson, Richard Gold, Manish Lad, Cecilia Mascolo, Luca Mottola, Gian Pietro Picco and Stefanos Zachariadis. Dynamic Reconfiguration in the RUNES Middleware. Public demonstration in *Proceedings of the 3<sup>rd</sup> IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS)*, Vancouver (Canada), October 2006.
- [21] Luciano Baresi, Carlo Ghezzi and Luca Mottola. Towards Fine-grained Automated Verification of Publish-Subscribe Architectures. In *Proceedings of the 26<sup>th</sup> IFIP WG 6.1 International Conference on Formal Methods for Networked and Distributed Systems (FORTE)*, Paris (France), September 2006.
- [22] Luca Mottola and Gian Pietro Picco. Logical Neighborhoods: A Programming Abstraction for Wireless Sensor Networks. In *Proceedings of the 2<sup>nd</sup> ACM/IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS)*, S.Francisco (CA, USA), June 2006.
- [23] Luca Mottola and Gian Pietro Picco. Programming Wireless Sensor Networks with Logical Neighborhoods. In *Proceedings of the 1<sup>st</sup> ACM/CreateNet International Conference on Integrated Internet Ad-Hoc and Sensor Networks (INTERSENSE)*, Nice (France), May 2006.

## International Workshops

- [24] Luca Mottola, Thiemo Voigt, Fredrik Österlind, Joakim Eriksson, Luciano Baresi, and Carlo Ghezzi. Anquiro: Enabling Efficient Static Verification of Sensor Network Software. (To appear) in *Proceedings of the 1<sup>st</sup> International Workshop on Software Engineering for Sensor Networks (SESENA - colocated with 32nd ACM/IEEE International Conference on Software Engineering ICSE)*, Cape Town (South Africa), May 2010.
- [25] Huayong Wu, Daniele Zonta, Matteo Pozzi, Paolo Zanon, Matteo Ceriotti, Luca Mottola, Gian Pietro Picco, Amy L. Murphy, Stefan Guna, and Michele Corrá. Real-Time Health Monitoring of Historic Buildings with Wireless Sensor Networks. In *Proceedings of the 7<sup>th</sup> Int. Workshop on Structural Health Monitoring (IWSHM)*, Stanford (CA, US), April 2009.
- [26] Luciano Baresi, Giorgio Gerosa, Carlo Ghezzi, and Luca Mottola. Playing with Time in Publish-Subscribe using a Domain-Specific Model Checker. In *Proceedings of the 6<sup>th</sup> International Workshop on Specification and Verification of Component-Based Systems (SAVCBS - colocated with 6th ACM European Software Engineering Conference ESEC)*, Dubrovnik (Croatia), September 2007.
- [27] Animesh Pathak, Luca Mottola, Amol Bakshi, Viktor K. Prasanna, and Gian Pietro Picco. Expressing Sensor Network Interaction Patterns using Data-Driven Macroprogramming. In *Proceedings of the 3<sup>rd</sup> IEEE International Workshop on Sensor Networks and Systems for Pervasive Computing (PerSens - colocated with IEEE PERCOM)*, New York (NY, USA), March 2007.
- [28] Luca Mottola and Gian Pietro Picco. Using Logical Neighborhoods to Enable Scoping in Wireless Sensor Networks. In *Proceedings of the 3<sup>rd</sup> ACM International Middleware Doctoral Symposium (MDS - colocated with ACM/USENIX Middleware)*, Melbourne (Australia), November 2006.
- [29] Pietro Ciciriello, Luca Mottola, and Gian Pietro Picco. Building Virtual Sensors and Actuators over Logical Neighborhoods. In *Proceedings of the 1<sup>st</sup> ACM International Workshop on Middleware for Sensor Networks (MIDSENS - colocated with ACM/USENIX Middleware)*, Melbourne (Australia), November 2006.
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