Luca Baldesi

Curriculum Vitae

Profile

Luca Baldesi received his doctorate degree from the Department of Information Engineering and Computer Science (DISI) at the University of Trento, Italy on April 2018. He received his MSc degree in computer engineering from the University of Florence in 2013 and won a one-year research grant at the DISI of Trento the same year. He has been mainly working on distributed networking and peer-to-peer communication. His achievements include scientific publications and involvement in international research projects. He served as teaching assistant on simulation courses in Trento and co-advised two BS students. He also serves as reviewer for international conferences and journals. His expertise includes the development of communication simulators, systems and innovative algorithms to improve the efficiency and the effectiveness of peer-to-peer content distribution.

Education

2014-2018	**Doctorate degree in Computer Science**, *University of Trento*, Italy.
2011–2013	**Masters of Computer Science Engineering**, *The University of Florence*, Italy, 110/110 cum laude. Career Mention
2007–2011	**Bachelor of Computer Science Engineering**, *The University of Florence*, Italy, 107/110.

PhD. Thesis

Title	*Distributed live streaming on mesh networks*
Advisors	Professor Lo Cigno & Ph.D. Leonardo Maccari
Description	Live media streaming on mesh networks, with particular focus on community networks. The work presents performance measurements, an analytical framework modelling the context, optimization strategies for distributed streaming on mesh networks and the resulting open source platforms that have been released.

Masters Thesis

Title	*Analysis of the Bluetooth protocol and robustness testing of its implementations in mobile devices and operating systems*
Supervisors	Professor Tommaso Pecorella & Ph.D. Leonardo Maccari
Description	This thesis investigates the security of Bluetooth devices against black box fuzzy attacks.

Experience

Vocational

2018–Present   **Research fellowship**, *University of Trento*, Trento, Italy.

Design and development of distributed platform for live video streaming on community networks.

2014–2018   **Ph.D. student**, *University of Trento*, Trento, Italy.

Research in distributed networked system optimization: local strategies, cross-layer approaches and centrality driven distribution, supervised by Prof. Renato Lo Cigno.
Project contribution:

- netCommons: interdisciplinary project treating networks infrastructure as commons; my contribution relied in realizing a streaming platform for community networks, called PeerStreamer-ng.

2016   **Ph.D. period abroad**, *University of California*, Irvine.

Visiting PhD. student for nine months working in the computer science department on random graph properties and generators, supervised by Prof. Athina Markopoulou and Prof. Carter T. Butts.
Project contribution:

- Small: Network Sampling and Construction Methods for Inference and Anonymization; I focused on a novel framework for graph data generation and anonymization leveraging global network characteristics.

2013–2014   **Research fellowship**, *University of Trento*, Trento, Italy.

Research in the fields of peer-to-peer live streaming video and Wireless Community Networks. Involved in the EIT "Smart Ubiquitous Content" and "Open Source P2P Streaming" projects.
Project contribution:

- EIT - Smart Ubiquitous Content; the project goal was to empower economic, massive content delivery in heterogeneous networks. I contributed on the Streaming and Traffic Management

- Open Source P2P Streaming; sub-project of the European FP7 Confine project; I contributed on evaluating and tailoring existing P2P distribution systems in the environment of Wireless Community Networks.

Teaching activities

2013–present   **Thesis co-advising**, *University of Trento*, Trento, Italy.

- Lorenzo Ghiro. Logic topology adaptation strategy comparison for P2P video distribution on wireless community netwroks, 2014. University of Trento, Italy

- Riccardo Francescato. Feasibility study of an audio conferencing system based on PeerStreamer, 2015. University of Trento, Italy

2014–2015   **Teaching assistant**, *University of Trento*, Trento, Italy.

- *Simulation and Performance Evaluation* course at the Department of Information Engineering and Computer Science.

- *Privacy, Trust and Security* course part of the SCoDeM master at the Department of Information Engineering and Computer Science.

Research skills

Presentations   International conferences and projects meetings.

Reviews	○ IEEE ComSoc Journal on Selected Areas in Communications
	○ IEEE Transactions on Parallel and Distributed Systems
	○ Elsevier Journal of Systems and Software
	○ ACM SIGCOM Computer Communication Review
	○ IFIP Networking Conference
	○ ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems
	○ IEEE Vehicular Networking Conference
	○ IEEE Global Communication Conference
	○ IEEE International Conference on Communications: Ad-hoc and Sensor Networking Symposium

Computer skills

Advanced	GNU/Linux system administration, C, RUBY/RAILS, PYTHON, ReST architectural style and GIT workflow.
Intermediate	JAVA, C++, MYSQL, Docker and LXC virtualisation solutions.
Basic	Arduino prototyping, OpenWRT systems.

Languages

Italian	Mothertongue
English	Advanced (B2)

Publications

[1] Luca Baldesi, Athina Markopoulou, and Carter Butts. Spectral Graph Forge: Graph Generation Targeting Modularity. In *IEEE International Conference on Computer Communications - INFOCOM*, 2018. Accepted, to appear

[2] Leonardo Maccari, Nicoló Facchi, Luca Baldesi, and Renato Lo Cigno. Optimized P2P streaming for wireless distributed networks. *Pervasive and Mobile Computing*, 2017

[3] Luca Baldesi, Leonardo Maccari, and Renato Lo Cigno. On the Use of Eigenvector Centrality for Cooperative Streaming. *IEEE Communications Letters*, 21(9):1953–1956, Sept 2017

[4] Luca Baldesi, Leonardo Maccari, and Renato Lo Cigno. Optimized cooperative streaming in wireless mesh networks. In *IFIP Networking Conference (IFIP Networking) and Workshops*, pages 350–358, May 2016

[5] Luca Baldesi and Leonardo Maccari. NePA TesT: network protocol and application testing toolchain for community networks. In *12th Annual Conference on Wireless On-demand Network Systems and Services (WONS)*, pages 1–8, Jan 2016

[6] Luca Baldesi, Leonardo Maccari, and Renato Lo Cigno. Improving P2P streaming in Wireless Community Networks. *Computer Networks*, 93(Part 2):389 – 403, 2015

[7] Leonardo Maccari, Luca Baldesi, Renato Lo Cigno, Jacopo Forconi, and Alessio Caiazza. Live Video Streaming for Community Networks, Experimenting with PeerStreamer on the Ninux Community. In *ACM Workshop on Do-it-yourself Networking: An Interdisciplinary Approach*, (ACM Co-located with MobySis), pages 1–6, 2015

[8] Luca Baldesi, Leonardo Maccari, and Renato Lo Cigno. Improving P2P streaming in community-lab through local strategies. In *10th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*, pages 33–39, Oct 2014

[9] Luca Baldesi, Leonardo Maccari, and Renato Lo Cigno. Live P2P streaming in CommunityLab: Experience and insights. In *13th Annual Mediterranean Ad Hoc Networking Workshop (MED-HOC-NET)*, pages 23–30, June 2014