# Luca Niccolini

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## CURRENT

**Riverbed Technology, San Francisco - Member of Technical Staff (QoS)** From March 2012

- Implemented QoS support for Path-Selection feature on the WAN optimizazion appliance, with particular focus on performance in 10 Gbps networks.
- Designed and implemented a mechanism to add QoS support for protocols not recognized by the third-party DPI engine
- Conducted alpha/beta releases evaluation at customer site and remotely

## EDUCATION

**Ph.D., Computer Engineering** Jan. 2009 - Mar. 2012
University of Pisa, Italy.
Thesis: *On the Energy Efficiency of Networked Systems.*

**Master of Science, Computer Engineering – Networking and Multimedia** 2006 - 2008
**Bachelor of Science, Computer Engineering** 2003 - 2006
University of Pisa, Italy. Graduated summa cum laude.
Master Thesis: *Energy efficient scheduling of VoIP traffic in IEEE 802.16 wireless networks.*

## EXPERIENCE

**University of California at Berkeley – Visiting Scholar** July 2011 - Mar. 2012

- Modeled energy-performance tradeoffs in packet processing applications to study power saving algorithms design space.
- Evaluated the model through experiments in a 10 Gbps network with routers and middleboxes running the *RouteBricks* software stack. [http://routebricks.org]

**Intel Research Berkeley – Research Intern** Sept. 2010 - Mar. 2011

- Studied energy inefficiencies in enterprise network equipment and designed an algorithm to dynamically choose the optimal number of active cores and their clock speed in a high-speed router.
- Implemented the algorithm in a 10 Gbps Click-based software router. Modified the Linux kernel, the Intel *ixgbe* driver and Click to support low-power primitives.
- Improved energy efficiency up to 50% compared to previous implementation, without sacrificing performance.

**Intel Research Berkeley – Research Intern** Sept. 2009 - Dec. 2009

- Designed, deployed and maintained a distributed packet monitoring service for PlanetLab Europe. The service allows PlanetLab Europe users to deploy custom network monitoring modules and guarantees traffic isolation between different applications.
- Developed an optimized version of the *CoMo* open source software for network monitoring. [`http://como.sourceforge.net`]

**University of Pisa – Ph.D. student**

- Studied the feasibility of asymmetric multiprocessor servers and their benefits in terms of energy. Implemented performance evaluation of a customized version of the open source Lighttpd Web server on an Intel hardware prototype with a mix of Xeon and Atom processors.

**University of Pisa – Master student**

- Developed a base station traffic scheduling algorithm to coalesce per-terminal uplink and downlink communication. Improved by 30% the sleep time of WiMAX mobile terminals, under strict QoS constraints, during active VoIP sessions. Joint work with Nokia Siemens Networks.

## PUBLICATIONS

**Building a power-proportional software router**
L. Niccolini, G. Iannaccone, S. Ratnasamy, J. Chandrashekar, L. Rizzo.
In USENIX Annual Technical Conference 2012.

**An Energy case for Hybrid Datacenters**
B-G. Chun, G. Iannaccone, G. Iannaccone, R. Katz, G. Lee, L. Niccolini.
In ACM Operating Systems Review, January 2010.

**A passive network monitoring service for PlanetLab Europe**
L. Niccolini, G. Iannaccone, G. Iannaccone, A. Lo Duca.
In the 4th Workshop on Real Overlays and Distributed Systems, ROADS 2009.

## SKILLS

Proficient in C/C++ and Python.
Experience with Javascript, CSS, HTML5, Bash, Matlab, Java, Hadoop MapReduce, SQL.
Looking with interest at the Go Programming Language, in my spare time.

## AWARDS AND CERTIFICATIONS

**Graduated Research Fellowship**, University of Pisa, 2009 - 2011.
**Cisco Networking Academy Program - CCNA certification**, 2006.

## REFERENCES

**Gianluca Iannaccone**
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**Luigi Rizzo**
*Information Engineering Department*
University of Pisa - Italy
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