

Luca De Cicco

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EDUCATION ◇ Politecnico di Bari, Bari, Italy.

Ph.D. candidate under the supervision of Prof. Saverio Mascolo (TCP Westwood+ inventor), 2005-2008

Title of the thesis: Modeling, design and implementation issues in Multimedia Congestion Control Algorithms.

MSc. Computer Science Engineering with honors, December 2003

Dissertation: *Congestion Control Algorithms for Multimedia Applications.*

He has held a visiting scholar position at ECE Dept. of the University of New Mexico (Albuquerque, NM, USA, Aug-Oct 2007) working in FIND project (Future INternet Design) addressing mobility issues in networking and new Internet paradigms (Persistent Identifiers). Moreover, he has been visiting SUPELEC (Ecole Supérieure d'Electricité', Paris, France, Oct-Dec 2007) working on time delay systems under the supervision of Prof. Silviu Niculescu.

RESEARCH INTERESTS TCP Congestion Control, Multimedia Congestion Control, Tools for automatic network measurement, SIP Overload Control, Time delay systems

RESEARCH PROJECTS ◇ *Implementation and measurement of congestion control protocols over GPRS and UMTS networks*, 2004. Advisors: Prof. Saverio Mascolo (Politecnico di Bari), Prof. Marco Ajmone Marsan (Politecnico di Torino).

◇ MIUR-PRIN project no. 2005093971 *Fluid Analytical Models Of Autonomous Systems (FAMOUS)*, 2005-2006

◇ *End-to-End protocols for audio/video over Internet protocol*, 2005-2006, funded by Financial Tradeware srl, Rome

◇ *Future Internet Design (FIND)*. Advisor: Prof. Chaouki Abdallah (University of New Mexico), funded by National Science Foundation.

PUBLICATIONS ◇ D. Valerio, L. De Cicco, S. Mascolo, F. Vacirca, T. Ziegler, "Optimization of IEEE 802.11 parameters for wide area coverage", *MEDHOCNET 2006*, November 2005

◇ Luca De Cicco, Saverio Mascolo, "TCP versus TFRC over wired and wireless Internet scenarios: an experimental evaluation", *NEW2AN 2006*, January 2006

◇ Luca De Cicco, S. Mascolo and V. Palmisano, "An Experimental Investigation of the Congestion Control Used by Skype VoIP", in *Proceedings of WWIC 2007*, May 2007

◇ Luca De Cicco and Saverio Mascolo, "TCP Congestion Control over 3G Communication Systems: an Experimental Evaluation", to appear in *Proceedings of NEW2AN 2007*

◇ J. Houry, J. Crichigno, Luca De Cicco, C. T. Abdallah, W. Shu, and G. Heileman, H. Jerez, "The InterMesh Network Architecture", *Mobicom 2007, Montreal, Canada (Demo Session)*, September, 2007

- ◇ J. Khoury, L. De Cicco, H. Jerez, C. Abdallah, J. Crichigno, W. Shu, G. Heileman, "Design and Implementation of a Framework for Persistent Identification and Communication in Emerging Networks", *Tridentcom 2008*, Innsbruck, Austria, March, 2008
- ◇ L. De Cicco, S. Mascolo, V. Palmisano, "Skype Video Responsiveness to Bandwidth Variations", *NOSSDAV '08*, Germany, February 2008
- ◇ Luca De Cicco and Saverio Mascolo, "Libnetmeas: A Library for Automatic Evaluation of Transport and Application Layer Network Metrics", Technical report 1-10/06, October 2006
- ◇ Luca De Cicco, Saverio Mascolo, Vittorio Palmisano, "A Mathematical Model of the Skype VoIP Congestion Control Algorithm", submitted to IEEE Conference on Decision and Control, Mar. 2008
- ◇ L. De Cicco, S. Mascolo, S-I Niculescu, "Robust Stability Analysis of a Class of Smith Predictor-based Congestion Control Algorithms for Computer Networks", submitted to IEEE Conference on Decision and Control, Mar. 2008
- ◇ Luca De Cicco and Saverio Mascolo, "SIP Overload Control", Technical report 1-11/07, November 2007

PH.D.
COURSES

- ◇ *1st HYCON PhD School on Hybrid Systems*, 19-22 July 2005, Siena Italy.
- ◇ Tutorial on *Peer-to-Peer Networking*, by Raouf Boutaba, Networking 2006, May 15-19 2006, Coimbra Portugal.
- ◇ Workshop on *Performance Control in Wireless Sensor Networks*, Networking 2006, May 15-19 2006, Coimbra Portugal.
- ◇ PhD School X *CIRA National PhD school on Positive Systems*, July 10-16 2006, Bertinoro Italy.

REVIEWING
ACTIVITIES

- ◇ L. De Cicco has served as reviewer for the international journals "IEEE Transactions on Automatic Control", "Computer Networks" (Elsevier), and several international conferences as "IEEE Conference on Decision and Control" (2006-2008), "American Control Conference", "Wired/Wireless Internet Communications (WWIC)" (2006-2008).

TEACHING
ACTIVITIES

- ◇ He has held a 40 hours course named "The unix-based operating system: GNU/Linux" as a module of the Cisco Certification course (CCNA) held in Matera, Italy, 2004
- ◇ He supported the didactic of the courses "Automatic Controls I" and "Automatic Controls II" at Politecnico di Bari, 2005, 2006, 2007
- ◇ He held several workshops about linux kernel and implementation of congestion control in the linux kernel for the course "Control methods for Telecommunications" (Politecnico di Bari)
- ◇ Since 2007, he serves as a member of the commission for the proficiency exams "Automatic Controls I" and "Automatic Controls II" (Telecommunication Engineering, Politecnico di Bari).

SKILLS

- ◇ **Networking** Excellent skills in developing and designing TCP/IP stack applications, even in the transport layer of the Linux Kernel. He has very good skills in congestion control algorithms implementation at application layer for video streaming and Voice over IP (VoIP) applications.
He is currently maintaining the TCP Westwood+ module in the Linux Kernel since 2.6.16 release. He has authored a patch for Web100 which enables logging of the Westwood+ end-to-end available bandwidth.
- ◇ **Operating Systems** Linux user and developer until 1996. Excellent skills in the administration and usage of the most important GNU/Linux distributions. Very good knowledge of Linux Kernel internals.

- ◇ **Programming Languages** Excellent skills in design and implementation of applications (networking, graphical interfaces, web services) in the following programming languages: C, C++, python, perl, PHP, bash, Tcl
- ◇ **Embedded Systems** Since 2003 he is an active member and developer in the handhelds.org project (www.handhelds.org) which aims at porting the linux kernel and applications on handhelds devices.
He is active member of the GPE project (<http://gpe.linuxtogo.org/>) and he is maintainer of several applications he wrote. He is promotor of a project named GPE Device Manager which aims at providing a plugin structure for the generic management of hardware devices present in PDA systems.
Since July 2005 he contributes to the Maemo project (www.maemo.org) and he is in the developer program of the internet tablets N770, N800 and N810.

- FOREIGN LANGUAGES
- ◇ **English** Good.
 - ◇ **French** Beginner.
 - ◇ **Spanish** Beginner.
 - ◇ **Portuguese** Beginner.

- REFERENCES
- ◇ **Prof. Saverio Mascolo**
Associate Professor at Politecnico di Bari.
Via Orabona, 4
Bari, 70124, Italy
tel:+390805963621
email: mascolo@poliba.it
 - ◇ **Prof. Chaouki Abdallah**
Full Professor and Chair of ECE dep. at University of New Mexico (UNM).
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 - ◇ **Prof. Silviu-Iulian Niculescu**
Full Professor at Ecole Supérieure d'Electricité (SUPELEC).
3 rue Joliot-Curie
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