

# Tzvetelina (aka Lina) Battestilli

email: lina AT battestilli DOT net, citizenship: American

**Objective** A position, which focuses on the research and development of novel networking technology.

**Education**

**Ph.D. in Computer Science, 2005**  
Major Field of Study: Computer Networking and Performance Evaluation Title: "Performance Analysis of Optical Burst Switched Networks with Dynamic Simultaneous Link Possession"  
Advisor: Dr. Harry G. Perros

- North Carolina State University, Raleigh, NC
- GPA: 4.0 /4.0

**M.S. in Computer Networking, 2002**

- North Carolina State University, Raleigh, NC
- GPA: 4.0 /4.0

**B.S. in Electrical Engineering/minor in Applied Mathematics, 1999**

- GMI Engineering and Management Institute, Flint, MI
- GPA: 98.2 /100

**Honors and Awards**

- Nancy G. Pollock NCSU's University-wide Best Dissertation Award, 2006;
- IBM PhD Fellow, 2002-2003
- GE-Faculty For Future Teaching Fellow, 2001-2002
- AT&T Solutions Fellow, 2000-2001
- Kappa Mu Epsilon (mathematics honor society)
- Eta Kappa Nu (electrical engineering honor society)

**Experience**

**Scientist** MCNC Grid Computing and Network Services  
*Research Triangle Park, NC* 2007 - Present  
My current research interests are in the design of Grid middleware for the control of optical networks in the context of Grid computing. I am involved with the Enlightened Computing Project, a multi-disciplinary project that deals with highly-dynamic applications driving adaptive Grid resources.

**Postdoctoral Researcher** MCNC Grid Computing and Network Services  
*Research Triangle Park, NC* 2005 - 2007  
My Postdoc research focused on Grid middleware, control plane technologies and performance of reconfigurable optical networks.

**Research Assistant** Department of Computer Science  
*North Carolina State University* 2002 - Present  
My PhD research was on the design, modeling and analysis of all-optical networks WDM Networks. Specifically, I have focused on Optical Burst Switching, a signaling framework which lies between wavelength-routed and packet-switched networks.

**Teaching Assistant** Department of Computer Science  
*North Carolina State University* 2000-2002  
My responsibilities included tutoring of students, grading and preparing homeworks and projects, facilitating lectures, etc. I was involved in teaching the following classes:

- Class on Computer Performance Modeling, Spring 2002
- Optical Networking Class, Fall 2001

- Software Engineering Class, Spring 2001
- E-commerce Class, Fall 2000

***System Engineer***

*Troy, MI*

*Electronic Data Systems (EDS)*

*1998-2000*

- Worked on a Web, Security and Directory Team
- Assisted in the implementation of GM's Web Portal infrastructure, which involved linking different web servers to a single entry point from the Internet while providing the necessary secure authentication and authorization.
- Created, tested and verified a security architecture design, which allowed for a client-server communication through a VPN tunnel.
- Designed and implemented firewall solutions at customers' sites.
- Tested the integration of various network security technologies.
- Participated in a committee, which defined the network security services offered by EDS.
- Participated in the engineering support of a Distributed Computing Environment (DCE).

***Co-op Student***

*Troy, MI*

*Electronic Data Systems (EDS)*

*1995-1998*

- Project Management Team: Learned about organizing, planning, monitoring and controlling large-size networking projects.
- GMAccess Project: a wide area network, consisting of 7000 WinNT 4.0 servers in every GM dealership in the US. I participated in the remote system installation and configuration, resolved hardware and software issues in this client/server model, developed monthly, statistical data reports for progress review.
- Customer Technology Center Project: managed the facility, organized and conducted business presentations, supported and continuously improved a client/server environment consisting of SUN, HP, IBM and Intel based operating platforms.
- Unix Administration Team: developed and maintained the team's web page, performed remote Unix system administration tasks, installed, upgraded and maintained Unix workstations.

***Undergraduate Research Assistant***

*Flint, MI*

*Kettering University (previously GMI)*

*1994-1995*

- Presented a talk at an International Mathematica Symposium in Southampton, England
- Developed computer programs to support my supervisor's scientific research.

**Publications**

**Journal Publications**

S. Tanwir, **L. Battestilli**, H. Perros and G. Karmous-Edwards, "Dynamic Scheduling of Network Resources with Advanced Reservations in Optical Grid", *submitted to the Journal of Network Management*

Yufeng Xin and **Lina Battestilli**, "A performance study on optical burst switched networks: the ring topology", *accepted at Photonic Network Communications, 2007*

**T. Battestilli** and H. Perros, "A performance study of an optical burst switched network with dynamic simultaneous link possession", *Computer Networks*, 50(2):219-236, Feb. 2006

**T. Battestilli** and H. Perros, "Optical Burst Switching for the Next Generation Internet", *IEEE Potentials Magazine*, 23(5), Dec. 2004

**T. Battestilli** and H. Perros, "An Introduction to Optical Burst Switching", *IEEE Communication Magazine*, 41(8), Aug. 2003

**Conference Proceedings**

Yufeng Xin, **Lina Battestilli** and Gigi Karmous-Edwards, "Generic Optical Network Provisioning

Services to Support Emerging Grid Applications”, *invited paper in the Proceedings of Broadnets 2007*, Raleigh, NC, September 2007

Steve Thorpe, **Lina Battestilli**, Gigi Karmous-Edwards, Andrei Hutanu, Jon MacLaren, Joe Mambretti, John H. Moore, Kamaraju Syam Sundar, Yufeng, Xin, Atsuko Takefusa, Michiaki Hayashi, Akira Hirano, Shuichi Okamoto, Tomohiro Kudoh, Takahiro Miyamoto, Yukio Tsukishima, Tomohiro Otani, Hidemoto Nakada, Hideaki Tanaka, Atsushi Taniguchi, Yasunori Sameshima, Masahiko Jinno, ”G-lambda and EnLIGHTened: Wrapped In Middleware Co-allocating Compute and Network Resources Across Japan and the US” *submitted to Gridnets 2007*, Lyon, France, October 2007

**T. Battestilli**, H. Perros and S. Chukova, ”Burst Lost Probabilities on a Network with Simultaneous Link Possession: A Single-Node Decomposition Approach”, *accepted for publication at the Special issue on Telecommunications Network Engineering of the Computers and Operations Research (C&OR) Journal*, 2007

S. Tanwir, **T. Battestilli**, H. Perros and G. Karmous-Edwards, ”Monitoring and Discovery for Enlightened Computing”, *Proceedings of IEEE High Capacity Optical Networks (HONET’06) Conference*, Charlotte, NC, September 2006

**T. Battestilli** and H. Perros, ”End-To-End Burst Loss Probabilities in an OBS Network with Simultaneous Link Possession”, *Proceedings of the Third International Workshop on Optical Burst Switching, WOBS3 (co-located with Broadnets 2004)*, San Jose, CA, October 2004

**T. Dimitrova** (my maiden name), B. Carroll, P. Shaub, D. Klug, S. Maramara, R. Montemayor, E. Tse, A. Shaffer, ”Design of a Motor Speed Controller For a Light Weight Electric Vehicle”, *Proceedings of the EIC/EMCW Conference*, Cincinnati, OH, October, 1999, undergraduate senior design project

S. Chakravarthy and **T. Dimitrova** (my maiden name), ”Service Control of a Queueing System with Nonrenewal Arrivals and Phase Type Services”, *Proceedings of the International Mathematical Symposium*, Southampton, England, pp. 93-102, 1995

### **Book Chapters**

G. Karmous-Edwards, J. Mambretti, D. Simeonidou, A. Jukan, **T. Battestilli**, H. Perros, Y. Xin and J. Strand, ”Grid Networks and Layer 1 Services”, *Grid Networks: Enabling Grids with Advanced Communication Technology* (edited by F. Travostino, J. Mambretti and G. Karmous-Edwards), pp. 217-252, Wiley, 2006

**T. Battestilli** and H. Perros, ”Burst loss probabilities in an OBS network with dynamic simultaneous link possession”, in *Computer System Performance Modeling in Perspective: A Tribute to the Work of Professor Kenneth C. Sevcik*, (edited by E. Gelenbe), pp. 205-225, Imperial College Press, London, 2006.

### **Global Standardization Documents and Internet drafts**

Dimitra Simeonidou, Reza Nejabati, **Lina Battestilli**, et al., ”Grid Optical Burst Switched Networks (GOBS)”, Global Grid Forum, www.ggf.com, GHPN Group, Informational track draft, June 2005

### **Other Publications and Presentations**

**Lina Battestilli** et al., ”Inter-domain Advance Reservations of Coordinated Network and Computing Resources over the Pacific; A G-lambda and EnLIGHTened Computing Collaboration”, Grid High Performance Networking Working Group (GHPN-WG) Meeting at the Open Grid Forum 19, Chapel Hill, NC, Feb, 2007,

**T. Battestilli** and H. Perros, "Optical Burst Switching: A Survey", NCSU Technical Report, TR-2002-10, July, 2002

**T. Dimitrova** (my maiden name), "Protecting Private Networks From Internet Threats", *Undergraduate Thesis, Kettering University*, 1999

## Teaching

- HD Project Class at NCSU
- Graduate Committee for Savera Tanwir (MS, Computer Science at NCSU) - co-advisor

## Skills

- Acute leadership and organizational skills
- Excellent analytical, technical and writing skills
- Proficient in Linux, UNIX and Windows(MCSE)
- Proficient in various networking technologies: Internet, Optical, Ethernet, ATM, Wireless, Frame Relay
- Proficient in various performance modeling techniques: Queueing Theory and Simulation
- Proficient in Latex, MATLAB, GNU Octave, MS Visio, Checkpoint's Firewall, Aventail's VPN, MS Office, IBM's Policy Director, Transarc's DCE, Rockwell's Arena, LDAP
- Programmed in C, C++, Java, Visual Basic, HTML, JavaScript and UNIX shell script
- Fluent in English, Bulgarian and rudimentary Russian.
- Self-motivated and enthusiastic

## Service

- 2002-2003 President of the Computer Science Graduate Student Association (CSCGSA), NCSU
  - 2002-2003 Cofounder of the Women In Computer Science (WICS) at NCSU
  - 2003-2004 Bridges: Five-Month Academic Leadership Program at NCSU
  - 2000-2005 Planning Committee, Webmaster and Mentor at Women And Mathematics (WAM) Mentoring Program, Durham NC
- Reviewer for Journals:* IEEE Communications Magazine, Optical Networks Magazine, Performance Evaluation, IEEE Communication Letters, Computer Networks, Journal on Selected Areas in Communication (JSAC), Computer Communications
- Reviewer for Conferences:* IEEE ICC, Globecom, Networking, GridNets
- TPC member:* Gridnets 2006 and 2007, High-Speed Networks Workshop (at IEEE INFOCOM) 2007, IEEE/IFIP International Workshop on Autonomic Grid Networking and Management 2006 (AGNM'06)
- Active participation:* Grid High-Performance Networking (GHPN) working group in OGF, OBS forum, GLIF

## References

Available upon request

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