

# JONATHAN WELLONS

## CONTACT INFORMATION

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## RESEARCH INTERESTS

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Wireless Networks, Traffic Engineering, Routing Algorithms, Optimization, Engineering Education

## EDUCATION

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<i>Aug 2006 – Present</i>	<i>Vanderbilt University</i>	<i>Nashville, TN</i>
Ph.D. in Computer Science (Expected Graduation: Spring 2011)		
<i>Aug 2000 – May 2004</i>	<i>Grinnell College</i>	<i>Grinnell, IA</i>
B.A. in Computer Science with Honors		

## EMPLOYMENT

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<i>Aug 2004 – Aug 2006</i>	<i>O'Reilly Media Inc.</i>	<i>Sebastopol, CA</i>
Software Engineer: Web Publishing Architecture and Database Integrity		

## RESEARCH EXPERIENCE

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<i>May 2007 – Present</i>	<i>Research Assistant</i>	<i>Vanderbilt University</i>
Advisor: Dr. Yuan Xue		
■ Robust Routing Algorithms for Wireless Networks: Developed an oblivious algorithm to provide provable bounds on worst-case performance in wireless mesh network routing. Designed traffic uncertainty metrics to guide an adaptive algorithm.		
<i>May 2003 – Aug 2003</i>	<i>Research Assistant</i>	<i>Grinnell College</i>
Advisor: Dr. Charles Jepsen		
■ Tiling with Consecutive Rectangles: Developed a novel data structure and an efficient algorithm to search for finite tilings.		

## TEACHING EXPERIENCE

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<i>Aug 2009 – Dec 2009</i>	<i>Teaching as Research Fellow</i>	<i>Vanderbilt University</i>
■ ES140: Introduction to Engineering		
<i>Aug 2006 – May 2007</i>	<i>Teaching Assistant</i>	<i>Vanderbilt University</i>
■ CS250: Algorithms		
■ CS212: Discrete Structures		
<i>Aug 2002 – May 2004</i>	<i>User Consultant Trainer</i>	<i>Grinnell College</i>
■ Trained helpdesk and computer assistants on all aspects of college computer use		

## PUBLICATIONS

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1. Jonathan Wellons and Yuan Xue, "The Impact of Topology on Routing Efficiency in Wireless Mesh Networks", in *The Annual International Conference on Mobile Computing and Networking (Mobicom) 2010 with ACM SIGMOBILE*, Chicago, IL, September 2010. (poster)
2. Jonathan Wellons and Julie Johnson, "Planning and the novice programmer: How grounded theory research can lead to better interventions", in *Proc. of IMETI 2010*, Orlando, FL, July 2010 (28% acceptance rate). Best Paper
3. Shanshan Jiang, Yuan Xue, and Jonathan Wellons, "Quantitative Measurement of Routing Restoration Strategies for Multi-hop Wireless Networks", in *Proc. of Wimesh 2009*, Rome, Italy, June 2009
4. Jonathan Wellons, Liang Dai, Yuan Xue and Yi Cui, "Augmenting Predictive with Oblivious Routing for Wireless Mesh Networks Under Traffic Uncertainty", for *Computer Networks: Special Issue on Multi-Hop Wireless Access Networks*, eds. Raouf Boutaba, Seán Murphy, Albert Banchs, 2009
5. Jonathan Wellons, Liang Dai, Bin Chang and Yuan Xue, "Wireless Mesh Network Routing Under Uncertain Demands", Contributed Chapter in *Handbook of Wireless Mesh Networks*, ed. Sudip Misra (Springer 2009)
6. Jonathan Wellons, Liang Dai, Yi Cui and Yuan Xue, "Predictive or Oblivious: A Comparative Study of Routing Strategies for Wireless Mesh Networks Under Uncertain Demand", in *The Fifth Annual IEEE Communications Society Conference on Sensor, Mesh, and Ad Hoc Communications and Networks*, San Francisco, CA, June 2008 (21% acceptance rate)
7. Jonathan Wellons and Yuan Xue, "Oblivious Routing for Wireless Mesh Networks", in *IEEE International Conference on Communications (ICC)*, Beijing, China, May 2008 (36% acceptance rate)
8. Jonathan Wellons and John Wisneski, "DAUTI: Automated Universal Traffic Introspector", Extended Abstract, *International Lisp Conference with ACM SIGPLAN*, Cambridge, UK, May 2007

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#### POSITIONS AND AWARDS

1. Teaching-as-Research Fellow (Fall 2009)
2. INRIA Research Assistant (Summer 2009)
3. AFCEA Fellow (Spring 2009)
4. Linn Smith Prize for Excellence in Mathematics, Grinnell College, 2004
5. Putnam Mathematical Competition, ranked 180th among the 3615 contestants (2003), top participant (2002, 2000)
6. Iowa Collegiate Mathematics Competition, First place (2002, 2003)

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#### INVITED TALKS

1. Closing Keynote Address, "How Big Can You Think?" *The 2008 Mathematics Symposium at Western Kentucky University*, Oct 31 - Nov 1, 2008, Bowling Green, KY

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#### SERVICE

<i>May 2009 – May 2010</i>	<i>Vanderbilt University</i>	<i>Nashville, TN</i>
Graduate Student Council, President		
<i>May 2008 – May 2009</i>	<i>Vanderbilt University</i>	<i>Nashville, TN</i>
Graduate Student Honor Council, President		
<i>May 2007 – Present</i>	<i>Vanderbilt University</i>	<i>Nashville, TN</i>

Reviewed papers for numerous conferences and journals

*May 2003 – May 2004*

*Grinnell College*

*Grinnell, IA*

Mathematics and Computer Science Student Educational Policy Committee, Chair

*May 2002 – May 2004*

*Grinnell College*

*Grinnell, IA*

Student Academic Computing Committee, Chair

#### TECHNICAL SKILLS

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Platforms: Unix, Windows, Macintosh

Languages: Matlab, C++, C, Perl, PHP, Lisp, MySQL, Bash, Javascript, Java, Haskell, Ruby, Postscript, Python

Expertise: Algorithms, Software Development, Web Publishing