

Anu Goel Bourgeois

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Education:

Louisiana State University	Electrical and Computer Engineering	Ph.D. 2000
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Dissertation: *Algorithms and Simulations on Reconfigurable Meshes with Pipelined Optical Buses*

Advisor: Jerry L. Trahan

Louisiana State University	Electrical and Computer Engineering	M.S. 1997
Louisiana State University	Electrical and Computer Engineering	B.S. 1994
Louisiana State University	Electrical Engineering	B.S. 1991

Academic Experience:

Georgia State University <i>Assistant Professor</i>	Dept. of Computer Science	8/00 – present
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Louisiana State University <i>Instructor of Record</i>	Dept. of Elect. & Comp. Eng.	1/99 – 8/99, 1/97 – 5/97, 6/96 – 8/96
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Louisiana State University <i>Graduate Teaching Assistant</i>	Dept. of Elect. & Comp. Eng.	1/95 – 5/96
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Professional Experience:

CDI Corporations	<i>Electrical Engineer</i>	12/91 – 8/94
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Spectrum Engineering	<i>Engineering Assistant</i>	5/90 – 12/91
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Awards:

Nominee, Outstanding Junior Faculty Award, awarded by College of Arts and Sciences, GSU		2005
Who's Who Among America's Teachers		2002 – 2004
Board of Regents Fellowship for Doctoral Program at LSU		8/96 – 5/00
Vincent A. Forte Fellowship		1998
Gulf South Compression Scholarship		8/88 – 12/91
Tau Beta Pi (Engineering Honor Society)		
Eta Kappa Nu (Electrical Engineering Honor Society)		

[names of student authors are underlined in all publications]

Journal Publications:

1. X. Fu, A. G. Bourgeois, P. Fan, and Y. Pan, "Using a Genetic Algorithm Approach to Solve the Dynamic Channel-Assignment Problem," to appear in *International Journal of Mobile Communications*.
2. A. G. Bourgeois, Y. Pan, and S. K. Prasad, "Constant Time Fault Tolerant Algorithms for a Linear Array with a Reconfigurable Pipelined Bus System," *Journal of Parallel and Distributed Computing*, vol. 65, no. 3, (2005), pp. 374-381.
3. C. Ni, H. Liu, Y. Pan, and A. G. Bourgeois, "An Enhanced Approach to Determine Connected Dominating Sets for Routing in Mobile Ad Hoc Networks," *International Journal of Mobile Communications*, vol. 3, issue 3, (2005), pp. 287-302.
4. J. A. Fernández-Zepeda, A. Estrella-Balderrama, and A. G. Bourgeois, "Designing Fault Tolerant Algorithms for Reconfigurable Meshes," *International Journal of Foundations of Computer Science*, vol. 16, no. 1, (2005), pp. 71-89.
5. J. A. Fernández-Zepeda, D. Fajardo-Delgado, J. A. Cárdenas-Haro, and A. G. Bourgeois, "Efficient Simulation of a Directed Reconfigurable Model on an Undirected Reconfigurable Model," *International Journal of Foundations of Computer Science*, vol. 16, no. 1, (2005), pp. 55-70.
6. A. G. Bourgeois and J. L. Trahan, "Fault Tolerant Algorithms for a Linear Array with a Reconfigurable Pipelined Optical Bus System," *Parallel Algorithms and Applications*, vol. 18, no. 3, (2003), pp. 139-153.
7. A. G. Bourgeois and J. L. Trahan, "Relating Two-Dimensional Reconfigurable Meshes with Optically Pipelined Buses," *International Journal on Foundations of Computer Science*, vol. 11, no. 4, (2000), pp. 553-571.
8. J. L. Trahan, A. G. Bourgeois, Y. Pan, and R. Vaidyanathan, "Optimally Scaling Permutation Routing on Reconfigurable Linear Arrays with Optical Buses," *Journal of Parallel and Distributed Computing*, vol. 60, (2000), pp. 1125-1136.
9. J. L. Trahan, A. G. Bourgeois, and R. Vaidyanathan, "Tighter and Broader Complexity Results for Reconfigurable Models," *Parallel Processing Letters*, vol. 8, (1998), pp. 271-282.

Book Chapters (invited and refereed):

1. A. G. Bourgeois, "Fault Resilient Routing Protocols and Dynamic Power Management for Ad Hoc Wireless Networks," *Ad Hoc and Sensor Networks*, X. Yang and Y. Pan (eds.), Nova Science Publishers, (2005).

Conference Publications (refereed):

1. S. K. Prasad, A. G. Bourgeois, P. Madiraju, S. Malladi, and J. Balasooriya, "A Methodology for Engineering Collaborative Applications over Mobile Web Objects using SyD Middleware," to appear in *IEEE Proc. International Conference on Web Services*, (Orlando, Florida, July 11-15, 2005).

2. S. Babvey, A. G. Bourgeois, J. A. Fernández-Zepeda, and S. W. McLaughlin, "A Parallel Implementation of the Message-Passing Decoder of LDPC Codes Using a Reconfigurable Optical Model," *IEEE Proc. 6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing*, (Towson, Maryland, May 23-25, 2005).
3. L. Cheng, A. G. Bourgeois, and B. H. Yu, "Power Management in Wireless Ad Hoc Networks Using AODV," *IEEE Proc. 1st ACIS Int'l. Workshop on Self Assembling Wireless Networks*, in conjunction with *6th ACIS International Conference on Software Engineering, Artificial Intelligence, Networking, and Parallel/Distributed Computing*, (Townson, Maryland, May 24, 2005).
4. S. Babvey, A. G. Bourgeois, J. A. Fernández-Zepeda, and S. W. McLaughlin, "An Efficient R-Mesh Implementation of LDPC Codes Message-Passing Decoder," *Proc. Advances in Parallel and Distributed Computing Models Workshop*, in conjunction with the *19th IEEE/ACM International Parallel and Distributed Processing Symposium*, (Denver, Colorado, April 3-8, 2005).
5. S. K. Prasad, V. Madiseti, S. Navathe, R. Sunderraman, E. Dogdu, A. G. Bourgeois, M. Weeks, B. Liu, J. Balasooriya, A. Hariharan, W. Xie, P. Madiraju, S. Malladi, R. Sivakumar, A. Zelikovskiy, Y. Zhang, Y. Pan, and S. Belkasim, "SyD: A Middleware Testbed for Collaborative Applications over Small Heterogeneous Devices and Data Stores," *Proc. of the ACM/IFIP/USENIX 5th International Middleware Conference*, (Toronto, Ontario, Canada, October 18-22, 2004), pp. 352-371.
6. A. Hariharan, S. K. Prasad, A. G. Bourgeois, E. Dogdu, S. Navathe, R. Sunderraman, and Y. Pan, "A Framework for Constraint-based Collaborative Web Service Applications and a Travel Application Case Study," *Proc. International Symposium on Web Services and Applications*, (Las Vegas, Nevada, June 21, 2004), pp. 866-872.
7. A. Estrella-Balderrama, J.A. Fernández-Zepeda, A. G. Bourgeois, "Fault-Tolerance and Scalability of the Reconfigurable Mesh," *Proc. Advances in Parallel and Distributed Computing Models Workshop*, in conjunction with the *18th IEEE/ACM International Parallel and Distributed Processing Symposium*, (Santa Fe, New Mexico, April 26-30, 2004).
8. J.A. Fernández-Zepeda, D. Fajardo-Delgado, J. Cardenas-Haro, and A. G. Bourgeois, "Efficient Simulation of the Acyclic DR-Mesh on the LR-Mesh," *Proc. Advances in Parallel and Distributed Computing Models Workshop*, in conjunction with the *18th IEEE/ACM International Parallel and Distributed Processing Symposium*, (Santa Fe, New Mexico, April 26-30, 2004).
9. S. K. Prasad, A. G. Bourgeois, E. Dogdu, R. Sunderraman, Y. Pan, S. Navathe, and V. Madiseti, "Enforcing Interdependencies and Executing Transactions Atomically Over Autonomous Mobile Data Stores Using SyD Link Technology," *Proc. International Workshop on Mobile and Wireless Networks*, in conjunction with *23rd IEEE International Conference on Distributed Computing Systems*, (Providence, Rhode Island, May 19-22, 2003), pp. 803-809.
10. X. Fu, Y. Pan, A. G. Bourgeois, and P. Fan, "A Three-Stage Heuristic Combined Genetic Algorithm Strategy to the Channel-Assignment Problem," *Proc. 6th International Workshop on Nature Inspired Distributed Computing*, in conjunction with the *17th IEEE/ACM*

International Parallel and Distributed Processing Symposium, (Nice, France, April 22-26, 2003).

11. S. K. Prasad, A. G. Bourgeois, E. Dogdu, R. Sunderraman, Y. Pan, S. Navathe, and V. Madiseti, "Implementation of a Calendar Application Based on SyD Coordination Links," *Proc. 3rd International Workshop on Internet Computing and E-Commerce*, in conjunction with the 17th IEEE/ACM International Parallel and Distributed Processing Symposium, (Nice, France, April 22-26, 2003).
12. A. G. Bourgeois and J. A. Fernández-Zepeda, "Scalable Algorithms for Faulty R-Meshes," *Proc. 14th IASTED International Conference on Parallel and Distributed Computing and Systems*, (Cambridge, Massachusetts, November 4-6, 2002), pp. 542-547.
13. A. G. Bourgeois and J. L. Trahan, "Relating Two-Dimensional Reconfigurable Meshes with Optically Pipelined Buses," *Proc. 14th IEEE/ACM International Parallel and Distributed Processing Symposium*, (Cancun, Mexico, May 1-5, 2000), pp. 747-752.
14. A. G. Bourgeois and J. L. Trahan, "Fault Tolerant Algorithms for a Linear Array with a Reconfigurable Pipelined Optical Bus System," *Proc. Workshop on Optics and Computer Science*, in conjunction with the 14th IEEE/ACM International Parallel and Distributed Processing Symposium, (Cancun, Mexico, May 1-5, 2000), pp. 1044-1052.
15. J. L. Trahan, A. G. Bourgeois, Y. Pan, and R. Vaidyanathan, "Optimally Scaling Permutation Routing on Reconfigurable Linear Arrays with Optical Buses," *Proc. 13th IEEE/ACM International Parallel Processing Symposium and 10th Symposium on Parallel and Distributed Processing*, (San Juan, Puerto Rico, April 12-16, 1999), pp. 233-237.
16. J. L. Trahan, Y. Pan, R. Vaidyanathan, and A. G. Bourgeois, "Scalable Basic Algorithms on a Linear Array with a Reconfigurable Pipelined Bus System," *Proc. 10th ISCA International Conf. on Parallel Distributed Computers and Systems*, (New Orleans, Louisiana, October 1-3, 1997), pp. 564-569.

Patents (Utility and Provisional):

1. U. S. Patent Application, "Mobile Data-Stores Enabled with Coordination-Link Primitives and a Calendar Application," Co-Investigator with V. Madiseti et al., Attorney Docket Number 06078.0004U2, April 2002.
2. Provisional Patent, "Constant Time Fault Tolerant Algorithms for an LARPBS Optical Bus," Primary Investigator with Y. Pan and S. K. Prasad, filed April 2002.
3. Provisional Patent, "Scalable Algorithms for Faulty R-Meshes," Primary Investigator, filed October 2002.
4. Provisional Patent, "System on Mobile Devices (SyD) Middleware Design and Implementation," Co-Investigator with S. K. Prasad et al, filed October 2002.
5. Provisional Patent, "SyD Directory Server Module," Co-Investigator with S. K. Prasad et al, filed October 2002.
6. Provisional Patent, "Distributed SyD Collaboration Link Module," Co-Investigator with S. K. Prasad et al, filed October 2002.

7. Provisional Patent, "How to Rapidly Develop a SyD Application," Co-Investigator with S. K. Prasad et al, filed October 2002.

Support:

1. "Implementation of neuronal models, dynamic clamp, and tools for the hybrid system analysis using FPGA technology," PI: Anu G. Bourgeois, Co-PI: Gennady Cymbalyuk and Andrey Shilnikov, Project with *P20 Planning Grant*, NIH, 2004-2005, DLN55, \$20,018.
2. "Yamacraw Research in Embedded Software Systems," PI: Sushil Prasad, Co-PI: Anu G. Bourgeois *et al.*, One year renewable contract, \$90,000 (approx.), through *Georgia Electronic Design Center* (2003 – 2004).
3. "Reconfigurable Meshes and Fault Tolerant Algorithms," PI: Anu G. Bourgeois, One year contract, \$10,000, *Research Initiation Grant*, through GSU (2002 – 2003).
4. "Yamacraw Research in Embedded Software Systems," PI: Sushil Prasad, Co-PI: Anu G. Bourgeois *et al.*, One year renewable contract, \$315,117, through *Yamacraw/Georgia Center for Advanced Telecommunications Technology* (2002 – 2003).
5. "Yamacraw Research in Embedded Software Systems," PI: Sushil Prasad, Co-PI: Anu G. Bourgeois *et al.*, One year renewable contract, \$230,000, through *Yamacraw/Georgia Center for Advanced Telecommunications Technology* (2001 – 2002).

Students Directed:

1. Liang Chang, Ph. D. candidate, "Power management for ad hoc wireless networks," (in progress, passed qualifying exam).
2. Eunjung Cho, Ph. D. candidate, "Molecular dynamics simulations using FPGAs," (in progress, passed qualifying exam).
3. Feng Tan, Ph. D. candidate, "Sequence alignment using reconfigurable models," (in progress, passed qualifying exam).
4. Mathura Gopalan, M.S. candidate, "Simulating a PR-Mesh on an LARPBS," (in progress).
5. Shanthi Subramanian, M.S. Thesis, "Enhanced iterative queries for location management in cellular mobile networks," (April 12, 2005).
6. Don Harris, M.S. Thesis, "Iterative Queries for Location Management in Cellular Mobile Systems," (March 26, 2004).
7. Arthi Hariharan, M.S. Thesis, "Constraint Based Collaborative Web Services: A Framework," (November 24, 2003).
8. Venkata Tamminiedi, M.S. Thesis, "Space-Domain Fault-Resilient Routing in Ad-Hoc Wireless Networks," (November 25, 2003).
9. Bo Yu, M.S. Thesis, "Power Aware Adaptive Routing in Ad-Hoc Wireless Networks," (November 24, 2003).

10. Dongqing Yaun, M.S. Thesis, "NonBypassing Misbehaving Nodes in Ad Hoc Wireless Networks by Using a Time Domain Approach," (July 16, 2003).
11. Van Searcy, M.S. Thesis, "An Algorithm for the Traveling Salesman Problem Using Optical Meshes and the Ant Colony Optimization Technique," (November 25, 2002).
12. Josh Herman, M.S. Thesis, "A Study of Transient Congestion During Traffic Restoration in ATM Networks," (November 15, 2001).
13. Navneet Miglani, M.S. Thesis, "VoIP: An Implementation and Survey," (July 12, 2001).

Professional Membership:

- Institute of Electrical and Electronics Engineers (IEEE), Senior Member
- IEEE Computer Society
- International Association for Computer and Information Science (ACIS)
- Georgia Electronic Design Center (GEDC), formerly called the State of Georgia's Yamacraw Project
- Tau Beta Pi (Engineering Honor Society)
- Eta Kappa Nu (Electrical Engineering Honor Society)

Professional Service:

- **Editorial Board Member**, *International Journal of High Performance Computing*, (2005 -)
- **Treasurer**, Atlanta Chapter of IEEE Computer Society, (2005 -)
- **Co-Chair**, 1st International Workshop on Mobile Ad-hoc and Ubiquitous Sensor Networks, (Nov. 2005)
- **Scholarships Co-Chair**, 12th International Conference on High Performance Computing, (Dec. 2005)
- **Session Chair**, 7th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 05, (Apr. 2005)
- **Session Chair**, 6th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 05, (Apr. 2005)

Program Committee Member:

- IEEE 20th International Conference on Advanced Information Networking and Applications, Program Committee Member, (Apr. 2006)
- International Workshop on Wireless and Sensor Networks Security, MASS 05, Program Committee Member, (Nov. 2005)
- 18th ISCA International Conference on Parallel and Distributed Computing Systems, (Sept. 2005)
- 7th Workshop on Advances in Parallel and Distributed Computational Models, IPDPS 05, Program Committee Member and Session Chair, (Apr. 2005)
- 6th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 05, Technical Committee Member and Session Chair, (Apr. 2005)
- 3rd International Symposium on Parallel and Distributed Processing and Applications, Program Committee Member, (Nov. 2005)
- 6th International Conference on Communications in Computing, Program Committee Member, (June 2005)
- 8th Joint Conference on Information Science, Program Committee Member, (July 2005)
- 5th International Conference on Computational Science, Program Committee Member, (May 2005)

- 2nd International Symposium on Parallel and Distributed Processing and Applications, Program Committee Member, (Dec. 2004)
- 6th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 04, Program Committee Member, (Aug. 2004)
- 5th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 04, Technical Committee Member, (Apr. 2004)
- 1st International Symposium on Parallel and Distributed Processing and Applications, ISPA 03, Program Committee Member, (July 2003)
- 5th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 03, Technical Committee member, (Oct. 2003)
- 7th International Conference on Computer Science and Informatics, JCIS 03, Program Committee Member, (Sept. 2003)
- 4th Workshop on Parallel and Distributed Scientific and Engineering Computing with Applications, IPDPS 03, Technical Committee Member, (Apr. 2003)
- Data Base Management in Wireless Network Environments in conjunction with VTC (2003)
- 4th Workshop on High Performance Scientific and Engineering Computing with Applications, ICPP 02, Program Committee Member, (Aug. 2002)

Reviewed papers for the following journals:

- Information Processing Letters
- Information Sciences Journal
- IEEE Transactions on Parallel and Distributed Systems
- International Journal of Computers and Applications
- International Journal of Parallel and Distributed Systems and Networks
- Journal of Parallel and Distributed Computing Practices
- Journal on Parallel and Distributed Computing

Reviewed papers for the following conferences (not serving as committee member):

- Mobile Wireless Networks Workshop, in conjunction with ICDCS 2003
- 8th Asia-Pacific Computer Systems Architecture Conference (ACSAC 2003)
- 11th International Conference on High Performance Computing (HiPC 2004)
- 19th International Parallel and Distributed Processing Symposium (IPDPS 2004)
- Workshop on Advances in Parallel and Distributed Computing Models in conjunction with IPDPS 2004
- 7th International Conference on Computer and Information Technology (ICCIT 2004)
- Euro-Par 2005 Conference

College Service:

Dean Search Committee, Member, LSU, (1999-2000)

Departmental Service:

- Executive Committee, Member, GSU, (2005 -)
 - ❖ Advise Chair on different issues
 - ❖ Give recommendations on Merit Pay Raises based on annual reports and teaching portfolios submitted by faculty
- Learning Assessment Committee, **Co-Chair**, GSU, (2004 -)
 - ❖ Developed an assessment plan to measure student academic achievement and program effectiveness

- ❖ Implemented the assessment plan within the department to be used for Southern Association of Colleges and Schools (SACS) reaccreditation review
- ❖ Analyze data submitted by faculty for all department courses according to the assessment plan
- ❖ Meet/correspond with Associate Provost for Institutional Effectiveness on a number of occasions
- Learning Outcomes Committee, **Chair**, GSU, (2003-2004)
 - ❖ Identified learning outcomes for the department program
 - ❖ Aligned learning outcomes with the courses offered by the department
 - ❖ Met/corresponded with Associate Provost for Institutional Effectiveness on a number of occasions
- Ad-Hoc Testing Protocols Committee, Member, GSU, (2003)
- Honors Program and Honors at Graduation Committee, **Chair**, GSU, (2002 -)
 - ❖ Confer awards to recipients at College of Arts and Science Honors Day annual program
 - ❖ Determine list of students to designate for Graduation with Distinction each semester
 - ❖ Select students to be designated as University Scholars
 - ❖ Select students receiving fee waivers
- Honors Program and Honors at Graduation Committee, Member, GSU, (2000-2002)
- ACM Chapter Committee, Member, GSU, (2002-)
- Ad Hoc Committee for CSc3210, Member, GSU, (2002)
- Ad Hoc Committee for Compensation Review, Member, GSU, (2001)
- Ph.D. Architecture Qualifying Exam Committee, Member, GSU, (2001-)
- Advisors for Undergraduate Program Committee, Member, GSU, (2000-)

Invited Talks:

- Have authored or co-authored **23 posters** presented at the *Georgia Electronic Design Center (GEDC)*, also called the *State of Georgia's Yamacraw Project*, Industrial Advisory Board meetings between October 2001 and October 2004. GEDC is the world's largest embedded software group. There are 8 participating universities including Georgia State University, Georgia Institute of Technology, and University of Georgia. This group also includes many member companies. Many of the research projects presented as posters led to utility/provisional patents, as listed above.
- "Reconfigurable Computing and FPGAs," *Neurons and Networks Lunchtime Research Talks*, research group of the Brains and Behavior Program at Georgia State University, Nov. 2004.
- "Optical Networks," *Spelman College Computer Science Seminar Series*, Spelman College, Nov. 2002
- "Reconfigurable Computing," *School of CSE Colloquium*, Southern Polytechnic State University, Nov. 2001
- "Reconfigurable Networks," *ACM local chapter meeting*, GSU, Oct. 2001

Courses Taught:

- CSc 8240, Reconfigurable Networks, GSU
- CSc 8210, Computer Architecture, GSU
- CSc 4520/6520, Design and Analysis of Algorithms, GSU
- CSc 4220/6220, Computer Networks, GSU
- CSc 4210/6210, Computer Architecture, GSU
- CSc 3210, Computer Organization and Programming, GSU
- EE 3570, Microprocessor Systems, LSU
- EE 3751, Microprocessor Systems Lab, LSU