Lewis B. Baumstark, Jr.

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# Research Interests

Physical Computing, Reverse Engineering, Computer Science Education

# Education

PhD, Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, GA, Dec. 2004

* Dissertation title: “Extracting Data-Level Parallelism from Sequential Programs for SIMD Execution”
* Nominated by department for Sigma Xi Best PhD Thesis Award
* Advisor: Linda Wills
* Georgia Tech Presidential Fellow (2000-2004)

MS, Electrical & Computer Engineering, Georgia Institute of Technology, Atlanta, GA, Dec. 2001

BS, Electrical & Computer Engineering, Tennessee Technological University, Cookeville, TN, Dec. 1998

# Professional Experience

Aug. 2010 – present: Associate Professor (tenured), University of West Georgia, Carrollton, GA

Jan. 2005 – Jul. 2010: Assistant Professor, University of West Georgia, Carrollton, GA

Aug. 1999 – Aug. 2004: Graduate Research Assistant, Georgia Inst. of Technology, Atlanta, GA

# Courses Taught

## Undergraduate

* CS 1020: Computers and Society
* CS 1300: Introduction to Computer Science (as studio instructor)
* CS 1301: Computer Science 1
* CS 1302: Computer Science 2
* CS 3110: Systems Architecture
* CS 3211: Software Engineering I
* CS 3212: Software Engineering II
* CS 3280: Systems and Network Administration
* CS 4981: Independent Study
* CS 4983: Directed Research
* CS 4985: Special Topics. Past offerings include:
  + Wireless Technology
  + Mobile Application Development
  + Physical Computing
  + Combat Robotics

## Graduate

* CS 6241: Software Engineering I
* CS 6242: Software Engineering II
* CS 6261: Systems Administration
* CS 6985: Special Topics
  + Reverse Engineering

# Publications

## Journal

**L. Baumstark** and M. Orsega, "Quantifying Instroductory CS Students' Iterative Software Process By Mining Version Control Repositories", *Journal of Computing Sciences in Colleges*, Vol. 31, No. 6., pp 97-104, June 2016.

**L. Baumstark** and L. Wills, “Retargeting Sequential Image-Processing Programs for Data-Parallel Execution,” *IEEE Trans. on Software Engineering* (invited paper for special issue on Reverse Engineering), Vol. 31, No. 2, pp. 116-136, Feb. 2005.

R. Janka, L. Wills, and **L. Baumstark**, “Virtual Benchmarking and Model Continuity in Prototyping Embedded Multiprocessor Signal Processing Systems,” *IEEE Trans. on Software Engineering*, Vol. 28, No. 9, pp. 832-846, Sept. 2002.

## Conference

**L. Baumstark** and E. Rudolph, “Automated Online Grading for Virtual Machine-based Systems Administration Courses”, in *Proc. of 44th ACM Technical Symposium on Computer Science Education (SIGCSE’13)*, Denver, CO, March 2013, pp. 477-482. DOI: http://dx.doi.org/10.1145/2445196.2445340

**L. Baumstark** and L. Wills, “Multidimensional Dataflow-based Parallelization for Multimedia Instruction Set Extensions,” *Proc. of 2006 Int’l Conference on Parallel Processing Workshops*, pp. 319-326, Columbus, OH, Aug. 14-16, 2006.

**L. Baumstark** and L. Wills, “Dynamic Estimation of Data-Level Parallelism in Nested Loop Structures: A Preliminary Report,” *Proc. of 1st Int’l Workshop on Program Comprehension through Dynamic Analysis (PCODA’05)*, Pittsburgh, PA, pp. 28-31, Nov. 10, 2005. Available as Technical Report 2005-12, Dept. of Mathematics & Computer Science, Universiteit Antwerpen, Antwerpen, Belgium.

**L. Baumstark**, M. Guler, and L. Wills, “Extracting an Explicitly Data-Parallel Representation of Image-Processing Programs,” *In Proc. of the Working Conf. on Reverse Engineering 2003 (WCRE ’03)*, Victoria, BC, pp. 24-34, Nov. 2003.

**L. Baumstark**, and L. Wills, “Exposing Data-Level Parallelism in Sequential Image Processing Algorithms,” In *Proc. of the Ninth Working Conf. on Reverse Engineering (WCRE ’02*), Richmond, VA, pp. 245-254, Nov. 2002.

L. Wills, T. Taha, **L. Baumstark**, and S. Wills, “Estimating Potential Parallelism for Platform Retargeting,” In *Proc. of the Ninth Working Conf. on Reverse Engineering (WCRE ’02),* Richmond, VA, pp. 55-64, Nov. 2002.

## Poster Presentations

**L. Baumstark**, “Reverse Engineering the Law: Measuring the Complexity of the US Code”, poster presentation at ACM Southeast Conference 2011 (ACMSE’11)

**L. Baumstark**, "A Combat Robotics Course: Programming Meets Computer-Aided Design and Fabrication", in *Proc. of 44th ACM Technical Symposium on Computer Science Education (SIGCSE’13)*, Denver, CO, March 2013, pp. 729-729. DOI: http://dx.doi.org/10.1145/2445196.2445406

# Professional Memberships

* Association for Computing Machinery (ACM)
* ACM Special Interest Group in Computer Science Education (SIGCSE)

# Professional Service

* General Co-Chair of 4th International Symposium on Embedded Computing, Niagra, Canada, May 21, 2007.
* Session chair: “Embedded Hardware,” 3rd Int’l Workshop on Embedded Computing (IWEC-06), Columbus, OH, Aug. 14, 2006.
* Session facilitator: “Dynamic analysis challenges and metrics”, Workshop on Program Comprehension through Dynamic Analysis (PCODA’05), Pittsburgh, PA, Nov. 10, 2005.
* Program Committee, Workshop on Program Comprehension through Dynamic Analysis (PCODA’06)
* Reviewer: IEEE Transactions on Very Large-Scale Integration Systems, Special Section on Configurable Computing. 2008.

# Institutional Service

## University-Level

* UWG Ad-hoc Committee for Revising Tenure & Promotion Guidelines, Spring 2011
* UWG Faculty Senate, 2008-2011
* UWG Faculty Senate Ad-hoc Rules Subcommittee, 2008-2009
* UWG Learning Resources Committee, 2008-2011. Chair 2009-2011.
* UWG Sponsored Operations Committee, 2009.
* UWG Retention-Progression-Graduation (RPG) Guide, Summer 2008-2010
* Faculty sponsor, ACM student chapter, 2005 – present
* Faculty sponsor, Upsilon Pi Epsilon, 2012 – present
* UWG Ad-hoc Committee on Tenure & Promotion Guidelines, Spring 2011

## College-Level

* COSM Dean's Search Committee, 2016
* COSM Advisory Committee, 2016-2017
* IMPACT Robotics workshop for Junior High students, July 2011.
* COSM Tenure and Promotion Committee, 2011-2012.
* COSM Ad-hoc Curriculum Committee, 2011

## Department-Level

* Industry Advisory Committee, Spring 2007
* Faculty Search Committee, 2006 - present. Chair Fall 2008 – 2015.
* Bachelor of Arts Ad-hoc Committee, 2006.
* Faculty advisor, ACM Programming Contest team, 2005
* Graduate Curriculum Committee, Spring 2005, Fall 2009-Spring 2010.
* Undergraduate Curriculum Committee, Spring 2005-present, Chair 2005-2008.
* Assessment Subcommittee, 2009.
* Advisor: Combat Robotics Team, Fall 2010-present
* Systems Sequence Revision Subcommittee Chair, 2015

# Honors & Awards

* UWG College of Science and Mathematics Excellence in Teaching Award, 2015-2016
* Outstanding Undergraduate Teacher of the Year in Computer Science (2007, 2010, 2013)
* Outstanding Graduate Teacher of the Year in Computer Science (2009)

# Student Projects Advised

## Undergraduate

* Hector Martin-Cantero, “File Format Reverse Engineering”, 2007
* Jim Bullington, “File Format Reverse Engineering”, 2007
* Lee Allen and Eric Hebert, “BombSpark (videogame)” (2008)
* Justin Chester, “Independent Game Development” (2009)
* Lee Allen, “Architecture Prototyping” (2009)
* LaCarl Dansby, Derrick Banks, and Alejunard Bourne, “Game Design” (2010)
* Brandon Shrewsbury, “Kinecting the Disabled” (2011)
  + Presented at *13th International ACM SIGACCESS Conference on Computers and Accessibility)*, received **First Place in Undergraduate Category**
  + Received **Honorable Mention** in Microsoft’s Imagine Cup
* Kenny Marshall and Ed Bala, “3D Printing” (2012)
* Matthew Stucki, “Mobile App Development on Windows 8” (2012)
* Anthony Kyle Bond, “Raspberry Pi Cluster” (2013)
* Alex Teichner, “Augmented Reality” (2013)
  + Poster presentation at ACM SE’14
* Drew Justus, “Automation Systems” (2013)
* Brian West, “Robot Coordination” (2013)
* Lewis Christmas, “A $50 Fully-Programmable Hobby Robot” (2013)
* Brian West, “Swarm Algorithms” (2014)
* Ayaan Kazerouni, “Computing Accessibility: a Fall-detecting Mobility Walker” (2014)
  + received Second Place in the 2015 COSM Research Day
* Carlos Harry and David Siver, “Computing Accessibility” (2014)
* Terry Holt, “Minisumo Robotics” (2014)
* Timothy Bergquist, "Living with Epilepsy: A Technological Solution"
  + presented at the UWG Undergraduate Research Conference April 2017
* Mark Couch, "Cybersecurity" (2017)

Graduate

* Josh Westmoreland, “Debugging in Dynamic Languages” (2009)
* Josh Westmoreland, “Legal Code Visualization” (2009)
* Dan Grotefend, MS Thesis, *Obligation and Reciprocity Assessment in Social Simulations of Autonomous Agents: the Stigmergic Underpinnings of Human Interaction and Social Cooperation?*” (2009)
* Jason Levinson, “Legal Code Web Service” (2010)