

# Tiffani L. Williams

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**Postal Address:**

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## RESEARCH INTERESTS

Computational biology, phylogenetic tree inference, high-performance computing, experimental performance studies of algorithms, reproducible research.

## PROFESSIONAL PREPARATION

- Postdoctoral Research Fellow, 2001–2004, The University of New Mexico.  
– Advisor: Bernard M.E. Moret (co-Advisor: David A. Bader)
- Ph.D. in Computer Science, 2000, University of Central Florida.  
– Advisor: Rebecca J. Parsons
- B.S. in Computer Science, 1994, Marquette University.

## PROFESSIONAL EXPERIENCE

- Associate Professor, Department of Computer Science and Engineering, Texas A&M University, 9/2011–present.
- Applications Researcher, Institute for Applied Mathematics and Computational Science (IAMCS), Texas A&M University, 6/2010–present.
- Affiliate Faculty, Interdisciplinary Research Program in Ecology and Evolutionary Biology, Texas A&M University, 9/2008–present.
- Assistant Professor, Department of Computer Science and Engineering, Texas A&M University, 8/2005–8/2011.
- Edward, Frances, and Shirley Daniels Fellow, Radcliffe Institute for Advanced Study, Harvard University, 8/2004–7/2005.
- Postdoctoral Research Fellow, Department of Computer Science, The University of New Mexico, 9/2001–7/2004.
- Instructor/Visiting Lecturer, Department of Computer Science, University of Central Florida, 1996–2001.

## HONORS AND AWARDS

- Association of Former Students (AFS) Distinguished Achievement Award in Teaching — College Level, Texas A&M University, 2016
- Undergraduate Faculty Teaching Excellence Award, Department of Computer Science and Engineering, Texas A&M University, 2014
- PopTech Science Fellow, 2012

- Denice Denton Emerging Leader Award, 2011
- Graduate Faculty Teaching Excellence Award, Department of Computer Science and Engineering, Texas A&M University, 2011
- DARPA Computer Science Study Panel, 2006
- Radcliffe Institute Fellow, 2004–2005
- Alfred P. Sloan Postdoctoral Fellowship in Computational Biology, 2002–2004
- NSF CISE Postdoctoral Research Associate in Experimental Computer Science, 2002 (*award declined*)
- Ford Foundation Postdoctoral Fellowship Program for Minorities, 2002 (*award declined*)
- McKnight Doctoral Fellowship, 1994–1999
- Russell V. Ewald Award for outstanding McKnight Doctoral Fellow, 1996
- North American Philips Scholar, 1990–1994
- Marquette Ignatius Scholar, 1990–1994

## RESEARCH GRANTS

- R-1. “Collaborative Research: Automated and Community-Driven Synthesis of the Tree of Life (DEB-1208337)”, *National Science Foundation*, Lead PI/institution: Karen Cranston (NESCent); PIs/collaborative institutions: Gordon Burleigh (U. Florida), Keith Crandall (Brigham Young), Karl Gude (Michigan State), David Hibbett (Clark), Mark Holder (U. Kansas), Laura Katz (Smith College), Richard Ree (Field Museum of Natural History), Stephen Smith (U. Michigan), and Tiffani L. Williams (Texas A&M). 06/01/12–05/31/17, 5,760,000 (Texas A&M portion: \$300,000)
- R-2. “III:Small:Collaborative:Novel Techniques for Understanding Convergence in Large-Scale Markov Chain Monte Carlo Phylogenetic Analyses (IIS-1018785)”, *National Science Foundation*, Lead PI/institution: Tiffani L. Williams (Texas A&M); PIs/collaborative institution: Marc L. Smith (Vassar College). 09/01/2010–08/31/2013, \$500,000 (Texas A&M portion: \$397,003).
- R-3. “ATOL Collaborative Research: Resolving Mammalian Phylogeny with Genomic and Morphological Approaches” (DEB-0629849), *National Science Foundation*, PI: William Murphy (Texas A&M); co-PIs: John Bickham (Purdue), Rodney Honeycutt (Pepperdine), Tiffani L. Williams (Texas A&M), 10/1/2006–9/30/2012, \$600,000.
- R-4. “III-CTX: Large-Scale Analysis of Collections of Phylogenetic Trees” (IIS-0713618), *National Science Foundation*, PI: Tiffani L. Williams (Texas A&M), 8/15/2007–7/31/2011, \$424,508. (Additional REU supplements: \$16,000 in 2009.)
- R-5. “Computer Science Study Panel (CS2P)” (HR0011-06-1-0020), *The Defense Advanced Research Projects Agency*, PI: Tiffani L. Williams (Texas A&M), \$81,535, 3/27/06–3/26/07.
- R-6. “Building the Tree of Life — A National Resource for Phyloinformatics and Computational Phylogenetics” (EF/BIO 03-31654), *The National Science Foundation (ITR Program)*, PI: B.M.E. Moret (UNM); co-PIs from 13 institutions, \$11.6M, 10/1/03–9/30/08. (co-PI while at UNM from 2003–2004.)
- R-7. “Alfred P. Sloan Postdoctoral Fellowship in Computational Molecular Biology” (DE-FG03-02ER63426), *The Alfred P. Sloan Foundation and The Department of Energy*, PI: Tiffani L. Williams (UNM), \$120,000, 8/1/02–7/31/04.

**PUBLICATIONS (Williams's advisees denoted by \*.)****JOURNAL PAPERS**

- J-1. Cody E. Hinchliff, Stephen A. Smith, James F. Allman, J. Gordon Burleigh, Ruchi Chaudhary, Lyndon M. Coghill, Keith A. Crandall, Jiabin Deng, Bryan T. Drew, Romina Gazis, Karl Gude, David S. Hibbett, Laura A. Katz, H. Dail Laughinghouse, IV, Emily Jane McTavish, Peter E. Midford, Christopher L. Owen, Richard H. Ree, Jonathan A. Rees, Douglas E. Soltis, Tiffani L. Williams, and Karen A. Cranston, "Synthesis of phylogeny and taxonomy into a comprehensive tree of life," *Proceedings of the National Academy of Science (PNAS)*, 112 (41), 12764–12769, 2015.
- J-2. Ralph W. Crosby\*, Stephanie Valentine\*, and Tiffani L. Williams, "Leveraging Programming Difficulty to Improve Understanding and Perception of Non-majors," *J. Comput. Sci. Coll.*, 29 (4), 27–35, 2014.
- J-3. Robert W. Meredith, Jan E. Janecka, John Gatesy, Oliver A. Ryder, Colleen A. Fisher, Emma C. Teeling, Alisha Goodbla, Eduardo Eizirik, Tanja Stadler, Dan L. Rabosky, Rodney L. Honeycutt, John J. Flynn, Cynthia Steiner, Tiffani L. Williams, Terence Robinson, Angela Burk, Nadia A. Ayoub, Mark S. Springer, William J. Murphy, "Impacts of the Cretaceous Terrestrial Revolution and KPg Extinction on Extant Mammal Diversification," *Science*, 334 (6055), 521–524, 2011.
- J-4. Suzanne J. Matthews\* and Tiffani L. Williams, "An Efficient and Extensible Approach for Compressing Phylogenetic Trees," *BMC Bioinformatics*, 12 (Suppl 10):S16, 2011.
- J-5. Grant Brammer\* and Tiffani L. Williams, "A New Support Measure to Quantify the Impact of Local Optima in Phylogenetic Analyses," *Evolutionary Bioinformatics*, 7, 159–170, 2011.
- J-6. G. Brammer\*, R. Crosby\*, S.J. Matthews\*, and Tiffani L. Williams, "Paper Mâché: Creating Dynamic Reproducible Science," *Procedia Computer Science*, 4(0), 658–667, 2011.
- J-7. Seung-Jin Sul\* and Tiffani L. Williams, "Big Cat Phylogenies, Consensus Trees, and Computational Thinking," *Journal of Computational Biology*, 18(7), 895–906, 2011.
- J-8. Suzanne J. Matthews\* and Tiffani L. Williams, "MrsRF: An Efficient MapReduce Algorithm for Analyzing Large Collections of Evolutionary Trees," *BMC Bioinformatics*, 11 (Suppl 1):S15, 2010. (*presented at Asia-Pacific Bioinformatics Conference (ABPC'10)*). **Highly Accessed.**
- J-9. Seung-Jin Sul\*, Suzanne J. Matthews\*, and Tiffani L. Williams, "Using Tree Diversity to Compare Phylogenetic Heuristics," *BMC Bioinformatics*, 10 (Suppl 4):S3, 2009. (*special issue on best papers from IEEE International Conference on Bioinformatics and Biomedicine (BIBM'08)*).
- J-10. Tiffani L. Williams and Rebecca Parsons, "Practical Experience Using a Computational Model for the Design of Heterogeneous Distributed Software", *Journal of Research and Practice in Information Technology*, 33(3), pages 146–157, 2001.

**REFEREED CONFERENCE PAPERS**

- C-1. Ralph W. Crosby\* and Tiffani L. Williams, "A Fast Algorithm for Computing the All-To-All Quartet Distance Across Large Collections of Phylogenetic Trees", *International Symposium on Bioinformatics Research and Applications (ISBRA'12)*, ser. Lecture Notes in Computer Science, vol. 7292, pages 60–71, 2012.

- C-2. Suzanne J. Matthews\*, Seung-Jin Sul\*, and Tiffani L. Williams, “A Novel Approach for Compressing Phylogenetic Trees”, *International Symposium on Bioinformatics Research and Applications (ISBRA’10)*, ser. Lecture Notes in Computer Science, vol. 6053, pages 113–124, 2010.
- C-3. Grant Brammer\* and Tiffani L. Williams, “Decision Tree Learning to Analyze Collections of Evolutionary Trees”, *Computational Intelligence in Bioinformatics and Computational Biology (CIBCB’10)*, pages 227–234, 2010.
- C-4. Seung-Jin Sul\* and Tiffani L. Williams, “An Experimental Analysis of Consensus Tree Algorithms for Large-Scale Tree Collections”, *International Symposium on Bioinformatics Research and Applications (ISBRA’09)*, ser. Lecture Notes in Computer Science, vol. 5542, pages 100–111, 2009.
- C-5. Hyun-Jung Park\* and Tiffani L. Williams, “A Fitness Distance Correlation Measure for Evolutionary Trees,” *1st Intl. Conference on Bioinformatics and Computational Biology (BiCoB’09)*, ser. Lecture Notes in Computer Science, vol. 5462, pages 331–342, 2009.
- C-6. Seung-Jin Sul\*, Suzanne J. Matthews\*, and Tiffani L. Williams, “New Approaches to Compare Phylogenetic Search Heuristics,” In *IEEE International Conference on Bioinformatics and Biomedicine (BIBM’08)*, pages 239–245, 2008.
- C-7. Seung-Jin Sul\*, Grant Brammer\*, and Tiffani L. Williams, “Efficiently Computing Arbitrarily-Sized Robinson-Foulds Distance Matrices,” In *Workshop on Algorithms in Bioinformatics (WABI’08)*, volume 5251 of *Lecture Notes in Computer Science*, pages 123–134, 2008.
- C-8. Seung-Jin Sul\* and Tiffani L. Williams, “An Experimental Analysis of Robinson-Foulds Distance Matrix Algorithms,” In *European Symposium on Algorithms (ESA’08)*, volume 5193 of *Lecture Notes in Computer Science*, pages 793–804, 2008.
- C-9. Seung-Jin Sul\* and Tiffani L. Williams, “A Randomized Algorithm for Comparing Sets of Phylogenetic Trees,” In *Asia-Pacific Bioinformatics Conference (APBC’07)*, pages 121–130, 2007.
- C-10. Tiffani L. Williams and Marc L. Smith, “The Role of Diverse Populations in Phylogenetic Analysis”, In *The Genetic and Evolutionary Computation Conference (GECCO ’06)*, pages 287–294, 2006.
- C-11. Marc L. Smith and Tiffani L. Williams, “Phylospaces: Evolutionary Trees and Tuple Space”, *IEEE Workshop on High-Performance Computational Biology (HiCOMB’06)*, 2006.
- C-12. Tiffani L. Williams and Marc L. Smith, “Cooperative Rec-I-DCM3: A Population-Based Approach for Reconstructing Phylogenies”, In *IEEE Symposium on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB’05)*, pages 127–134, 2005.
- C-13. Usman Roshan, Bernard M.E. Moret, Tiffani L. Williams, and Tandy Warnow, “Rec-I-DCM3: A Fast Algorithmic Technique for Reconstructing Large Phylogenetic Trees”, *Proc. 3rd IEEE Computational Systems Bioinformatics Conference (CSB’04)*, pages 98–109, 2004.
- C-14. Tiffani L. Williams and Bernard M.E. Moret, “An Investigation of Phylogenetic Likelihood Methods,” In *Proc. 3rd IEEE Symp. on Bioinformatics and Bioengineering (BIBE’03)*, pages 79–86, 2003.
- C-15. Tiffani L. Williams and Rebecca Parsons, “Exploiting Hierarchy in Heterogeneous Environments”, *Workshop on Advances in Parallel and Distributed Computational Models (APDCM’01)*, in conjunction with the *15th International Parallel and Distributed Processing Symposium (IPDPS’01)*, 2001.

- C-16. Tiffani L. Williams and Rebecca Parsons, “The Heterogeneous Bulk Synchronous Parallel Model”, *Workshop on Advances in Parallel and Distributed Computational Models (APDCM’00)*, in *Lecture Notes in Computer Science*, pages 102–108, 2000.
- C-17. Tiffani L. Williams and Mark Goudreau, “An Experimental Evaluation of BSP Sorting Algorithms”, *10th IASTED International Conference on Parallel and Distributed Computing Systems (PDCS’98)*, pages 115–118, 1998.
- C-18. Rebecca Parsons and Tiffani L. Williams, “Alternative Fitness Functions and their Effect on the Evolution of Hierarchically-Related Individuals”, *Massively Parallel Computing Systems*, 1998.

## BOOK CHAPTERS

- B-1. Seung-Jin Sul\* and Tiffani L. Williams, “Big Cats, Consensus Trees, and Computational Thinking”, in *Bioinformatics for Biologists*, P. Pevzner and Ron Shamir, ed., Cambridge University Press, pages 248–266, 2011.
- B-2. Hyun-Jung Park\*, Seung-Jin Sul\*, and Tiffani L. Williams, “Large-Scale Analysis of Phylogenetic Search Behavior,” in *Advances in Computational Biology*, H.R. Arabnia, ed., Springer, vol. 680, pages 35–42, 2010.
- B-3. Tiffani L. Williams, Mi Yan, David A. Bader, and Bernard M.E. Moret, “High-performance phylogeny reconstruction under maximum parsimony”, in *Parallel Computing for Bioinformatics and Computational Biology*, A.Y. Zomaya, ed., John Wiley & Sons, pages 369–394, 2006.
- B-4. Usman Roshan, Bernard M.E. Moret, Tiffani L. Williams, and Tandy Warnow, “Performance of supertree methods on various dataset decompositions,” in *Phylogenetic Supertrees*, O.R.P. Bininda-Emonds, ed., Kluwer Publ., pages 301–328, 2004.

## TECHNICAL REPORTS

1. Seung-Jin Sul\* and Tiffani L. Williams, “Big Cat Phylogenies, Consensus Trees, and Computational Thinking,” Technical Report TR-2010-7-3, Department of Computer Science and Engineering, Texas A&M University, 2010.
2. Hyun-Jung Park\*, Seung-Jin Sul\*, and Tiffani L. Williams, “Large-Scale Analysis of Phylogenetic Search Behavior,” Technical Report TR-2009-12-1, Department of Computer Science, Texas A&M University, 2009.
3. Seung-Jin Sul\* and Tiffani L. Williams, “Fast Hashing Algorithms to Summarize Large Collections of Evolutionary Trees,” Technical Report TR-2008-6-1, Department of Computer Science, Texas A&M University, 2008.
4. Seung-Jin Sul\* and Tiffani L. Williams, “A Randomized Algorithm for Comparing Sets of Phylogenetic Trees,” Technical Report TR-2006-9-3, Department of Computer Science, Texas A&M University, 2006.
5. Tiffani L. Williams, Tanya Berger-Wolf, Bernard M.E. Moret, and Tandy J. Warnow, “The Relationship Between Maximum Parsimony Scores and Phylogenetic Tree Topologies”, Technical Report TR-CS-2004-04, Department of Computer Science, University of New Mexico, 2004.

6. Tanya Berger-Wolf, Tiffani L. Williams, Bernard M.E. Moret, and Tandy J. Warnow, “An Experimental Evaluation of Phylogenetic Consensus Methods”, Technical Report TR-CS-2003-19, Department of Computer Science, University of New Mexico, 2003.

## THESIS

- Tiffani L. Williams, Ph.D. thesis: *A General-Purpose Model for Heterogeneous Computation*. Department of Computer Science, University of Central Florida, December 2000.

## POSTER PRESENTATIONS (Williams’s advisees denoted by \*.)

1. Suzanne Matthews\* and Tiffani L. Williams, “MrsRF: An Efficient MapReduce Algorithm for Comparing Large Groups of Evolutionary Trees”, *Industrial Affiliates Program* poster competition, Texas A&M University, September 14, 2010, awarded second place.
2. Suzanne Matthews\*, Seung-Jin Sul\*, and Tiffani L. Williams, “An Efficient and Extensible Approach for Compressing Phylogenetic Trees”, *Industrial Affiliates Program* poster competition, Texas A&M University, September 14, 2010, awarded best poster.
3. Grant Brammer\* and Tiffani L. Williams, “Using Decision Tree Learning to Study the Convergence of Phylogenetic Analysis”, *Industrial Affiliates Program*, Texas A&M University, September 14, 2010, awarded second place.
4. Suzanne Matthews\*, Seung-Jin Sul\*, and Tiffani L. Williams, “TreeZip: A Novel Approach for Compressing Large Collections of Evolutionary Trees”, *Data Compression Conference (DCC’10)*, pages 544–544, 2010.
5. Ana Dal Molin, Suzanne Matthews\*, Seung-Jin Sul\*, James Munro, James B. Woolley, John M. Heraty, and Tiffani Williams, “Large data sets, large sets of trees, and how many brains? — Visualization and comparison of phylogenetic hypotheses inferred from rDNA in Chalcidoidea (Hymenoptera)”. *Entomological Society of America (ESA) Annual Meeting: Student Competition for the Presidents Prize*, Indianapolis, Indiana, December 13–16, 2009.
6. Grant Brammer\* and Tiffani L. Williams, “Identifying Rogue Taxa to More Efficiently Reconstruct Evolutionary Trees”, *Industrial Affiliates Program* poster competition, Texas A&M University, September 16, 2009, awarded best poster.
7. Suzanne Matthews\* and Tiffani L. Williams, “Map Reduce for Evolutionary Trees on Multi-Core Platforms”, *Industrial Affiliates Program* poster competition, Texas A&M University, September 17, 2008, awarded second place.
8. Seung-Jin Sul\* and Tiffani L. Williams, “A Randomized Algorithm for Comparing Sets of Phylogenetic Trees”, poster presentation at *Intelligent Systems in Molecular Biology (ISMB’07)*, Vienna, Austria, July 21–25, 2007.
9. Tiffani L. Williams, “Searching for Optimal Trees Under Maximum Parsimony”, poster presentation at *IMA/RECOMB Satellite Workshop on Comparative Genomics*, Minneapolis, MN, October 20–24, 2003.

## TEACHING AND ADVISING

### COURSES

- *Graduate*

- CSCE 627: Theory of Computability, Spring 2010, Spring 2013, Spring 2015, Spring 2016.
- CSCE 628/BICH 628: Computational Biology, Fall 2005, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2013, Spring 2016  
(previously named CPSC 628/BICH 628 from Fall 2005–Fall 2008).
- CPSC 689: Algorithms for Evolutionary Bioinformatics, Spring 2008.
- CPSC 689: Computational Phylogenetics, Spring 2006.
- *Undergraduate*
  - CSCE 110: Programming I, Spring 2011, Fall 2011, Spring 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015.
  - CSCE 411: Design and Analysis of Algorithms, Summer 2014, Summer 2015, Summer 2016, Fall 2016
  - CSCE 433: Formal Languages and Automata, Spring 2007, Spring 2008, Spring 2009, Spring 2010, Spring 2013, Spring 2015, Spring 2016. (previously named CPSC 433 from Spring 2007–Spring 2009).
  - CSCE 481: Seminar, Fall 2009.

## CURRENT GRADUATE STUDENTS

- Reza Mansouri, Ph.D. student

## GRADUATED STUDENTS

- Ralph Crosby, Ph.D. degree, August 2015, currently a Research Scientist at SPAWAR.  
Ph.D. thesis: *Phylogenetic Divergence Time, Algorithms for Improved Accuracy and Performance*
- Grant Brammer, Ph.D. degree, May 2014, currently a Software Engineer at General Motors.  
Ph.D. thesis: *Algorithms for Searching and Analyzing Sets of Evolutionary Trees*
- Suzanne J. Matthews, Ph.D. degree, May 2012, currently an Assistant Professor at the United States Military Academy (West Point).  
Ph.D. thesis: *Efficient Algorithms for Comparing, Storing, and Sharing Large Collections of Evolutionary Trees.*
- Seung-Jin Sul, Ph.D. degree, December 2009, currently a Computer Systems Engineer at Lawrence Berkeley National Laboratory.  
Ph.D. thesis: *Fast Hash-Based Algorithms for Analyzing Large Collections of Evolutionary Trees.*
- Hyun-Jung Park, Masters degree, August 2007, currently a postdoc at Baylor College of Medicine.  
Masters thesis: *Large-Scale Analysis of Phylogenetic Search Behavior.*

## UNDERGRADUATE STUDENTS

- Gregory Krupit (Texas A&M University): Fall 2016.
- Cristina Corales (Texas A&M University): Fall 2014–present.

- Arthur Philpott (Texas A&M University): Fall 2009–Spring 2012. Supported by NSF’s Research Experience for Undergraduates (REU) program.
- Kymberleigh Pagel (Indiana University): Summer 2011. Supported by CRA-W’s Distributed Research Experience for Undergraduates Program (DREU).
- Beenish Jamil (George Mason University): Summer 2010. Supported by CRA-W’s Distributed Research Experiences for Undergraduates Program (DREU).
- William Dawson (Grove City College): Summer 2009. Supported by NSF’s Research Experience for Undergraduates (REU) program.
- Clarice Richardson (Medgar Evers College): Summer 2009. Supported by CRA-W’s Distributed Research Experiences for Undergraduates Program (DREU).
- Katie Timmerman (Wright State University): Summer 2009. Supported by CRA-W’s Distributed Research Experiences for Undergraduates Program (DREU).
- Cadran Cowansage (Colby College): Summer 2007. Supported by CRA-W’s Distributed Mentor Project (DMP).
- Suzanne J. Matthews (Rensselaer Polytechnic Institute): Summer 2006. Supported by CRA-W’s Distributed Mentor Project (DMP).

## PROFESSIONAL SERVICE AND ACTIVITIES

### EDITORIAL

- Associate Editor, *Systematic Biology*, January 2010–present.

### INVITED PANELIST OR PARTICIPANT

- CRA-W Graduate Cohort Workshop, March 31–April 1, 2006 (San Francisco, CA); March 2–3, 2007 (San Francisco, CA); and March 13–14, 2008 (Seattle, WA); March 27–28, 2009 (San Mateo, CA); April 23–24, 2010 (Bellevue, WA); April 1–2, 2011 (Boston, MA); April 13–14, 2012 (Bellevue, WA); April 5–6, 2013 (Boston, MA); April 10–11, 2015 (San Francisco, CA).
- CRA-W Career Mentoring Workshops, “Graduate School Survival Skills,” Grace Hopper Celebration of Women in Computing Conference, November 9, 2011, Portland, OR.
- National Science Foundation’s Assembling, Visualizing, and Analyzing the Tree of Life (NSF AVAToL) Ideas Lab, August 22–26, 2011, Lake Placid, NY
- Workshop on Biographs, Stazione Zoologica Anton Dohrn, Naples, Italy, May 17–20, 2007.
- W. M. Keck Foundation Roundtable on the Future of Science, Los Angeles, CA, May 5–6, 2006.
- 6th Annual Chinese-American Beckman Frontiers of Science Symposium, sponsored by U.S. National Academy of Sciences and Chinese Academy of Sciences, Shanghai, China, October 10–12, 2003.
- Program for Women in Mathematics at the Institute for Advanced Study (IAS) at Princeton University, Princeton, NJ, May 12–22, 2003.



**PROFESSIONAL SOCIETIES AND OTHER MAJOR SERVICE ACTIVITIES**

- Co-Director, Distributed Research Experiences for Undergraduates (DREU) program, 8/11–4/13.
- CDC Committee Member, Coalition to Diversity Computing (CDC), 8/11–2/13.

**STEERING COMMITTEE MEMBER**

- Denice Denton Emerging Leaders Workshop, 2016.

**CONFERENCE CHAIR OR CO-CHAIR**

- Grace Hopper Celebration for Women in Computing, General Co-Chair, 2014.
- Grace Hopper Celebration for Women in Computing, Program co-chair and Medical Technology Track Co-Chair, 2013.
- Richard Tapia Celebration of Diversity in Computing Conference, Technical Program Co-Chair, 2007.

**CONFERENCE PROGRAM COMMITTEE MEMBER**

- International Conference on Bioinformatics and Computational Biology (BICoB'16)
- IEEE workshop on High Performance Computing for Big Data Computational Biology (IEEE BIBM'15)
- IEEE International Workshop on High Performance Computational Biology (HiCoMB), 2005, 2011, 2012, 2013.
- International Conference on Bioinformatics and Computational Biology, 2013.
- Genetic and Evolutionary Computation Conference (GECCO), 2007, 2010, 2011.
- European Conference on Evolutionary Computation, Machine Learning and Data Mining in Bioinformatics (EvoBIO), 2008, 2009, 2010, 2011.
- IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid), 2010.
- The International Workshop on High Performance Computing in Medicine and Biology (HiP-CoMB), 2005, 2006, 2010.
- RECOMB Satellite Workshop on Comparative Genomics (RECOMB-CG), 2007, 2009, 2010.
- International Conference on High Performance Computing (HiPC), program committee, 2008.
- IEEE International Symposium on Bioinformatics and Life Science Computing, 2007.
- ISCA International Conference on Parallel and Distributed Computing Systems (PDCS), 2007.
- Genetic and Evolutionary Computation Conference (GECCO), 2007.
- IEEE International Conference on Advanced Information Networking and Applications (AINA), 2007.
- Workshop on Algorithms in Bioinformatics (WABI), 2006.
- International Conference on Parallel Processing (ICPP), 2006.
- Chinese-American Beckman Frontiers of Science Symposium, sponsored by the U.S. National Academy of Sciences and Chinese Academy of Sciences, 2004, 2005.
- Workshop on Parallel Bio-Computing (PBC), 2005, 2006.

- Grace Hopper Celebration of Women in Computing, 2002, 2004.

### CONFERENCE PANELS ORGANIZED

- Brandeis Marshall, Suzanne Matthews, Jennifer Walter, and Tiffani L. Williams, “Cultivating More Women in Academia”, panelist at *Grace Hopper Computing Conference*, Houston, TX, October 21, 2016.
- Danielle Cummings, Nadine Shillingford, Kiara Williams, and Tiffani L. Williams, “Black Women in Computing: Increasing Numbers Through Networking”, panelist at *Grace Hopper Computing Conference*, Portland, OR, November 10, 2011.
- Tiffani L. Williams, “Research Opportunities in Bioinformatics”, panel leader at *Richard Tapia Celebration of Diversity in Computing Conference*, Albuquerque, NM, October 21, 2005.
- Raquel Hill, Juan Gilbert, Tiki Suarez, and Tiffani L. Williams, “Diversifying the Computing Pipeline”, panelist at *Richard Tapia Celebration of Diversity in Computing Conference*, Atlanta, GA, October 15–18, 2003.

### EXTERNAL COMMITTEES

- College of Engineering Strategic Plan Subcommittee for Graduate Experience, 2012.

### INTERNAL COMMITTEES

- Undergraduate Curriculum Committee, Department of Computer Science and Engineering, 2013–2016.
- Graduate Admissions Committee, Department of Computer Science and Engineering, 2013–2014.
- Climate Committee, Department of Computer Science and Engineering, 2013–2014.
- Advisory Committee (elected), Department of Computer Science and Engineering, 2011–2012.
- Communications Committee, Department of Computer Science and Engineering committee, 2009–2010.
- Undergraduate Student Awards, Department of Computer Science committee, 2007–2009, 2012–2013.
- Library Committee, Department of Computer Science committee, 2005–2007.

### INVITED TALKS – EXTERNAL

- TE-1. “Discovering Relationships in the Tree of Life,” UNC Charlotte, Bioinformatics and Software and Information Systems Seminar, April 22, 2016.
- TE-2. “Searching for Meaning in the Tree of Life,” Capital Celebration of Women in Computing (CAPWIC), Richmond, VA, March 15, 2014. **Keynote speaker.**
- TE-3. “The Tree of Life: A Computer Scientist’s Perspective,” PopTech, Camden, ME, October 19, 2012.
- TE-4. “The Magical Powers of Computing,” speaker, Aleif Middle School, Houston, TX, May 25, 2012.

- TE-5. “The Magical Powers of Computing,” keynote speaker, Expanding Your Horizons (EYH) in Science & Mathematics, Northbrook Middle School, Houston, TX, March 3, 2012.
- TE-6. “Discovering Relationships in the Tree of Life,” Denice Denton Emerging Leader Award talk, Grace Hopper Celebration of Women in Computing, Portland, OR, November 11, 2011.
- TE-7. Women of Color Luncheon, keynote speaker, Grace Hopper Celebration of Women in Computing, Portland, OR, November 10, 2011.
- TE-8. “How Can Your Work Be More Impactful?,” University of British Columbia, Department of Computer Science, July 12, 2011.
- TE-9. “Paper Mâché: A Novel System for Executing Scientific Papers,” AMP Workshop: Reproducible Research: Tools and Strategies for Scientific Computing”, Vancouver, Canada, July 12, 2011.
- TE-10. “TreeZip: A New Algorithm for Compressing Large-Scale Phylogenetic Tree Collections,” University of British Columbia, Department of Computer Science, Vancouver, Canada, June 25, 2010.
- TE-11. “Fast Hash-Based Algorithms for Analyzing Tens of Thousands of Evolutionary Trees,” invited minisymposium on Computational Biology at the 2010 SIAM Conference on Discrete Math (DM’10), Austin, TX, June 17, 2010.
- TE-12. “Computational Approaches for Constructing Majority Consensus Trees,” RECOMB Satellite Conference on Bioinformatics Education (RECOMB-BE’10), San Diego, CA, May 23, 2010.
- TE-13. “Bringing Life to Computing,” keynote speaker, NCWIT Award for Aspirations in Computing, Rice University, Houston, TX, February 27, 2010.
- TE-14. “High-Performance Algorithms for Analyzing Large Collections of Evolutionary Trees,” Broader Engagement lecture, Supercomputing (SC’09), Portland, OR, November 16, 2009.
- TE-15. “Using the MapReduce Framework to Analyze Large Collections of Evolutionary Trees on Multi-Core Platforms,” The Winifred Asprey Lecture Series in Computer Science, Vassar College, Poughkeepsie, NY, October 13, 2009.
- TE-16. “MapReduce Algorithms for Summarizing Evolutionary Trees on Multi-Core Platforms,” University of British Columbia, Department of Computer Science, Vancouver, Canada, June 30, 2009.
- TE-17. “New Techniques for Analyzing Large Collections of Evolutionary Trees,” University of British Columbia, Department of Computer Science, Vancouver, Canada, July 29, 2008.
- TE-18. “A Cooperative Search Heuristic to Infer Evolutionary Trees,” INFORMS International Conference, Puerto Rico, July 2007.
- TE-19. “Efficiently Comparing Large Collections of Evolutionary Trees,” Simon Fraser University, Department of Computer Science, Vancouver, Canada, June 14, 2007.
- TE-20. “Efficiently Comparing Large Collections of Evolutionary Trees,” University of British Columbia, Department of Computer Science, Vancouver, Canada, June 12, 2007.
- TE-21. “The Landscape of Life,” Workshop on Biographs, Stazione Zoologica Anton Dohrn, Naples, Italy, May 19, 2007.
- TE-22. “Efficiently Comparing Large Collections of Evolutionary Trees,” Santa Fe Institute, Santa Fe, NM, April 16, 2007.

- TE-23. “Using Cooperation to Infer Large-Scale Evolutionary Trees,” University of British Columbia, Department of Computer Science, Vancouver, Canada, July 7, 2006.
- TE-24. “New Techniques for Building Large-Scale Evolutionary Trees,” Yale University, Department of Computer Science, New Haven, CT, May 13, 2005.
- TE-25. “New Techniques for Building Large-Scale Evolutionary Trees,” Colby College, Department of Computer Science, Waterville, ME, April 15, 2005.
- TE-26. “An Integrated Approach to Building Evolutionary Trees,” Radcliffe Institute of Advanced Study, Harvard University, Cambridge, MA, February 9, 2005.

### INVITED TALKS – INTERNAL

- TI-1. “Combinatorial Optimization and the Tree of Life”, Texas A&M University, Texas Optimization Day, April 4, 2016.
- TI-2. “Searching for Meaning in the Tree of Life”, Texas A&M University, Texas A&M Computing Society, March 1, 2016.
- TI-3. “Discovering Relationships in the Tree of Life”, Texas A&M University, Applied Math Undergraduate Seminar (AMUSE), March 7, 2012.
- TI-4. “Fast Algorithms for Analyzing Large Collections of Evolutionary Trees”, Texas A&M University, Institute for Applied Mathematics and Computational Science (IAMCS), November 4, 2010.
- TI-5. “New Approaches for Reconstructing the Tree of Life”, Texas A&M University, Department of Wildlife and Fisheries Sciences, November 13, 2008.
- TI-6. “Algorithmic Challenges in Reconstructing Evolutionary Trees”, Texas A&M University, Department of Industrial and Systems Engineering, October 20, 2008.
- TI-7. “Fast Approaches to Summarize Large Collections of Evolutionary Trees”, Texas A&M University, ABCS 2008 Workshop on Bioinformatics, Computational Biology, and Systems Biology, February 22, 2008.
- TI-8. “Large-Scale Analysis of Collections of Evolutionary Trees”, Texas A&M University, Department of Computer Science, September 5, 2007.
- TI-9. “New Techniques for Building Large-Scale Phylogenetic trees”, Texas A&M University, Department of Computer Science, September 7, 2005.

### TUTORIALS

1. “To Write What is Worth Publishing,” *TAMUS LSAMP*, Texas A&M University, College Station, TX, November 30, 2011.
2. “How to Give A Great Scientific Talk,” University of British Columbia, Vancouver, Canada, February 25, 2011.
3. “Goal Setting in Graduate School”, *TAMUS LSAMP*, Texas A&M University, College Station, TX, October 7, 2010.
4. “The Art of Giving Scientific Presentations”, *TAMUS LSAMP*, Texas A&M University, College Station, TX, March 22, 2010.
5. “Are They Really Listening? How to Give Scientific Presentations”, *Women in Theory Workshop*, Princeton University, Princeton, NJ, June 17, 2008.

6. "Are They Really Listening? How to Give Scientific Presentations", *Richard Tapia Celebration of Diversity in Computing Conference*, Orlando, FL, October 15, 2007.
7. "Are They Really Listening? How to Give Scientific Presentations", *Richard Tapia Celebration of Diversity in Computing Conference*, Albuquerque, NM, October 21, 2005.