

# Walker McMillan White

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## Degrees

08/2000 PhD (Mathematics), Cornell University.  
08/1998 MS (Computer Science), Cornell University.  
06/1993 BA (Mathematics), Dartmouth College.

## Academic Appointments

06/2014–Present Senior Lecturer, Cornell University  
06/2011–05/2014 Lecturer, Cornell University  
06/2008–Present Director, Game Design Initiative at Cornell  
06/2005–05/2011 Research associate, Cornell University  
06/2001–08/2004 Visiting assistant professor, Cornell University.  
(summers)  
08/2000–06/2005 Assistant professor, University of Dallas.

## Awards

2020 Tau Beta Pi Professor of the Year  
2016 Stephen H. Weiss Provost's Teaching Fellowship  
2016 Fiona Ip Li and Donald Li Teaching Award for the School of Engineering  
2015 CEAA Academic Achievement Award  
2014 Tau Beta Pi Professor of the Year  
2012 James and Mary Tien Teaching Award for the School of Engineering  
2012 James and Marsha McCormick Advising Award for the School of Engineering

## Grants

08/2010–08/2012 Co-PI (with Georgia Tech, U. of Utah, and U. of Michigan), NSF grant IIS-1048413, "Collaborative Research: Computational Thinking Olympiad".  
08/2007–08/2011 Principal Investigator, NSF grant IIS-000492612: "Design Methodologies for Scalability in Computer Games".  
03/2007–06/2006 Senior Researcher, AFOSR grant FA9550-07-1-0437, "Scalable Simulations of Dynamics of Relationships".  
06/2006–06/2008 Co-PI, NSF grant IIS-0621438, "A Formal Approach to Data Stream Processing".

## Publications

### *Research Articles*

- “Leveling Up by Design: Games Design + Technical/Engineering Communication = Innovative Games and High-Functioning Teams”, with T. Nathans-Kelly. European Society for Engineering Education Annual Conference. Copenhagen. September, 2018.
- “PathViewer: Visualizing Pathways through Student Data”, with Y. Wang and E. Anderson. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. Denver. May, 2017.
- “Crystallize: An Immersive, Collaborative Game for Second Language Learning”, with G. Culbertson, E. Andersen, D. Zhang, and M. Jung. *Proceedings of the 2016 ACM Symposium on Computer-Supported Cooperative Work and Social Computing*. San Francisco. February, 2016.
- “Making Time-stepped Applications Tick in the Cloud”, with T. Zou, G. Wang, M. Salles, D. Bindel, A. Demers, J. Gehrke. *Proceedings of the 2011 ACM Symposium on Cloud Computing*. Cascais, Portugal. October 2011.
- “Fast Checkpoint Recovery Algorithms for Frequently Consistent Applications”, with T. Cao, M. Salles, B. Sowell, Y. Yue, J. Gehrke, A. Demers. *Proceedings of the 2011 ACM SIGMOD International Conference on Management of Data*. Athens, Greece, June 2011.
- “Behavioral Simulations in MapReduce”, with G. Wang, M. Salles, B. Sowell, X. Wang, T. Cao, A. Demers, J. Gehrke. *Proceedings of the 26th International Conference on Very Large Data Bases*. Singapore, September 2010.
- “Scaling Transportation Simulations Through Declarative Processing”, with T. Cao, A. Demers, O. Gao, J. Gehrke, C. Koch, B. Sowell, M. Salles, G. Wang, X. Wang. *Next Generation Data Mining Summit: Dealing with the Energy Crisis, Greenhouse Emissions, and Transportation Challenges*. Baltimore, MD, October 2009.
- “Scaling Simulations Through Declarative Processing”, with T. Cao, A. Demers, O. Gao, J. Gehrke, C. Koch, B. Sowell, M. Salles, G. Wang, X. Wang. *Microsoft eScience Workshop*. Pittsburgh, PA, October 2009.
- “An Evaluation of Checkpoint Recovery for Massively Multiplayer Online Games,” with M. Salles, T. Cao, B. Sowell, A. Demers, J. Gehrke, and C. Koch. *Proceedings of the 25th International Conference on Very Large Data Bases*. Lyon, France, August 2009.
- “Scalability for Virtual Worlds,” with N. Gupta, A. Demers, J. Gehrke, and P. Unterbrunner. *Proceedings of the 25th International Conference on Data Engineering*. Shanghai, China, March 2009.
- “From Declarative Languages to Declarative Processing for Computer Games,” with A. Demers, J. Gehrke, N. Gupta, H. Li, and B. Sowell. *Proceedings of the 4th Biennial Conference on Innovative Data Systems Research*, Pacific Grove, California, January 2009.
- “Declarative Processing for Computer Games” with B. Sowell, J. Gehrke, and A. Demers. *Proceedings of the ACM SIGGRAPH Sandbox Symposium*, Los Angeles, California, August 2008.
- “Pseudoprime factorizations of integer matrices,” with D. Wallace. *Linear Algebra and its Applications*. Vol. 429, No. 1, July 2008, pages 142-155.
- “SGL: A Scalable Language for Data Driven Games (Demonstration Paper),” with R. Albright, A. Demers, J. Gehrke, N. Gupta, R. Keilty, H. Lee, G. Sadowski, and B. Sowell. *Proceedings of the 2008 ACM SIGMOD International Conference on Management of Data*. Vancouver, Canada, June 2008.
- “Scaling Games to Epic Proportions,” with A. Demers, C. Koch, J. Gehrke, and R. Rajagopalan. *Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data*. Beijing, China, June 2007.

- “What is “Next” in Event Processing?”, with A. Demers, J. Gehrke, and M. Riedewald. *Proceedings of the 26th ACM SIGMOD-SIGACT-SIGART Symp. on Principles of Database Systems (PODS)*. Beijing, China, June 2007.
- “Scaling Games to Epic Proportions,” with A. Demers, C. Koch, J. Gehrke, and R. Rajagopalan. *Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data*. Beijing, China, June 2007.
- “Massively Multi-Query Join Processing in Publish/Subscribe Systems,” with A. Demers, J. Gehrke, M. Hong, C. Koch, and M. Riedewald. *Proceedings of the 2007 ACM SIGMOD International Conference on Management of Data*. Beijing, China, June 2007.
- “Cayuga: A General Purpose Event Monitoring System” with A. Demers, J. Gehrke, B. Panda, M. Riedewald and V. Sharma. *Proceedings of the 3rd Biennial Conference on Innovative Data Systems Research*, Pacific Grove, California, January 2007.
- “Characterization of the Interaction of XML Functional Dependencies with DTDs,” with L. Kot. *Proceedings of the 11th International Conference on Database Theory (ICDT)*. Barcelona, Spain, January 2007.
- “Towards Expressive Publish Subscribe Systems”, with A. Demers, J. Gehrke, M. Hong, and M. Riedewald. *Proceedings of the 10th International Conference on Extending Database Technology*, Munich, Germany, March 2006.
- “On the Complexity of Categoricity in Computable Structures.” *Mathematical Logic Quarterly*. Vol. 49, No. 6, November 2003, pages 603-614.
- “How to Quickly Find a Witness,” with C. Bucila, J. Gehrke, and D. Kifer. *Proceedings of the 22nd ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems*. San Diego, CA, June 2003.
- “Realizing Levels of the Hyperarithmetic Hierarchy as Degree Spectra of Relations on Computable Structures,” with D. Hirschfeldt. *Notre Dame Journal of Formal Logic*. Vol. 43, No. 1, Winter 2002, pages 51-64.
- “DualMiner: A Dual-Pruning Algorithm for Itemsets with Constraints,” with C. Bucila, J. Gehrke, and D. Kifer. *Proceedings of the Eighth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. Edmonton, Alberta, Canada, July 2002.

#### Survey Articles

- “Better Scripts, Better Games”, with A. Demers, J. Gehrke, and C. Koch. *Communications of the ACM*, March 2009.
- “Database Research Opportunities in Computer Games,” with C. Koch, N. Gupta, J. Gehrke, and A. Demers. *SIGMOD Record*. September 2007.

#### Invited Talks

- “Software Development as a Writing Seminar”, Computer Science Department, State University of New York Buffalo, June 2017.
- “Interdisciplinary Game Development Courses at Cornell”, Frontiers of Engineering Education, National Academy of Engineering, Irvine, California, October 2013.
- “Scalable Declarative Processing in Digital Games”, Department Colloquium, Computer Science Department, Pennsylvania State University, November 2010.
- “Game Education: Project Management & Software Design”, Special Seminar, Computer Science Department, Pennsylvania State University, November 2010.
- “Game Design: Serious Education in ‘Unserious’ Games”, GECS (Games in Engineering and Computer Science), NSF Workshop, June 2010.
- “Creating and Managing an Academic Games Program” (Panel Chair), Foundations of Digital Games, April 2009.

“Scaling Games to Epic Proportions”, Department Colloquium, Computer Science Department, Brown University, November 2008. “Applying Database Technology to Games and Simulations”, ESP Platform Group, Microsoft Corporation, May 2008.

### Professional Service

2011	Program committee, GAS 2011 (1st Games and Software Engineering Workshop).
2007 – 2010	Program committee, Annual Legacy of R. L. Moore Conference
2005 – 2009	Chairman, Association of Symbolic Logic (ASL) Committee on Education.
2009	Program committee, FDG 2009 (1st Foundations of Digital Games).
2008	Organizer, Research Roundtable, Austin Game Developers Conference, 2008.
2008	Program committee, ICDE 2009 (International Conference on Data Engineering).
2004	Member, Association of Symbolic Logic (ASL) Committee on Education.
2004	Program committee, SIGKDD 2004 (Knowledge Discovery and Data Mining).

### University Service

2014 – Present	Advisor, CuAppDev Project Team.
2012 – Present	Faculty Reader, Arts & Sciences Undergraduate Admissions.
2010 – Present	Advisor, ACM Programming Competition Team.
2007 – Present	Advisor, Cornell Digital Gaming Alliance (DGA).
2011 – 2015	Freshman Advisor for the School of Engineering
2014	BOOM, Faculty Advisor
2006 – 2007	Organizer, ACSU Undergraduate Programming Competition.

### Professional Societies

Member, Association of Computing Machinery.