

Peter Mawhorter

Department of Computer Science
University of California, Santa Cruz

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Education

University of California, Santa Cruz, graduate studies towards Ph.D., *expected graduation December 2015.*
Harvey Mudd College, B.S. Computer Science, *May 2008.*

Skills and Abilities

Profession Skills

- Conduct thorough research using statistical data and secondary sources
- Convey ideas through written reports, visual materials, and presentations
- Collaborate and assist others with research and learning
- Plan, implement, and carry out projects independently

Programming Languages

- Highly experienced in Python and C
- Experienced in Answer-Set Programming, C++, Java, and Javascript
- Have worked with C#, Scala, ABL, Rex, Scheme, ISCAL, Prolog, Standard ML, SQL, MATLAB
- Learn new programming languages and paradigms quickly

Programming Experience

- Embedded devices, including servo and sensor code for microcontrollers and sensor network code
- Linux and Unix systems, including shell scripting and system maintenance
- Operating system code for SO and OS/161
- Experience with HTML, CSS, and Javascript as well as Python CGI techniques
- Webb application building using both raw CGI and the Django framework
- AI behavior programming using ABL for StarCraft gameplay
- Game engine programming on a custom engine in C including multithreading, OpenGL, and shaders
- Data management and statistical analysis using R
- Declarative programming using Gringo and Clasp to generate narrative situations and choices

Research Experience

Researcher University of California, Santa Cruz, Santa Cruz, CA

Professor Mateas, Fall 2009–present

Worked with Ben Weber on a Starcraft AI written in the reactive planning language ABL. Built a level generator for Infinite Mario using the novel 'ORE' algorithm. Worked with Brandon Tearse to create Skald, a rational reconstruction of the Minstrel story generation system. Thesis topic is the automatic generation of branching interactive stories using answer-set programming.

Research Assistant Harvey Mudd College, Claremont, CA

Professor Dodds, Summer 2008

Implemented FastSLAM on inexpensive robot platforms using single-camera vision.

Researcher Harvey Mudd College, Claremont, CA

Professor Stone, Fall 2007–Spring 2008

Worked with RealNetworks through the Clinic program to design a distributed video streaming algorithm.

Research Assistant Harvey Mudd College, Claremont, CA

Professor Erlinger, Summer 2007

Deployed a wireless sensor network for collecting microclimate temperature data.

Publications

Journal and Conference Papers

Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Generating Relaxed, Obvious, and Dilemma Choices with Dunyazad." *Proceedings of the 11th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, in publication.

Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Intentionally Generating Choices in Interactive Narratives." *Proceedings of the 6th International Conference on Computational Creativity*, pp. 292–299, 2015.

Peter Mawhorter, Michael Mateas, Noah Wardrip-Fruin, and Arnav Jhala, "Towards a Theory of Choice Poetics" *Proceedings of the 2014 Foundations of Digital Games Conference*, 2014.

Brandon Tearse, Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Skald: Minstrel Reconstructed." *IEEE Transactions on Computational Intelligence and AI in Games*, 6(2) pp. 1–10, 2014.

Brandon Tearse, Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Lessons Learned From a Rational Reconstruction of Minstrel." *Proceedings of the 26th AAAI Conference on Artificial Intelligence*, pp. 249–255, 2012.

Brandon Tearse, Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Experimental Results from a Rational Reconstruction of Minstrel." *Proceedings of the 2nd International Conference on Computational Creativity*, pp. 54–59, 2011.

Shaker et al. "The 2010 Mario AI Championship: Level Generation Track." *IEEE Transactions on Computational Intelligence and AI in Games*, 3(4):332–347, 2011.

Peter Mawhorter and Michael Mateas, "Procedural Level Generation Using Occupancy-Regulated Extension." *Proceedings of the 2010 IEEE Symposium on Computational Intelligence and Games*, pp. 351–358, 2010.

Ben Weber, Peter Mawhorter, Michael Mateas, and Arnav Jhala, "Reactive Planning Idioms for Multi-Scale Game AI." *Proceedings of the 2010 IEEE Symposium on Computational Intelligence and Games*, pp. 115–122, 2010.

Peter Mawhorter, Elaine Shaver, Zeke Koziol, and Zachary Dodds, "A Tale of Two Platforms: Low-Cost Robotics in the CS Curriculum." *Journal of Computing Sciences in Colleges*, 24(4):180–188, 2009.

Demos

Brandon Tearse, Peter Mawhorter, Michael Mateas, and Noah Wardrip-Fruin, "Minstrel Remixed: User Interface and Demonstration." *The 7th Annual AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, 2011.

Peter Mawhorter, Elaine Shaver, Zeke Koziol, and Zachary Dodds, "Mapping for All." *Proceedings of the 2008 AAAI Robot Exhibition and Workshop*, 2008.