# Rob LeGrand

Associate Professor of Computer Science
Department of Computer Science, Angelo State University

325-486-5422
rlegrand@angelo.edu
www.cs.angelo.edu/~rlegrand/

ASU Station #10909
San Angelo, Texas
76909-0909

**Academic positions**

2015– Angelo State University, San Angelo, Texas. Associate Professor of Computer Science

2009–15 Angelo State University, San Angelo, Texas. Assistant Professor of Computer Science

2008–09 Bridgewater College, Bridgewater, Virginia. Assistant Professor of Mathematics and Computer Science

**Education**

2003–08 Ph.D., Computer Science, Washington University, St. Louis. Advisor: Ron K. Cytron. Dissertation: *Computational Aspects of Approval Voting and Declared-Strategy Voting*

1998–99 M.C.S., Computer Science, Texas A&M University, College Station. Advisor: Jianer Chen. Master's report: *An Anti-Forwarding Scheme for Signed Messages*

1994–98 B.S. *Magna cum laude*, Computer Science, Texas A&M University, College Station. Minor: Mathematics. 3.846 GPR

**Research interests**

Computational social choice, algorithmic game theory, artificial intelligence (multi-agent systems, machine learning), languages, compilers, game development, computer science education, theory of computation

**Publications**

Anna Porter and Rob LeGrand. Evaluating approaches to evolving neural Reversi players. *Crius: Undergraduate Research Journal*. Angelo State University, fall 2019.

Michael McCarver and Rob LeGrand. Evolving a Hex-playing agent. *Crius: Undergraduate Research Journal*. Angelo State University, fall 2018.

Simon Olsen and Rob LeGrand. Creating a poker-playing program using evolutionary computation. *Crius: Undergraduate Research Journal*, Volume 2.1, pages 61–70. Angelo State University, fall 2014.

Timothy E. Roden, Rob LeGrand, Raul Fernandez, Jacqueline Brown, James (Ed) Deaton and Johnny Ross Jr. Development of a smart insole tracking system for physical therapy and athletics. In *Proceedings of the 7th International Conference on Pervasive Technologies Related to Assistive Environments (PETRA 2014)*, article no. 40. ACM Press, May 2014.

Timothy E. Roden and Rob LeGrand. Experiences teaching a course in Android game development. In *Proceedings of the 9th International Conference on Foundations of Digital Games (FDG 2014)*. Society for the Advancement of the Science of Digital Games, April 2014.

Timothy E. Roden and Rob LeGrand. Growing a computer science program with a focus on game development. In *Proceedings of the 44th ACM Technical Symposium on Computer Science Education (SIGCSE 2013)*, pages 555–560. ACM Press, March 2013.

Timothy E. Roden and Rob LeGrand. A foundation for growth: an introductory course in computer game development. Technical report (CSTR-LU no. 4), Department of Computer Science, Lamar University, Beaumont, Texas, October 2012.

Rob LeGrand, Timothy Roden and Ron K. Cytron. Nonmanipulable collective decision-making for games. In Ashok Kumar, Jim Etheredge and Aaron Boudreaux, editors, *Algorithmic and Architectural Gaming Design: Implementation and Development*, pages 67–81. IGI Global, Hershey, Pennsylvania, May 2012.

Rob LeGrand and Ron K. Cytron. Approval-rating systems that never reward insincerity. Presented at the 2nd International Workshop on Computational Social Choice (COMSOC 2008), Liverpool, England, September 2008.

Delvin Defoe, Rob LeGrand and Ron K. Cytron. On the connection between functional programming languages and real-time Java scoped memory. In *Proceedings of the 5th International Workshop on Java Technologies for Real-time and Embedded Systems (JTRES 2007)*, pages 73–82. ACM Press, September 2007.

Rob LeGrand, Evangelos Markakis and Aranyak Mehta. Some results on approximating the minimax solution in approval voting. In *Proceedings of the Sixth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS 2007)*, pages 1185–7. International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS), May 2007.

Delvin Defoe, Rob LeGrand and Ron K. Cytron. Cost analysis for real-time Java scoped-memory areas. *Journal of Systemics, Cybernetics and Informatics*, Volume 5, No. 4, pages 70–77. International Institute of Informatics and Systemics, 2007.

Rob LeGrand, Evangelos Markakis and Aranyak Mehta. Approval voting: Local search heuristics and approximation algorithms for the minimax solution. Presented at the 1st International Workshop on Computational Social Choice (COMSOC 2006), Amsterdam, Netherlands, December 2006.

Delvin Defoe, Rob LeGrand and Ron K. Cytron. Asymptotic analysis for real-time Java scoped-memory areas. In *Proceedings of the 4th International Conference on Computing, Communications and Control Technologies (CCCT 2006)*, Volume II, pages 131–138. International Institute of Informatics and Systemics, July 2006.

Tobias Mann, Morgan Deters, Rob LeGrand and Ron K. Cytron. Static determination of allocation rates to support real-time garbage collection. In *Proceedings of the 2005 ACM SIGPLAN/SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES 2005)*, pages 193–202. ACM Press, June 2005.

Rob LeGrand. Analysis of the minimax procedure. Technical report (WUCSE-2004-67), Department of Computer Science and Engineering, Washington University, St. Louis, Missouri, November 2004.

**Research grants**

Rob LeGrand. *Finding Consensus Computationally without Encouraging Insincerity.* Research Enhancement Program grant, Angelo State University, summer 2013.

Rob LeGrand. *Limiting Manipulation in Collective Decision-Making.* Research Enhancement Program grant, Angelo State University, summer 2011.

**Research funding proposals co-written**

Lopamudra Roychoudhuri, Rob LeGrand, Robert M. Pullin and Susan J. Williams. *Certificate in Computer and Network Security: An Interdisciplinary Undergraduate Program.* Submitted to the National Science Foundation's CyberCorps Scholarship for Service (SFS) Program (solicitation NSF 15-584), 2015.

Ron K. Cytron, Steven J. Brams and Lorrie Cranor. *Computationally Enhanced Voting.* Submitted to the National Science Foundation's Information Technology Research (ITR) Program (solicitation NSF 04-012), 2004.

**Erdős number**

3 (Rob LeGrand $\longleftrightarrow$ Evangelos Markakis $\longleftrightarrow$ Craig A. Tovey $\longleftrightarrow$ Paul Erdős)

**Patents**

Steven Bade, Rob LeGrand and Mark-David McLaughlin. System and method for providing positional authentication for client-server systems. U.S. Patent #6,898,628. Filed March 2001; awarded May 2005.

Steven Bade, Rob LeGrand and Mark-David McLaughlin. System and method for providing access to mobile devices based on positional data. U.S. Patent #6,778,837. Filed March 2001; awarded August 2004.

**Presentations**

*Growing a computer science program with a focus on game development*, 44th ACM Technical Symposium on Computer Science Education, Denver, March 2013.

*Computational Views on Voting*, University of North Carolina at Charlotte, March 2009.

*Approval-Rating Systems That Never Reward Insincerity*, 2nd International Workshop on Computational Social Choice, Liverpool, September 2008.

*Fixed-size Minimax for Committee Elections: Approximation and Local Search Heuristics*, 1st International Workshop on Computational Social Choice, Amsterdam, December 2006.

At Angelo State University:

- *Paradoxes of Rationality and Cooperation, Part V*, math seminar, September 2019
- *Paradoxes of Rationality and Cooperation, Part IV*, math seminar, September 2017
- *Paradoxes of Rationality and Cooperation, Part III*, math seminar, September 2015
- *Paradoxes of Rationality and Cooperation, Part II*, math seminar, April 2014
- *Paradoxes of Rationality and Cooperation, Part I*, math seminar, March 2014
- *Gaming the (Voting) System*, math seminar, September 2012
- *The Strategy of Rotten Tomatoes*, math seminar, October 2010

At Washington University:

- *Computational Aspects of Approval Voting and Declared-Strategy Voting*, dissertation defense, April 2008
- *Computational Aspects of Approval Voting and Declared-Strategy Voting*, dissertation proposal, March 2007
- *The Strategy of Rotten Tomatoes*, doctoral research seminar, November 2006
- *Voting and Complexity*, oral qualifying examination, September 2005
- *Minimax: A Multiwinner Election Procedure*, doctoral research seminar, November 2004

**Conferences attended**

- 44th ACM Technical Symposium on Computer Science Education (SIGCSE 2013), Denver, Colorado, March 2013
- Game Developers Conference 2011, San Francisco, California, March 2011
- 30th Annual International Lilly Conference on College Teaching, Oxford, Ohio, November 2010
- Game Developers Conference 2010, San Francisco, California, March 2010
- 2nd International Workshop on Computational Social Choice (COMSOC 2008), Liverpool, England, September 2008
- 1st International Workshop on Computational Social Choice (COMSOC 2006), Amsterdam, Netherlands, December 2006
- 2005 ACM SIGPLAN/SIGBED Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES 2005), Chicago, Illinois, June 2005

**On editorial board**

*Computer Game Development and Education: An International Journal* (IJCGDE)

**Reviewing activity**

- *Entertainment Computing*, 2020–21
- *IEEE Transactions on Games* (T-G), 2017–18
- *IEEE Transactions on Computational Intelligence and AI in Games* (T-CIAIG), 2009–10, 2016–17
- *Computer Game Development and Education: An International Journal* (IJCGDE), 2016–17
- *Journal of Graphics Tools*, 2013
- Ashok Kumar, Jim Etheredge and Aaron Boudreaux, editors, *Algorithmic and Architectural Gaming Design: Implementation and Development*. IGI Global, Hershey, Pennsylvania, May 2012
- Twenty-Fifth Conference on Artificial Intelligence (AAAI 2011), San Francisco, California, August 2011
- 42nd ACM Technical Symposium on Computer Science Education (SIGCSE 2011), Dallas, Texas, March 2011
- 5th International Conference on E-learning and Games (Edutainment 2010), Changchun, China, August 2010
- 2nd International Workshop on Computational Social Choice, Liverpool, England, September 2008

**Courses taught**

2009– Angelo State University
- CS 1315: Fundamentals of Programming (formerly CS 1341)
- CS 1336: Computer Science I (formerly CS 1361)
- CS 1337: Computer Science II (formerly CS 1362)
- CS 1351: Java Programming
- CS 3312: Web Programming
- CS 3352: Theory of Algorithms
- CS 3372: Handheld Game Development
- CS 4316: Visual Programming
- CS 4318: Artificial Intelligence

2008–09 Bridgewater College
- CIS 350: Database Management
- CSCI 105: Basic Programming
- CSCI 225: Mathematical Structures for Computer Science
- CSCI 340: Computer Architecture
- CSCI 440: Operating Systems and Networking
- MATH 107: Quantitative Reasoning

2005 Washington University
• CSE 436S: Software Engineering Workshop

**Courses assisted**

2007–08 Washington University
• CSE 431S: Translation of Computer Languages (for Ron Cytron)
• CSE 531S: Theory of Compiling and Language Translation (for Ron Cytron)

1998–99 Texas A&M University
• CPSC 433: Formal Languages and Automata (for Donald Friesen)

**Work experience**

2003–07 Research assistant, Washington University, St. Louis
Work for DARPA contracts:
• Program Composition for Embedded Systems
• Adaptive and Reflective Middleware Systems

2000–01 Software engineer, IBM Corporation, Austin, Texas
• Development work in network security for AIX operating system
• Filed four patents

**Professional societies**

• Association for Computing Machinery
• Heterodox Academy

**Honor societies**

• Phi Kappa Phi, inducted at Texas A&M, 1997
• Upsilon Pi Epsilon, inducted at Texas A&M
• Golden Key, inducted at Texas A&M