

# Rogelio E. Cardona-Rivera

Curriculum Vitae

August 2017

## ADDRESS

School of Computing  
Merrill Engineering Building, #3450  
50 Central Campus Drive  
Salt Lake City, UT, 84112, USA  
rogelio@cs.utah.edu  
<http://rogel.io>

Entertainment Arts and Engineering Program  
Bldg. 72, #214  
332 S 1400 E  
Salt Lake City, UT, 84112, USA  
rogelio@eae.utah.edu

## RESEARCH INTERESTS

Computational psychology, artificial intelligence (AI), game design, interactive narrative, human-centered computing, science of design, procedural content generation, AI-based game design, human-computer interaction, visual storytelling, psychology of play, player modeling

## PROFESSIONAL EXPERIENCE

- 2017      Assistant Professor, School of Computing and Entertainment Arts and Engineering  
Director, Laboratory for Quantitative Experience Design  
University of Utah, Salt Lake City, UT, USA
- 2016      Research & Development Lab Associate, Narrative Intelligence Group  
Disney Research Pittsburgh, Pittsburgh, PA, USA  
Under the direction of Dr. Boyang “Albert” Li
- 2012      Visiting Researcher, Cognitive Science and Applications Group  
Sandia National Laboratories, Albuquerque, NM, USA  
Under the direction of Dr. J. Chris Forsythe

## EDUCATION

Ph.D. in Computer Science, North Carolina State University, ABD (expected December 2017)

Minor in Cognitive Science

Dissertation Title: “A Computational Model of Interactive Narrative Affordance”

Adviser: Dr. R. Michael Young

M.Sc. in Computer Science, North Carolina State University, 2013

B.Sc. in Computer Engineering, University of Puerto Rico at Mayagüez, 2010

Minors in Mathematics and Economics

## PUBLICATIONS

### Books

- 2014 Chris Forsythe, Huafei Liao, Michael C. S. Trumbo, and Rogelio E. Cardona-Rivera. *Cognitive Neuroscience of Human Systems: Work and Everyday Life*. CRC Press.

### Refereed Journal Articles

- 2016 Rogelio E. Cardona-Rivera, Thomas W. Price, David R. Winer, and R. Michael Young. Question Answering in the Context of Stories Generated by Computers. *Advances in Cognitive Systems* (4), pp. 227-246.

### Refereed Conference Articles

- 2016 Chris Martens and Rogelio E. Cardona-Rivera. Generating Abstract Comics. In *Proceedings of the 9th International Conference on Interactive Digital Storytelling (ICIDS2016)*, pp. 168-175.  
(37.5% acceptance rate)

Rogelio E. Cardona-Rivera and Boyang Li. PLOTSHOT: Generating Discourse-constrained Stories around Photos. In *Proceedings of the 12th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-16)*, pp. 2-8.  
(27.7% acceptance rate for oral presentation)

Ignacio X. Domínguez, Rogelio E. Cardona-Rivera, James Vance, and David L. Roberts. The Mimesis Effect: The Effect of Roles on Player Choice in Interactive Narrative Role-Playing Games. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI2016)*, pp. 3438–3449.

★ Awarded Honorable Mention in the Best Papers Category  
(23.4% acceptance rate; 4% honorable mention rate)

- 2014 Rogelio E. Cardona-Rivera, Justus Robertson, Stephen G. Ware, Brent Harrison, David L. Roberts, and R Michael Young. Foreseeing Meaningful Choices. In *Proceedings of the 10th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-14)*, pp. 9–15.  
(28% acceptance rate for oral presentation)

- 2013 Titus Barik, Michael Everett, Rogelio E. Cardona-Rivera, David L. Roberts, and Edward F. Gehringer. A community college blended learning classroom experience through Artificial Intelligence in Games. In *Proceedings of the 2013 IEEE Frontiers in Education Conference (FIE2013)*, pp. 1525–1531.

2012 Rogelio E. Cardona-Rivera, Kiran Lakkaraju, Jonathan H. Whetzel, and Jeremy R. Bernstein. Large-Scale Conflicts in Massively Multiplayer Online Games. In *Proceedings of the 2nd International Conference on Complex Systems (COMPLEX2012)*, pp. 40–51.

Matthew William Fendt, Brent Harrison, Stephen G. Ware, Rogelio E. Cardona-Rivera, and David L. Roberts. Achieving the Illusion of Agency. In *Proceedings of the 5th International Conference on Interactive Digital Storytelling (ICIDS2012)*, pp. 114–125.

★ Awarded Best Paper

(29.2% acceptance rate)

Rogelio E. Cardona-Rivera and R. Michael Young. Characterizing Gameplay in a Player Model of Game Story Comprehension. In *Proceedings of the 7th International Conference on the Foundations of Digital Games (FDG2012)*. (29% acceptance rate)

### **Strongly Refereed Workshop Articles**

2017 Camille Barot, Michael Branon, Rogelio E. Cardona-Rivera, Markus Eger, Michelle Glatz, Nancy Green, James Mattice, Colin M. Potts, Justus Robertson, Makiki Shukonobe, Laura Tateosian, Brandon R. Thorne, and R. Michael Young. Bardic: Generating Multimedia Narrative Reports for Game Logs. To appear in *Proceedings of the 10th Workshop on Intelligent Narrative Technologies (INT10) at the 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*.

Rogelio E. Cardona-Rivera and R. Michael Young. Toward Combining Domain Theory and Recipes in Plan Recognition. In *Proceedings of the Plan, Activity, and Intent Recognition Workshop (PAIR 2017) at the 31st AAAI Conference on Artificial Intelligence*, pp. 796-803. (40% acceptance rate)

Rogelio E. Cardona-Rivera. Cognitively-grounded Procedural Content Generation. In *Proceedings of the What's Next for AI in Games Workshop at the 31st AAAI Conference on Artificial Intelligence*, pp. 1027-1028.

2015 Rogelio E. Cardona-Rivera and R. Michael Young. Symbolic Plan Recognition in Interactive Narrative Environments. In *Proceedings of the Joint Workshop on Intelligent Narrative Technologies and Social Believability in Games (INT9+SBG) at the 11th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pp. 16–22.

- 2014 Rogelio E. Cardona-Rivera and R. Michael Young. Games as Conversation. In *Proceedings of the 3rd Workshop on Games and NLP (GAMNLP-14) at the 10th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pp. 2–8.
- 2012 Rogelio E. Cardona-Rivera, Bradley A. Cassell, Stephen G. Ware, and R. Michael Young. Indexer: A Computational Model of the Event-Indexing Situation Model for Characterizing Narratives. In Mark A. Finlayson, editor, *Working Notes from the Workshop on Computational Models of Narrative at the International Language Resources and Evaluation Conference (CMN2012)*, pp. 32–41.  
 ★ Awarded Best Student Paper on a Cognitive Science Topic
- Alok Baikadi and Rogelio E. Cardona-Rivera. Towards finding the fundamental unit of narrative: A Proposal for the Narreme. In Mark A. Finlayson, editor, *Working Notes from the Workshop on Computational Models of Narrative at the International Language Resources and Evaluation Conference (CMN2012)*, pp. 42–44.
- 2011 R. Michael Young and Rogelio E. Cardona-Rivera. Approaching a Player Model of Game Story Comprehension Through Affordance in Interactive Narrative. In *Proceedings of the 4th Workshop on Intelligent Narrative Technologies (INT4) at the 7th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pp. 123–130.

### Refereed Abstracts

- 2013 Rogelio E. Cardona-Rivera and R. Michael Young. A Cognitivist Theory of Affordances for Games. In *Proceedings of the Digital Games Research Conference: DeFragging Game Studies*.
- Rogelio E. Cardona-Rivera and R. Michael Young. Computational Models of Narrative and their relation to Human Behavior. Presented at the *NC State Communication, Rhetoric, and Digital Media Research Symposium: Emerging Genres, Forms, Narratives*.

### Refereed Student Abstracts

- 2014 Rogelio E. Cardona-Rivera and R. Michael Young. A Knowledge Representation that Models Memory in Narrative Comprehension. In *Proceedings of the 28th AAAI Conference on Artificial Intelligence - Student Abstracts Track*, pp. 3098–3099.

## **Doctoral Consortia**

- 2011 Rogelio E. Cardona-Rivera. Narrative Affordance: Towards a model of the foreseeability and perceivability of story elements in an Interactive Narrative. In *Proceedings of the 6th International Conference on the Foundations of Digital Games - Doctoral Consortium Track*, pp. 250–252.

## **Technical Reports**

- 2014 Kiran Lakkaraju, Jonathan H. Whetzel, Jina Lee, Asmeret Bier, and Rogelio Cardona-Rivera. Validating Agent Models Through Virtual Worlds. Technical Report SAND2014-0451, Sandia National Laboratories, Albuquerque, NM, USA and Livermore, CA, USA.
- 2011 Julio César Bahamón, Bradley A. Cassell, R. Michael Young, Rogelio E. Cardona-Rivera, James M. Thomas, and David Hinks. Toward Collaborative, Web-Based 3D Environments for the Investigation, Analysis, Annotation and Display of Virtual Crime Scenes. Technical Report DGRC-2011-02, NC State University, Raleigh, NC, USA.

## **GRANTS AND FELLOWSHIPS**

- 2016 Artificial Intelligence Journal Grant, Travel Funding for the Intelligent Narrative Technologies Track at the 9th International Conference for Interactive Digital Storytelling (€2K)
- 2011-2015 Department of Energy Computational Science Graduate Fellowship (\$144K)
- 2010 Ph.D. Graduate Fellow, National GEM Consortium (\$32K)  
Graduate School Fellow, North Carolina State University  
Engineering Dean's Fellow, North Carolina State University

## **AWARDS AND HONORS**

- 2017 AAI-17 Broadening Participation Scholarship (\$1.25K)  
EAAI New and Future AI Educator Award (\$1K)
- 2016 Rochester Institute of Technology  
Future Faculty Career Exploration Program  
Indiana University at Bloomington  
CogSci 2016 Young Scientist Travel Award (\$1K)

- 2014 University of Michigan at Ann Arbor  
NextProf Diversifying Future Faculty Scholarship  
AAAI-14 Student Scholarship  
AAAI-14 Broadening Participation Scholarship (\$1.4K)
- 2010 FOCUS Scholar, Georgia Institute of Technology

### **GAMES PUBLISHED**

- 2015 Rogelio E. Cardona-Rivera and Ian Coleman. *Umbilicus: Ascension*.  
URL: <https://github.com/sweetcarolinagames/Umbilicus-Ascension>  
Selected for the 2015 Github Game Off III showcase.
- 2014 Rogelio E. Cardona-Rivera, José D. Vélez, and Ian Coleman. *BitBot*.  
URL: <https://github.com/sweetcarolinagames/BitBot>  
Runner-up at the 2014 Github Game Off II.

### **INVITED TALKS**

- 2017 Modeling Narrative Intelligence to Support Adaptive Virtual Environments.  
Delivered at Rochester Institute of Technology, University of Notre Dame,  
Pomona College, University of Arizona, Worcester Polytechnic Institute,  
Virginia Polytechnic Institute and State University, University of California at  
Davis, University of California at San Diego, University of Utah.
- 2013 Artificial Intelligence, Cognition, and Games. Puerto Rico Festival of Games.  
July 20th.
- 2012 Narrative Affordance: Towards a model of the Perceivability and Foreseeability of  
Events in an Interactive Narrative. Sandia National Laboratories. May 1st.

### **STUDENTS SUPERVISED**

- 2014 Stephanie Yang  
Intelligent and Interactive Media Research Experience for Undergraduates  
Project: Interactive Text Adventures for Education
- Phillip Wright  
NC State University's Undergraduate Research Program  
Project: Effects of User Interfaces on Problem Solving in Interactive Narratives

- 2013 Kelvin E. Fichter (HS), Mary Beth Kery, and Christian Harrison Stith  
Intelligent and Interactive Media Research Experience for Undergraduates  
Project: An Intelligent User Interface for Interactive Narrative Authoring
- Génesis Rosado (HS), Rubén A. Hernández Díaz (HS), Joshua L. Pupo Morales  
(HS), Christopher Alicea Nieves (HS), Jeffrey Carrión Calderón  
Intelligent and Interactive Media Research Experience for Undergraduates  
Served as Summer Research Experience Co-Coordinator across various  
projects

## **SERVICE TO PROFESSION**

### **Co-Chair**

- 2017 Workshops at the 13th AAAI Conference on Artificial Intelligence and Interactive  
Digital Entertainment (AIIDE-17)
- 2016 Intelligent Narrative Technologies Track at the International Conference on  
Interactive Digital Storytelling (ICIDS2016)

### **Program Committee Member**

- 2017 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment,  
Main Conference Track, Doctoral Consortium Track (AIIDE-17)
- 10th Intelligent Narrative Technologies Workshop (INT10) at the 13th AAAI Conference  
on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-17)
- 2016 Future of Interactive Learning Machines Workshop, Neural Information  
Processing Systems Conference
- 31st AAAI Conference on Artificial Intelligence, Cognitive Systems Track  
(AAAI-31)
- 3rd Experimental AI in Games Workshop (EXAG) at the 12th AAAI Conference  
on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-16)
- 2015 2nd Experimental AI in Games Workshop (EXAG) at the 11th AAAI Conference  
on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-15)
- 10th International Conference on the Foundations of Digital Games  
(FDG15)
- 2014 1st Experimental AI in Games (EXAG) Workshop at the 10th AAAI Conference  
on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-14)

7th International Conference on Interactive Digital Storytelling  
(ICIDS2014)

2013 8th International Conference on the Foundations of Digital Games  
(FDG2013)

2012 5th International Conference on Interactive Digital Storytelling  
(ICIDS2012)

### **Reviewer**

2016 International Journal of Human-Computer Studies  
International Joint Conference on Artificial Intelligence (IJCAI2016)  
IEEE Transactions on Computational Intelligence and AI in Games  
(TCIAIG)

2015 2016 ACM SIGCHI Annual Symposium on Human-Computer Interaction  
(CHI2016)

IEEE Transactions on Computational Intelligence and AI in Games  
(TCIAIG)

2nd ACM SIGCHI Annual Symposium on Computer-Human Interaction in  
Play (CHIPlay2015)

International Joint Conference on Artificial Intelligence (IJCAI2015)

2014 9th International Conference on the Foundations of Digital Games  
(FDG14)

2013 Workshop on Computational Models of Narrative (CMN) at the Annual  
Conference of the Cognitive Science Society

2012 Transactions on Computational Intelligence and AI in Games (TCIAIG),  
Special Issue on Narrative

### **COMMUNITY INVOLVEMENT AND OUTREACH**

#### **Talks**

2017 Procedural Narrative Generation, delivered alongside Chris Martens. 2017 Game  
Developers Conference, Narrative Summit, February 27th.



- 2016      Toward the Holodeck: Computational Models of Interactive Narrative and their relation to Human Cognition. Carnegie Mellon University, May 10th.
- 2015      Moving Smartly: An Introduction to Artificial Intelligence Design. 2015 East Coast Games Conference, April 8th.
- 2014      Narrative Design: The Importance of Narrative Affordances. 2014 East Coast Games Conference, April 8th.
- GameMaker Workshop, delivered alongside Acey Boyce. Presented to Undergraduate Students and Faculty at the National Autonomous University of Nicaragua, February 7th.
- 2012      Introduction to Game AI using Python: A Gentle Introduction to basic AI concepts using Python and Pygame, delivered alongside Titus Barik. 2012 Carolina Games Summit, February 15th.
- 2011      A jugar...¡en serio! (Talk about Games Research at NC State). Presented to the general student community at the University of Puerto Rico at Mayagüez, October 7th.

## **Outreach**

- 2013      Coordinator, Interactive and Intelligent Media Showcase  
Computer Science Department Open House  
North Carolina State University
- Co-organizer, Triangle Game Showcase  
SparkCon, North Carolina

## **NON-ACADEMIC WORK**

- 2010      MobileMe Intern, Internet Service & Technology Division  
Apple, Inc., Cupertino, CA, USA  
Under the direction of Guido Seibt
- 2009      Intern, Advanced Networks & Applications Group  
MIT/Lincoln Laboratory, Lexington, MA, USA  
Under the direction of Dr. Jeremy Mineweaser
- 2008      Trading Automation Group Intern, Equities Technology Division  
Goldman Sachs, New York, NY, USA  
Under the direction of Drew Gutstein

## **MEDIA COVERAGE**

- 2016 “Everyone Role-Plays in Video Games, Study Finds”, Article on CHI2016 work with Ignacio X. Domínguez, James K. Vance, and David L. Roberts.  
URL: <http://motherboard.vice.com/read/everyone-role-plays-in-video-games-study-finds>.  
Last accessed April 24th 2016.

## **TEACHING AREAS**

Courses in all areas of Computer Science and Game Development, with specialty in the following:

Artificial Intelligence	Computational Models of Interactive Narratives
Human-Computer Interaction	Procedural Content Generation
Computational-Cognitive Science	Player Modeling and Analytics

## **LANGUAGES**

English, Native Fluency

Spanish, Native Fluency

## **PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS**

**Association for the Advancement of Artificial Intelligence**

**Cognitive Science Society**

**International Game Developers Association**

- 2014 Co-Organizer, Global Game Jam - North Carolina State University
- 2013 Co-Organizer, Global Game Jam - North Carolina State University
- Secretary of the Board, NC-Triangle Chapter
- 2012 Secretary of the Board, NC-Triangle Chapter