Rogelio E. Cardona-Rivera, Ph.D.
Curriculum Vitæ, July 2024

https://rogel.io

Division of Games, College of Architecture +
Planning, University of Utah
#216; 332 S 1400 E, Salt Lake City, UT, USA
r.cardona.rivera@utah.edu

PROFESSIONAL EXPERIENCE

University of Utah   Salt Lake City, UT, USA

Director, Laboratory for Quantitative Experience Design, 2017–present

Assistant Professor and Founding Faculty, Division of Games 2023–present

Adjunct Assistant Professor, Kahlert School of Computing, 2023–present; Department of Psychology, 2020–present

Assistant Professor, School of Computing and the Entertainment Arts and Engineering Program, 2019–2023[1]

Disney Research Pittsburgh   Pittsburgh, PA, USA

Narrative Intelligence Group

Research & Development Lab Associate, 2016. Under the direction of Boyang "Albert" Li.

Sandia National Laboratories   Albuquerque, NM, USA

Cognitive Science and Applications Group

Computational Science Graduate Fellow, 2012. Under the direction of J. Chris Forsythe.

GRANTS AND FELLOWSHIPS

Since beginning research in August 2010, Cardona-Rivera has obtained a total of $1,481,800.75 in support of their research program, teaching practice, and service efforts (counting both sole-PI and joint-PI awards, university seed/pilot grants, and gifts). Of this, $1,275,594.75 (86%) has been earned at the University of Utah.

Active ($985,175.00)

Extramural Funding ($827,267.00)

[G12] National Science Foundation, Computer and Information Science and Engineering Directorate, Information and Intelligent Systems Division, Research on Emerging Technologies for Teaching and Learning Program. *RETTL: Collaborative Research: Transformative Computational Models of Narrative to Support Teaching Indigenous Perspectives in K-12 Classrooms*. Melissa Tehee (PI, Utah State University), Breanne Litts (Co-PI, Utah State University), Rogelio E. Cardona-Rivera (Co-PI). August 2021-July 2024. $849,871.00 (Share: $266,888.00)

[G11] National Science Foundation, Computer and Information Science and Engineering Directorate, Information and Intelligent Systems Division, Robust Intelligence Program. *CAREER: Plan-based Simulation of Human Story Understanding*. Rogelio E. Cardona-Rivera (PI). July 2021-July 2026. $544,379.00

    (a) Research Experiences for Undergraduates: Supplement to *CAREER: Plan-based Simulation of Human Story Understanding*. July 2021. $16,000.00

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[1]In Spring 2023, after receiving a unanimous support vote for re-appointment at the culmination of my tenure-track mid-term review, I voluntarily shifted my tenure-track appointment from the Kahlert School of Computing to the Division of Games.

Intramural Funding ($157,908.00)

[G10] University of Utah, Vice President for Research Office, Research Incentive Seed Grant. *Nature Rx Virtual: Designing a Nature-Based Health Intervention for Homebound Older Adults Using Virtual Reality*. E-Sok Andy Hong (PI), Rogelio E. Cardona-Rivera (Co-PI). April 2024-March 2025. $15,000.00 (Share: $4,800.00)

[G9] University of Utah, College of Science. *VR CoS Games Initiative*. Rogelio E. Cardona-Rivera (PI). August 2023-December 2024. $139,858.00 (Share: $139,858.00)

[G8] University of Utah, University Teaching Committee. *The VR Sim Lab*. Rogelio E. Cardona-Rivera (PI), Michael P. Clemens (Co-PI, *de facto*), and Munzer Abusham (Co-PI, *de facto*). August 2022-December 2022. $7,000.00 (Share: $7,000.00)

[G7] University of Utah, iNterdisciplinary EXchange for Utah Science (NEXUS) Pilot Program. *How do Teacher-Trainers train Teachers? Computationally Modeling the Design of Behavioral Skills Training to Support Automated Virtual Training*. Rogelio E. Cardona-Rivera (PI), Aaron J. Fischer (Co-PI). June 2020-May 2021. $12,500.00 (Share: $6,250.00)

Completed ($474,419.75)

[G6] United States Naval Research Laboratory. *Coherential Narrative Processing: Narrative Temporal Goal Networks for Long-term Autonomous Agents*. Rogelio E. Cardona-Rivera (PI). April 2021-March 2022. $120,721.00

[G5] Intelligence Advanced Research Projects Activity (Subcontract through Charles River Analytics). *Predictive System for Cyber Hostility using Integrated Computational Models (PSYCHIC)*. Rogelio E. Cardona-Rivera (PI). March 2018-March 2019. $169,698.75

[G4] Artificial Intelligence Journal. *Travel Funding for the Intelligent Narrative Technologies Track at the 9th International Conference for Interactive Digital Storytelling*. Rogelio E. Cardona-Rivera, Chris Martens. November 2016. € 2,000.00 (≈$3,000.00)

[G3] Department of Energy. *Computational Science Graduate Fellowship*. Rogelio E. Cardona-Rivera. August 2011-2015. $144,000.00

[G2] National GEM Consortium. *Ph.D. Graduate Fellowship*. Rogelio E. Cardona-Rivera. August 2010-2011. $32,000.00

[G1] North Carolina State University. *Graduate School and Engineering Dean Fellow*. Rogelio E. Cardona-Rivera. August 2010. $5,000.00

AWARDS AND HONORS

2023   Early Career Scholar, Design Justice AI Institute—2024 Mellon CHCI Global Humanities Institute ($ 8,199.80)

2021   Faculty Early Career Development (CAREER) Program Recipient, National Science Foundation ($ 544,379.00)

Honorable Mention for Best Paper (runner-up), 13th International Conference on Interactive Digital Storytelling (ICIDS 2021)

2019   Distinguished Visiting Fellow of the Scottish Informatics & Computer Science Alliance (£ 2,080.00)

2017   AAAI-17 Broadening Participation Scholarship ($ 1,250.00)

EAAI New and Future Educator Award ($ 1,000.00)

2016   Honorable Mention for Best Paper (Top 4% of papers), SIGCHI Conference on Human Factors in Computing Systems (CHI 2016)

2015   Showcase selection, 2015 Github Game Off III

2012   Best Paper, 5th International Conference on Interactive Digital Storytelling (ICIDS 2012)

Best Student Paper on a Cognitive Science Topic, Workshop on Computational Models of Narrative (CMN 2012)

GIFTS

2019   Activision — Blizzard, $15,000. April.

Oculus VR, $4,580 (in-kind, for my University of Utah Virtual Reality class). January.

EDUCATION

North Carolina State University   Raleigh, NC, USA

Ph.D. in Computer Science, 2019.
Minor in Cognitive Science
  Dissertation Title: "A Model of Interactive Narrative Affordance"
  Committee: R. Michael Young (co-chair), David L. Roberts (co-chair), Gabriel A. Radvansky (Notre Dame, Psychology), Robert St. Amant, Nicholas T. Taylor (Communications).

M.Sc. in Computer Science, 2013.

University of Puerto Rico at Mayagüez   Mayagüez, Puerto Rico

B.Sc. in Computer Engineering, 2010.
Minors in Mathematics and Economics

RESEARCH INTERESTS

Computational psychology, cognitive systems, artificial intelligence (AI), game design, interactive narrative, virtual reality, game design science, design justice, computational models of narrative, human-centered computing, science of design, procedural content generation, AI-based game design, human-computer interaction, visual storytelling, psychology of play, player modeling, computational creativity.

PUBLICATIONS

Lack of acceptance rates indicates that no such rates are available.
† denotes a student I supervised for publication of the work.

Refereed Journal Articles

2023   [J3] Rogelio E. Cardona-Rivera, José P. Zagal, and Michael S. Debus. Aligning story and gameplay through narrative goals. *Entertainment Computing*, 17(100577):1–15, 2023. 15 pages.

2020   [J2] Michael S. Debus, José P. Zagal, and Rogelio E. Cardona-Rivera. A Typology of Imperative Game Goals. *Game Studies*, 20(3), 2020.

2016   [J1] 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: 227–246, 2016.

Strongly Refereed Conference Articles

These articles are published at venues reported to have an acceptance rate below 40%.

2024 [C23] Rogelio E. Cardona-Rivera, Arnav Jhala, Julie Porteous, and R. Michael Young. The Story So Far on Narrative Planning. In *Proceedings of the 34th International Conference on Automated Planning and Scheduling* (to appear), pages 489–499, 2024. (ICAPS 2024)
(25% acceptance rate for full paper presentations)

2023 [C22] Justus Robertson, John Heiden, and Rogelio E. Cardona-Rivera. Evolving Interactive Narrative Worlds. In *Proceedings of the 19th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 126–135, 2023. (AIIDE 2023)
(27.6% acceptance rate for full paper presentations)

2022 [C21] Rogelio E. Cardona-Rivera, José P. Zagal, and Michael S. Debus. Game System Models: Toward Semantic Foundations for Technical Game Analysis, Generation, and Design. In *Proceedings of the 18th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 10–17, 2022. (AIIDE 2022)
(25% acceptance rate for full paper presentations)

[C20] Michael Clemens†, Nancy N. Blackburn†, Rush Sanghrajka, Monthir Ali†, Shilpa Thomas†, M. Gardone†, Hunter Finney, and Rogelio E. Cardona-Rivera. A Case-Based Reasoning Approach to Plugin Parameter Selection in Vocal Audio Production. In *Proceedings of the 30th International Conference on Case-based Reasoning*, pages 350–364, 2022. (ICCBR 2022)
(38.2% acceptance rate for full paper presentations)

2020 [C19] Rogelio E. Cardona-Rivera, José P. Zagal, and Michael S. Debus. GFI: A Formal Approach to Narrative Design and Game Research. In *Proceedings of the 13th International Conference on Interactive Digital Storytelling*, pages 133–148, 2020. (ICIDS 2020)
☆ Awarded Honorable Mention (Runner-up) for Best Paper
(31% acceptance rate for full paper presentations)

[C18] Matthew Christensen†, Jennifer M. Nelson†, and Rogelio E. Cardona-Rivera. Using Domain Compilation to add Belief to Narrative Planners. In *Proceedings of the 16th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 38–44, 2020. (AIIDE 2020)
(25% acceptance rate for full paper presentations)

2016 [C17] Chris Martens and Rogelio E. Cardona-Rivera. Generating Abstract Comics. In *Proceedings of the 9th International Conference on Interactive Digital Storytelling*, pages 168–175, 2016. (ICIDS2016)
(37.5% acceptance rate for full paper presentations)

[C16] 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*, pages 2–8, 2016. (AIIDE-16)
(27.7% acceptance rate for full paper presentations)

[C15] Ignacio X. Domínguez, Rogelio E. Cardona-Rivera, James K. 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*, pages 3438–3449, 2016. (CHI2016)
☆ Awarded Honorable Mention in the Best Papers Category
(23.4% acceptance rate for full paper presentations; 4% honorable mention rate)

2014 [C14] 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*, pages 9–15, 2014. (AIIDE-14)
(28% acceptance rate for full paper presentations)

2012 [C13] Rogelio E. Cardona-Rivera, Kiran Lakkaraju, Jonathan Whetzel, and Jeremy Bernstein. Large Scale Conflicts in Massively Multiplayer Online Games. In *Proceedings of the 2nd International Conference on Complex Sciences: Theory and Applications*, pages 50–61, 2012. (COMPLEX2012)

[C12] Matthew W. 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*, 2012. (ICIDS2012)
★ Awarded Best Paper
(29% acceptance rate for full paper presentations)

[C11] 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*, pages 204–211, 2012. (FDG2012)
(29% acceptance rate for full paper presentations)

Additional Conference Articles

2023   [C10]   Ravi Sinha, Phyllis Kyei Mensah, Breanne K. Litts, Rogelio E. Cardona-Rivera, and Melissa Tehee. Programming Time: Exploring Time as a Cultural Construct across Novice Computing Platforms. In *Proceedings of the Annual Meeting of the International Society of Learning Sciences*, 2023. (ISLS 2023)

2022   [C9]   Jonas P. Knochelmann[†] and Rogelio E. Cardona-Rivera. Bronco: A Universal Authoring Language for Controllable Text Generation. In *Proceedings of the 15th International Conference on Interactive Digital Storytelling*, pages 541–558, 2022. (ICIDS 2022)
(60% acceptance rate for full paper presentations)

2021   [C8]   Nancy N. Blackburn[†] and Rogelio E. Cardona-Rivera. OGrES Welcome! Toward a Systematic Theory for Serious Game Design. In *Extended Abstracts of the 2021 Annual CHI Symposium on Computer-Human Interaction in Play*, pages 242–248, 2021. (CHI Play 2021)
(61% acceptance rate for works-in-progress track papers)

2020   [C7]   Justus Robertson, Rogelio E. Cardona-Rivera, and R. Michael Young. Invisible Dynamic Mechanic Adjustment in Virtual Reality Games. In *Proceedings of the 3rd IEEE Conference on Artificial Intelligence and Virtual Reality: Special Session on AI for VR/AR Gaming & Simulations*, pages 282–289, 2020. (AIVR 2020)
(75% acceptance rate for special session paper presentations)

      [C6]   Rogelio E. Cardona-Rivera. Foundations of Computational Game Design via Artificial Intelligence: Abstractions and Tradeoffs. In *Proceedings of the 16th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 167–174, 2020. (AIIDE 2020)
(50% acceptance rate for poster paper presentations)

      [C5]   Adam Amos-Binks and Rogelio E. Cardona-Rivera. Goal Elicitation Planning: Acting to Reveal the Goals of Others. In *Proceedings of the 8th Annual Conference on Advances in Cognitive Systems*, 2020. 16 pages. (ACS 2020)

      [C4]   Chris Martens, Rogelio E. Cardona-Rivera, and Neil Cohn. The Visual Narrative Engine: A Computational Model of the Visual Narrative Parallel Architecture. In *Proceedings of the 8th Annual Conference on Advances in Cognitive Systems*, 2020. 16 pages. (ACS 2020)

      [C3]   Rogelio E. Cardona-Rivera, José P. Zagal, and Michael S. Debus. Narrative Goals in Games: A Novel Nexus of Story and Gameplay. In *Proceedings of the 15th International Conference on the Foundations of Digital Games*, 2020. 4 pages. (FDG2020)
(57% acceptance rate for short paper presentations)

2019   [C2]   Alexander J. Bisberg[†] and Rogelio E. Cardona-Rivera. SCOPE: Selective Cross-validation Over Parameters for Elo. In *Proceedings of the 15th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 116–122, 2019. (AIIDE-19)
(49% acceptance rate for poster paper presentation)

2013   [C1]   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 43rd Annual Frontiers in Education Conference*, pages 1525–1531, 2013. (FIE2013)

Refereed Symposia Articles

2023   [S3]   Breanne K. Litts, J. Kaleo Alladin, Melissa Tehee, and Rogelio E. Cardona-Rivera. Gathering as Design Process: Physical Prototyping for Culturally Sustaining Computational Technologies. In *Proceedings of the ACM Symposium on Learning, Design and Technology*, pages 107–113, 2023. (LDT 2023)

2020   [S2]   Monthir Ali[†] and Rogelio E. Cardona-Rivera. Comparing Gamepad and Naturally-mapped Controller Effects on Perceived Virtual Reality Experiences. In *Proceedings of the 8th ACM Symposium on*

Applied Perception, pages 1–10, 2020. 10 pages. (SAP 2020)
(50% acceptance rate for full paper presentations)

2019   [S1] Rogelio E. Cardona-Rivera and R. Michael Young. Desiderata for a Computational Model of Human Online Narrative Sensemaking. In the *Working Notes of the 2019 AAAI Spring Symposium on Story-enabled Intelligence*, 2019.

Refereed Workshop Articles

2024 [W14] Mica Gardone† and Rogelio E. Cardona-Rivera. Toward Planning with Hierarchical Decompositions and Time-frames. In *Proceedings of the 7th Workshop on Hierarchical Planning at the 34th International Conference on Automated Planning and Scheduling*, 2024. (HPlan 2024)

2022 [W13] Rogelio E. Cardona-Rivera, M. Gardone†, Logan Peterson†, Laura M. Hiatt, and Mark Roberts. Re-examining the planning basis of goal-driven autonomy problems. In *Proceedings of the Workshop on Integrated Action and Execution at the 32nd International Conference on Automated Planning and Scheduling*, 2022. (IntEx 2022)

     [W12] Mary Lou Maher, Brian Magerko, Dan Ventura, Douglas Fisher, Rogelio E. Cardona-Rivera, Nancy Fulda, John Gero, Minwoo Lee, David Wilson, James C. Kaufman, Maithilee Kunda, and Michael Muller. A Research Plan for Integrating Generative and Cognitive AI for Human Centered, Explainable Co-Creative AI. In *Proceedings of the Workshop on Generative AI and HCI at the ACM CHI Conference on Human Factors in Computing Systems*, 2022. (GenAICHI 2022)

2021 [W11] Louis Castricato, Stella Biderman, Rogelio E. Cardona-Rivera, and David Thue. Towards a Model-Theoretic View of Narratives. In *Proceedings of the 3rd Workshop on Narrative Understanding at the 2021 Annual Conference of the North American Chapter of the Association for Computational Linguistics*, pages 95–104, 2021. (WNU 2021)

2020 [W10] Adam Amos-Binks, Rogelio E. Cardona-Rivera, Dustin Dannenhauer, and Gene A. Brewer. Anticipatory thinking: A new frontier for automated planning. In *Proceedings of the combined 4th Integrating Planning, Acting, and Execution Workshop and 8th Goal Reasoning Workshop at the 30th International Conference on Automated Planning and Scheduling*, 2020. (IntEx+GR)

2018   [W9] David R. Winer† and Rogelio E. Cardona-Rivera. A Depth-Balanced Approach to Decompositional Planning for Problems where Hierarchical Depth is Requested. In *Proceedings of the 1st Workshop on Hierarchical Planning at the 28th International Conference on Automated Planning and Scheduling*, pages 1–8, 2018. (HPLAN2018)

2017   [W8] 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. In *Proceedings of the 10th Workshop on Intelligent Narrative Technologies at the 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 154–161, 2017. (INT10)

     [W7] 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 at the 31st AAAI Conference on Artificial Intelligence*, pages 796–803, 2017. (PAIR2017)
(40% acceptance rate for full paper presentations)

     [W6] 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*, pages 1027–1028, 2017.

2015   [W5] 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 at the 11th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment, pages 16–22, 2015. (INT9+SBG)

2014   [W4] Rogelio E. Cardona-Rivera and R. Michael Young. Games as Conversation. In *Proceedings of the 3rd Workshop on Games and NLP at the 10th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 2–8, 2014. (GAMNLP-14)

2012   [W3] Rogelio E. Cardona-Rivera, Bradley A. Cassell, Stephen G. Ware, and R. Michael Young. INDEXTER: A computational model of the event-indexing situation model for characterizing narratives. In Mark A. Finlayson, editor, the *Working Notes of the Workshop on Computational Models of Narrative at the 2012 Language Resources and Evaluation Conference*, pages 32–41, 2012. (CMN2012)
        ★ Awarded Best Student Paper on a Cognitive Science Topic

  [W2] Alok Baikadi and Rogelio E. Cardona-Rivera. Towards finding the fundamental unit of narrative: A Proposal for the Narreme. In Mark A. Finlayson, editor, the *Working Notes of the Workshop on Computational Models of Narrative at the 2012 Language Resources and Evaluation Conference*, pages 42–44, 2012. (CMN2012)

2011   [W1] 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 at the 7th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, pages 123–130, 2011. (INT4)

Scientific Magazine and Newsletter Articles

2018   [M1] Eric Eaton, Sven Koenig, Claudia Schulz, Francesco Maurelli, John Lee, Joshua Eckroth, Mark Crowley, Richard G. Freedman, Rogelio E. Cardona-Rivera, Tiago Machado, and Tom Williams. Blue Sky Ideas in Artificial Intelligence Education from the EAAI 2017 New and Future AI Educator Program. *AI Matters*, 3(4):23–31, 2018.

Refereed Abstracts

These articles or presentations involved submitting abstracts that were peer reviewed.

2024   [A7] Rogelio E. Cardona-Rivera. Culturally Sustaining/Revitalizing Artificial Intelligence for Generating Virtual Realities toward Liberated Worlds. Presented at the *Global Humanities Institute 2024: Design Justice AI*, University of Pretoria, South Africa, July 2024. (Design Justice AI 2024).

2023   [A6] Rogelio E. Cardona-Rivera. Generated Virtual Realities as Catalysts for Liberated Worlds. In *Artificial Intelligence—Failures, Fiascos, and Unforeseen Consequences in Literature. Seminar at the Annual Meeting of the American Comparative Literature Association*, 2023. (ACLA 2024).

2020   [A5] Adam Amos-Binks, Rogelio E. Cardona-Rivera, Dustin Dannenhauer, and Gene A. Brewer. Anticipatory thinking: A new frontier for automated planning. In *Proceedings of the 8th Annual Conference on Advances in Cognitive Systems*, 2020. (ACS 2020).

2019   [A4] José P. Zagal, Michael S. Debus, and Rogelio E. Cardona-Rivera. On the Ultimate Goals of Games: Winning, Finishing, and Prolonging. In *Proceedings of the 13th International Philosophy of Computer Games Conference*, 2019. (PoCG2019).

  [A3] Adam Amos-Binks and Rogelio E. Cardona-Rivera. Deceptive Intentions and their Recognition in Narrative. In *Presentations at the Story-enabled Intelligence Workshop at the 7th Annual Conference on Advances in Cognitive Systems*, 2019. (SEI2019)

2013   [A2] 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*, 2013. (DiGRA2013).

[A1] Rogelio E. Cardona-Rivera and R. Michael Young. Computational Models of Narrative and their relation to Human Behavior. In *Presentations at the NC State Communication, Rhetoric, and Digital Media Research Symposium: Emerging Genres, Forms, Narratives*, 2013.

Refereed Student Abstracts

2014   [sA1]   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*, pages 3098–3099, 2014. (AAAI-28).

Doctoral Consortia

2011   [D1]   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*, pages 250–252, 2011. (FDG2011).

Books and Book Chapters

2024   [B2]   Rogelio E. Cardona-Rivera, J. Kaleo Alladin, Breanne K. Litts, and Melissa Tehee. Indigenous Futures in Generative Artificial Intelligence: The Paradox of Participation. In Beth Buyserie and Travis N. Thurston, editors, *Teaching and Generative AI: Pedagogical Possibilities and Productive Tensions*. Utah State University, 2024. Available: UEN Pressbooks.

2014   [B1]   Chris Forsythe, Huafei Liao, Michael Christopher Stefan Trumbo, and Rogelio E. Cardona-Rivera. *Cognitive Neuroscience of Human Systems: Work and Everyday Life*. CRC Press, 2014. Available: https://a.co/d/6JAkDHr

Edited Proceedings

2023   [E1]   Markus Eger and Rogelio E. Cardona-Rivera, editors. *Proceedings of the 19th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment*, volume 19, Salt Lake City, UT, USA, November 2023. Association for the Advancement of Artificial Intelligence, The AAAI Press. Available: https://ojs.aaai.org/index.php/AIIDE/issue/view/571

2019   [E1]   Rogelio E. Cardona-Rivera, Anne Sullivan, and R. Michael Young, editors. *Interactive Storytelling: Proceedings of the 12th International Conference on Interactive Digital Storytelling*, volume 11869 of *Lecture Notes in Computer Science*, Little Cottonwood Canyon, UT, USA, November 2019. Association for Research in Digital Interactive Narratives, Springer. Available: https://link.springer.com/book/10.1007/978-3-030-33894-7

Technical Reports

2014   [R2]   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   [R1]   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.

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In Preparation

Breanne K. Litts, Melissa Tehee, Rogelio E. Cardona-Rivera, and J. Kaleo Alladin. The design ethics of culturally sustaining/revitalizing (re)presentation. *International Journal of Designs for Learning: Special Section on Ethics in Learning Design*, 2024.

PUBLISHED ARTIFACTS

Games

2015   *Umbilicus: Ascension* (https://github.com/sweetcarolinagames/Umbilicus-Ascension)
Rogelio E. Cardona-Rivera and Ian Coleman.
★ Selected for the 2015 Github Game Off III showcase.

2014   *BitBot* (Github: https://github.com/sweetcarolinagames/BitBot)
Rogelio E. Cardona-Rivera, José D. Vélez, and Ian Coleman.
☆ Runner-up at the 2014 Github Game Off II.

Software

2022   *Bronco Text Generator* (Github: https://github.com/qed-lab/Bronco-Text-Generator)
Software corresponding to the paper: Jonas P. Knochelmann[†] and Rogelio E. Cardona-Rivera. Bronco: A Universal Authoring Language for Controllable Text Generation. In *Proceedings of the 15th International Conference on Interactive Digital Storytelling*, pages 541–558, 2022.

INVITED TALKS

Keynotes

2023   Computational Game Design: A Frontier and Roadmap for AI-Powered Artifactual Science. Keynote at the *2023 Annual Meeting of the Society for the Neuroscience of Creativity: Creativity and AI*. March 24. San Francisco, CA, USA.

2018   Toward a Science of Game Design. Keynote at the *11th ACM SIGGRAPH Conference on Motion, Interaction, and Games*. November 9th. Limassol, Cyprus.

Colloquia, Distinguished Lectures

2024   XR for Alternative Future Scenarios: Exploring the Potential of XR in Foresight Thinking. Invited Colloquium, *Envisioning Futures*. Hosted by Westminster University. April 11th. Salt Lake City, UT, USA.

Technical Games Research: Toward a Science of Game Design. Invited Colloquium, *Explore CSR: Explore Data Science and Artificial Intelligence Research Pathways, Google Research*. Hosted by Cal Poly Pomona, Computer Science Department. January 20th. Online.

2021   Storytelling and Story Understanding AI. Invited Colloquium, *Genesis Group, Massachusetts Institute of Technology*. April 9th. Online.

Toward a Science of Game Design via Artificial Intelligence. Invited Colloquium, *Tilburg Center for Cognition and Communication, Tilburg University*. March 3rd. Online.

Computational Models of Narrative and Social Justice. Invited Lecture for the *26th AAAI/SIGAI Doctoral Consortium, at the 35th AAAI Conference on Artificial Intelligence*. February 2nd. Online.

2020   Modeling Narrative Intelligence to Support Adaptive Virtual Environments. *United States Naval Research Laboratory*. June 18th. Online.

2019   Inteligencia Artificial en los Video Juegos: *Del Mundo Real al Mundo Virtual (y vice-versa)*. (**Translation**: Artificial Intelligence in Video Games: *From the Real World to the Virtual World (and vice-versa)*). *4th National / 2nd International Congress on the Diversity of Knowledge: Steps Toward Artificial Intelligence. Universidad Contemporánea de las Américas*. November 29th. Morelia, Michoacán, Mexico.

Modeling Narrative Intelligence to Support Adaptive Virtual Environments.
Digital Matters Initiative, University of Utah.
September 24th. Salt Lake City, UT, USA.

University of Heriot Watt, Edinburgh Campus.
August 16th. Edinburgh, Scotland, UK.

University of Glasgow.
August 8th. Glasgow, Scotland, UK.

2017   Modeling Narrative Intelligence to Support Adaptive Virtual Environments. *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. San Juan, Puerto Rico.

2012   Narrative Affordance: Towards a model of the Perceivability and Foreseeability of Events in an Interactive Narrative. *Sandia National Laboratories*. May 1st. Albuquerque, NM, USA.

INVITED PANELS

2023   Should we regulate AI? Joint Panel and Film Exhibition by *The AI Project and the AI International Film Festival*. August 17th. Salt Lake City, UT, USA.

AI, ChatGPT, and the Future of Humans. At the *Inaugural AI International Film Festival*. May 11th. Salt Lake City, UT, USA.

2021   Diversity Driving AI Innovation. At *NVIDIA GTC 2021* (GPU Technology Conference). April 12th. Online.

2019   Presente y Futuro de la Inteligencia Artificial. (**Translation**: Present and Future of Artificial Intelligence). *4th National / 2nd International Congress on the Diversity of Knowledge: Steps Toward Artificial Intelligence*. *Universidad Contemporánea de las Américas*. November 29th. Morelia, Michoacán, Mexico.

Prospective Cognition and Narrative. At the *2019 AAAI Spring Symposium on Story-based Intelligence*. March 26th. Stanford, CA, USA.

STUDENTS SUPERVISED

University of Utah

Doctoral Students

Thesis Adviser

Munzer Abusham, Computing [expected graduation 2024]

M. Gardone, Computing [expected graduation 2026]

Pablo Sauma-Chacón, Computing [expected graduation 2028]

Committee Member

Eric Lang, Computing

Rush Sanghrajka, Computing (graduated 2023)

David R. Winer, Computing (graduated 2018)

Masters Students

Adviser

James Youngblood, Computing [expected graduation 2024].

Shilpa Thomas, Entertainment Arts and Engineering (graduated 2022).
First job post-graduation: Software Engineer, 2K Games.

M. Gardone, Computing (graduated 2021).
First job post-graduation: Ph.D. Student in Computing, University of Utah

Alex Bisberg, Computing (graduated 2020).
First job post-graduation: Ph.D. Student in Computer Science, University of Southern California

Ben Barker, Entertainment Arts and Engineering (graduated 2019).

Run Li, Computing (graduated 2019).
First job post-graduation: Software Engineer, Google.

Undergraduate Students

Research Mentor

Isaac Warner, Computer Science. 2023-present.

Max A. Morris; UROP Scholar, Games. 2023-present.

Shuang Wu, Games. 2023-present.

Jonas P. Knochelmann; UROP Scholar (x2), NSF REU, Computing. 2021-present.

Vanessa Cox; ACCESS Scholar, UROP Scholar (x2), NSF REU. Computing and EAE. 2019-2020.

Jialin Wu; ACCESS Scholar, UROP Scholar, Computing and EAE. 2020-2021.

Diego Andino; NSF REU, EAE. 2018-2019.

Honors Thesis Adviser

Linda (Mekenzy) Toner, Games. 2022-present.
First job post-graduation: Systems Designer, Avalanche Software, Warner Bros. Games.

Jennifer Nelson; Computing. 2018-2020.
First job post-graduation: Software Engineer, Microsoft.

Matthew Christensen; Computing. 2018-2020.
First job post-graduation: Software Engineer, Microsoft.

Jacob Sivo, Computing and Entertainment Arts and Engineering. 2018-2019 (Co-supervised with Alex Bisberg).

Brady Jacobson, Computing and Entertainment Arts and Engineering. 2018-2019 (Co-supervised with Michael Clemens).

North Carolina State University

Undergraduate Students

Research Mentor

Stephanie Yang, Computer Science (2014)

Phillip Wright, Computer Science (2014)

Mary Beth Kery, Computer Science (2013)

Christian Harrison Stith, Computer Science (2013)

High School Students

Research Mentor

Kelvin E. Fichter (2013)

Génesis Rosado (2013)

Rubén A. Hernández Díaz (2013)

Joshua L. Pupo Morales (2013)

Christopher Alicea Nieves (2013)

Jeffrey Carrión Calderón (2013)

SERVICE TO PROFESSION

Panelist

National Science Foundation, 2021 (two panels).

Founding Committee Member

AAAI Diversity and Inclusion Committee, 2019–present.

Chair

2024   General Chair, 20th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
(AIIDE 2024)

2023   Program Chair, 19th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
(AIIDE 2023)

Co-Chair

2019   General Co-Chair (with Gene A. Brewer, Dustin Dannenhauer, and Adam Amos-Binks), AAAI Fall Symposium on Cognitive Systems for Anticipatory Thinking
(COGSAT19)

Program Co-Chair (with Anne Sullivan), 12th International Conference on Interactive Digital Storytelling
(ICIDS2019)

2018   Artifact Evaluation Track Co-Chair, 14th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
(AIIDE-18)

2017   Workshops Co-Chair (with Brent Harrison), 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment
(AIIDE-17)

2016   Co-Chair of the Intelligent Narrative Technologies Track (with Chris Martens), 9th International Conference on Interactive Digital Storytelling
(ICIDS2016)

Program Committee Member

2020   3rd IEEE Conference on Artificial Intelligence & Virtual Reality (AIVR 2020)

12th Intelligent Narrative Technologies Workshop (INT 12)

16th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE 2020)

15th International Conference on the Foundations of Digital Games (FDG 2020)

8th Annual Conference on Advances in Cognitive Systems (ACS 2020)

13th International Conference on Interactive Digital Storytelling (ICIDS 2020)

2019   1st IEEE Conference on Games, Narrative and Interactive Entertainment Track (COG 2019)

2nd Workshop on Hierarchical Planning at the 29th International Conference on Automated Planning and Scheduling (ICAPS 2019)

Plan, Activity, and Intent Recognition Workshop at the 34th AAAI Conference on Artificial Intelligence (PAIR 2020)

2017   13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment, Main Conference Track, Doctoral Consortium Track (AIIDE 2017)

10th Intelligent Narrative Technologies Workshop (INT10) at the 13th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE 2017)

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 2016)

2015	2nd Experimental AI in Games Workshop (EXAG) at the 11th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE 2015)
	10th International Conference on the Foundations of Digital Games (FDG 2015)
2014	1st Experimental AI in Games (EXAG) Workshop at the 10th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE 2014)
	7th International Conference on Interactive Digital Storytelling (ICIDS 2014)
2013	8th International Conference on the Foundations of Digital Games (FDG 2013)
2012	5th International Conference on Interactive Digital Storytelling (ICIDS 2012)

Reviewer

2020	IEEE Transactions on Games (IEEE TOG)
	7th ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play (CHIPlay2020)
2018	32nd AAAI Conference on Artificial Intelligence (AAAI-32)
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 (FDG2014)
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

SERVICE TO UNIVERSITY

College of Engineering

Member, Graduate Curriculum Committee (Division of Games Representative), 2023–present.

Member, Graduate Curriculum Committee (EAE Representative), 2021–2023.

Division of Games

Chair, Appointments Committee, 2023–2024

Chair, Tenure-track Faculty Search Committee, 2023–2024

Co-Organizer, 1st Utah Winter Summit on Games, 2023–2024

Member, Ph.D. Design Committee, 2023–present

Kahlert School of Computing

Member, Curriculum Committee, 2022–2023

Speaker, Inauguration of the Utah Center for Inclusive Computing, 2021

Member, AI Faculty Search Committee, 2020

Member, Diversity Committee, 2017–2018, 2020–present

Member, Working Group on AI, 2019-present

Member, Admissions Committee, 2018

Member, Human-Centered Computing Track, 2018-present

The Entertainment Arts and Engineering Program

Member, Games Division Faculty Search Committee, 2022–2023

Member, Diversity Committee, 2021–present

Member, Faculty Search Committee, 2018-2019

Member, Engineering Track Admissions Committee, 2018-2019

Co-Chair, Global Game Jam University of Utah EAE Site, 2018

COMMUNITY INVOLVEMENT AND OUTREACH

Talks

2024   Student Mentor and Guest Speaker, *Mind Riot 2024: Artificial Intelligence*,[2] The Leonardo. Talk: What is AI?—A Workshop. June 25th.

2021   Guest Speaker, University of Kentucky, Department of Computer Science, Class—Topics in Artificial Intelligence: Interactive Narrative (Host: Stephen Ware). February 1st.

2020   *Now you're playing with power!* The Potential of eSports Research. *Technology Update: Achievement Rewards for College Scientists Foundation, Utah Chapter*. January 28th.

2019   Toward a Science of Game Design. *Salt Lake City Public Library: Tech Talks Lecture Series*. Salt Lake City, UT, USA, April 18th.

AI Literacy. *Salt Lake Oasis*. Salt Lake City, UT, USA, January 13th.

2017   Procedural Narrative Generation, delivered alongside Chris Martens. *Game Developers Conference*, *Narrative Summit*. San Francisco, CA, USA, February 27th.

2016   Toward the Holodeck: Computational Models of Interactive Narrative and their relation to Human Cognition. Carnegie Mellon University. Pittsburgh, PA, USA, May 10th.

2015   Toward the Holodeck: Computational Models of Narrative and their relation to Human Cognition. Department of Energy Computational Science Graduate Fellowship Annual Review. Washington, DC, USA, August 20th.

Moving Smartly: An Introduction to Artificial Intelligence Design. 2015 East Coast Games Conference. Raleigh, NC, USA, April 8th.

2014   Narrative Design: The Importance of Narrative Affordances. 2014 East Coast Games Conference. Raleigh, NC, USA, 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. Goldsboro, NC, USA, February 15th.

2011   A jugar...¡en serio! (Talk about Games Research at NC State). University of Puerto Rico at Mayagüez. Mayagüez, Puerto Rico, October 7th.

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[2]Mind Riot offers High School students the opportunity to compete in a social entrepreneurship competition and solve real world problems. By working closely with adult mentors, students learn how to creatively problem solve and identify solutions to challenges.

Outreach

2013   Coordinator, Interactive and Intelligent Media Showcase
Computer Science Department Open House
North Carolina State University, Raleigh, NC, USA.

Co-organizer, Triangle Game Showcase
SparkCon, Raleigh, NC, USA.

NON-ACADEMIC WORK

Apple, Inc.   **Cupertino, CA, USA**

Internet Service & Technology Division

MobileMe Intern, Summer 2010. Under the direction of Guido Seibt.

MIT/Lincoln Laboratory   **Lexington, MA, USA**

Advanced Networks & Applications Group

Intern, Summer 2009. Under the direction of Jeremy Mineweaser.

Goldman Sachs   **New York, NY, USA**

Equities Technology Division

Trading Automation Group Intern, Summer 2008. Under the direction of Drew Gutstein.

MEDIA COVERAGE

2023   Graham Jones. Artificial Intelligence in the Art World. *The Daily Utah Chronicle*, 133(3):26–27, Sep 2023.

"The AI Project panel: Should We Regulate AI?" *RadioACTive*. KRCL 90.9 FM. Salt Lake City, UT, USA.
August 15, 2023. Radio. Executive Producer: Lara Jones.
Last accessed August 16 2023.

2021   "How Diversity Drives Innovation: Catch Up on Inclusion in AI with NVIDIA On-Demand" NVIDIA Blog.
Last accessed May 25 2021.

2020   "What does the Future of Gaming Look Like?" Built In.
Last accessed February 14 2020.

2018   "Why Batle Royale Games Like Fortnite Are Everywhere (It's Not Just Money)" Wired.
Last accessed April 1st 2018.

2016   "Everyone Role-Plays in Video Games, Study Finds" Vice: Motherboard.
Last accessed March 23rd 2018.

TEACHING

University of Utah

Instructor of Record

Psychology of Games (EAE 4900) [special topics]. Spring 2022, 2023.

Virtual Reality (CS 5360/6360). Spring 2019, Fall 2019, 2020, 2021, 2023.

Artificial Intelligence for Games (EAE 6610). Spring 2019, 2020, 2021, 2022, 2024.

Science of Game Design (CS 6955). Spring 2018.

Computational Narrative Seminar (CS 7944). Spring 2018.

Senior Project II (EAE 4510). Spring 2018.

Guest Lecturer

Introduction to Human-Computer Interaction (CS 6540)
Fall 2019, Fall 2018, Fall 2017
"HCI & Games Research: An Overview"

Philosophical Foundations of Cognitive Science (PHIL 3440)
Spring 2018
"Science of Game Design: A Cognitive Science"

LANGUAGES

English, Native Fluency

Spanish, Native Fluency

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS
Higher Education Video Game Alliance
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