

Markus Eger

CONTACT	Cal Poly Pomona Pomona, CA	meger@cpp.edu http://slothlab.info
PROFESSIONAL EXPERIENCE	Assistant Professor California State Polytechnic University Pomona Visiting Professor Universidad de Costa Rica Teaching Assistant Graz University of Technology Teaching Assistant NC State University	January 2021 – current January 2019 – July 2020 2007-2013 fall 2013
RESEARCH EXPERIENCE	Director of SLOTHLab Research group for Symbolic Logic and Operations for Transactions with Humans Research assistant Department of Computer Science North Carolina State University Supervisors: Michael Young, PhD (November 2013 – December 2016) Alyson Wilson, PhD (January 2017 – December 2017) Chris Martens, PhD (January 2018 – December 2018) RoboCup Team Member Mostly Harmless RoboCup Middle Size League Team Graz University of Technology Supervisor: Franz Wotawa, PhD	since January 2019 November 2013 – December 2018 July 2009 – December 2011
GRANTS	CSU CREATE Grant Co-PI “Interactive Simulations for Dynamics Education (InSiDE)” (with PI Dr. Zahra Sotoudeh), valued \$99 844 Google exploreCSR PI “Explore Computer Science Research”, valued \$18 000 SPICE Grant - CPP Co-PI “Fair Play: Gender and Racial Justice in Games” (with PI Dr. Hyeryung Hwang), valued \$19 744 SPICE Grant - CPP Co-PI “DS-Pathways (DSP): A PolyX Pathway for Data Science Immersive Experience and Practice” (with PI Dr. John Korah, and Co-PI Dr. Ericsson Marin), valued \$24 656 Google exploreCSR Co-PI “Explore Computer Science Research” (with PI Dr. Tingting Chen), valued \$32 000 SPICE Grant - CPP PI “Creating Course Content in Virtual Reality”, valued \$18 000 SIRG Grant - CPP Co-PI “DiTTA: Digital Twin Technology for Aerospace” (with PI Dr. Zahra Sotoudeh), valued \$15 000 CITIC Research Grant PI “Planning and Plan Recognition in Unity”, valued \$9 000	2023 2023 2023 2023 2023 2022 2022 2022 2020

CITIC Research Grant	2019
PI “Non-Verbal Communication in Video Games”, valued \$10 000	
Laboratory of Analytic Science Research Grant	2017
Co-PI “Automated Textual Report Generation from Email Data” (with PI Dr. Alyson Wilson and Co-PI Colin M. Potts), valued \$80 000	

PUBLICATIONS

Peer-reviewed journal publications

1. Brenes, J.A., **Eger, M.**, Marín-Raventós, G. “Early Detection of Diseases in Precision Agriculture Processes Supported by Technology.”, *Sustainable Intelligent Systems*, 2021
2. **Eger, M.**, Martens, C., Sauma Chacón, P., Alfaro Córdoba, M., Hidalgo-Cespedes, J. “Operationalizing Intentionality to Play Hanabi with Human Players”, *IEEE Transactions on Games*, 2020

Peer-reviewed conference publications

1. Baron, N., **Eger, M.** “Observer-Rules for Box-Split Grammars”. *Proceedings of the 19th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Salt Lake City, Utah, USA, 2023.
2. Sotoudeh, Z., **Eger, M.** “Automatic Adaptive Refinement Sampling Method for Data-Driven Predictive Models”. *AIAA SciTech Forum*, 2023.
3. **Eger, M.** “Instant Architecture in Minecraft using Box-Split Grammars”. *Proceedings of the Conference on Foundations of Digital Games (FDG)*, Greece, 2022.
4. Sauma Chacón, P., **Eger, M.** “Evaluating a Plan Recognition Agent for the Game Pandemic with Human Players”. *Proceedings of the IEEE Conference on Games (CoG)*, Copenhagen, Denmark, 2021.
5. Sauma Chacón, P., **Eger, M.** “PAIndemic: A Planning Agent for Pandemic”. *Proceedings of the 16th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Worcester, USA, 2020.
6. **Eger, M.** “Murder Mysteries: The White Whale of Narrative Generation?”. *Proceedings of the 16th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Worcester, USA, 2020.
7. **Eger, M.**, Sauma Chacón, P. “Deck Archetype Prediction in Hearthstone”. *Proceedings of the Conference on Foundations of Digital Games (FDG)*, Malta, 2020.
8. **Eger, M.**, Martens, C. “A Study of AI Agent Commitment in One Night Ultimate Werewolf with Human Players”. *Proceedings of the 15th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Atlanta, USA, 2019.
9. **Eger, M.**, Gruss, D. “Wait a Second: Playing Hanabi without Giving Hints”. *Proceedings of the Conference on Foundations of Digital Games (FDG)*, San Luis Obispo, USA, 2019.
10. Sauma Chacón, P., **Eger, M.** “Ex-Tarot: An extended Tarot-based narrative generation”. *Proceedings of the IV Costa Rican Conference on Research in Computer Science and Informatics (JoCICI)*, San José, Costa Rica, 2019.
11. **Eger, M.**, Martens, C. “Keeping the Story Straight: A Comparison of Commitment Strategies for a Social Deduction Game”. *Proceedings of the 14th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Edmonton, Canada, 2018.

12. **Eger, M.**, Martens, C. “Practical Specification of Belief Manipulation in Games”. *Proceedings of the 13th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE)*, Snowbird, Utah, 2017.
13. **Eger, M.**, Martens, C, Alfaro Córdoba, M. “An Intentional AI for Hanabi”. *Proceedings of the IEEE Conference on Computational Intelligence and Games (CIG)*, New York City, New York, 2017.

Peer-reviewed workshop publications

1. Renella, N., **Eger, M.** “Towards Automated Video Game Commentary Using Generative AI”, *Working Notes of the AIIDE 2023 Workshop on Experimental AI in Games (EXAG)*, Salt Lake City, Utah, USA, 2023.
2. Armstrong, W., **Eger, M.** “BizMC: A Lua Framework for running Monte Carlo Tree Search in the BizHawk emulator”, *Working Notes of the AIIDE 2022 Workshop on Experimental AI in Games (EXAG)*, Pomona, USA, 2022.
3. Sauma Chacón, P., **Eger, M.** “Pandemic as a Challenge for Human-AI Cooperation”. *Working Notes of the AIIDE 2019 Workshop on Experimental AI in Games (EXAG)*, Atlanta, USA, 2019.
4. Gottwald, E.T., **Eger, M.**, Martens, C. “I see what you see: Integrating eye tracking into Hanabi playing agents”. *Working Notes of the AIIDE 2018 Workshop on Experimental AI in Games (EXAG)*, Edmonton, Canada, 2018.
5. Mohr, H., **Eger, M.**, Martens, C. “Eliminating the Impossible: A Procedurally Generated Murder Mystery”. *Working Notes of the AIIDE 2018 Workshop on Experimental AI in Games (EXAG)*, Edmonton, Canada, 2018.
6. **Eger, M.**, Mathewson, K. “dAIrector: Automatic Story Arc Generation through Knowledge Synthesis”. *Working Notes of the AIIDE 2018 Workshop on Intelligent Narrative Technologies (INT)*, Edmonton, Canada, 2018.
7. **Eger, M.**, Martens, C. “Character Beliefs in Story Generation”. *Working Notes of the AIIDE 2017 Workshop on Intelligent Narrative Technologies (INT)*, Snowbird, Utah, 2017.
8. Barot, C., Branon, M., Cardona-Rivera, R.E., **Eger, M.**, Glatz, M., Green, N., Mattice, J., Potts, C.M., Robertson, J., Shukonobe, M., Tateosian, L., Thorne, B.R., and Young, R.M., “Bardic: Generating Multimedia Narrative Reports for Game Logs”, *Working Notes of the AIIDE 2017 Workshop on Intelligent Narrative Technologies (INT)*, Snowbird, Utah, 2017.
9. **Eger, M.**, Martens, C. “Programming with Epistemic Logic”. *Off The Beaten Track Workshop (OBT)*, Paris, France, 2017.
10. **Eger, M.**, Potts, C.M., Barot, C., Young, R.M. “Plotter: Plotter: Operationalizing the Master Book of All Plots”. *Proceedings of the 8th Workshop on Intelligent Narrative Technologies (INT8)*, Santa Cruz, California, 2015.
11. **Eger, M.**, Barot, C., Young, R.M. “On the Merits of a Temporal Modal Logic for Narrative Discourse Generation”. *Proceedings of the 8th Workshop on Intelligent Narrative Technologies (INT8)*, Santa Cruz, California, 2015.
12. **Eger, M.**, Young, R.M. “Impulse: a formal characterization of story”. *Proceedings of the 2015 Workshop on Computational Models of Narrative (CMN)*, pp. 45–53, Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, Dagstuhl, Germany, 2015.
13. **Eger, M.** “Kick it like Beckham - Learning Kicker Parameters Using Reward-Weighted Regression”. *1st Austrian Robotics Workshop*, 2011
14. **Eger, M.**, Joham, T., Korl, L., “Behavior Engine for Autonomous Soccer Robots”. *5th Austrian RoboCup Workshop*, 2010

Invited Talks

1. **Eger, M.**, “The good, the bad and the ‘software bug’: What Machine Learning does with your data”, Public talk at *Choose Privacy Week* hosted by the CPP Library, 2021.
2. **Eger, M.**, “AI and Humans”, Keynote at the *Latin America High Performance Computing Conference*, Cuenca, Ecuador, 2020
3. **Eger, M.**, “Human-AI Communication in Games”, Keynote at the *IV Costa Rican Conference on Research in Computer Science and Informatics (JoCICI)*, San José, Costa Rica, 2019
4. **Eger, M.** “A Generated Murder Most Foul”, Invited talk at the *CamJam Tutorial, held at 15th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment*, Atlanta, Georgia, 2019.

AWARDS

- Best Program Committee Member** 2021
Awarded at the 17th AAAI International Conference on Artificial Intelligence and Interactive Digital Entertainment, 2021.
- Outstanding Graduate Research** 2018
Awarded by the Computer Science Department of NC State to 1 or 2 students each year to recognize outstanding research contributions.

MENTORING

Master’s Students

Kevin Vo: Thesis working title: *Companion AI for Role Playing Games*, graduated Spring 2023

Thanh Le: Thesis working title: *Terrain Generation using Perlin Noise*, graduated Spring 2023

Ali Awan: Thesis working title: *DiTTA: Digital Twin Technology for Aerospace*, graduated Spring 2023

Daniel Gruhn: Thesis working title: *VR Course Content for Formal Languages and Automata*, graduated Spring 2023

Noah Renella: Thesis working title: *A Twitch Chat Bot for Live Video Game Commentary*, graduated Spring 2023

Ammar Arif: Thesis working title: *Logical Neural Networks for Question Answering*, graduated Spring 2023

Nick Baron: Thesis title: *Observer Rules for Box-Split Grammars*, graduated Fall 2022

Seungyun Lee: Thesis title: *Super Mario Bros Levels Generation via Reinforcement Learning*, graduated Fall 2022

Wan Suk Lim: Thesis title: *Mimicking Human-like Battle Behavior of Enemies in a Game*, graduated Fall 2022

Pablo Sauma Chacón (at UCR): Thesis title: *Improving Cooperation Between Human and Computer Players through Plan Recognition in the Game Pandemic*, graduated December 2020

Jonathan Esquivel (at UCR): Thesis working title: *Guided Procedural Content Generation using Facial Expression Analysis*, expected graduation: Fall 2023

Research Experience for Undergraduates

 Summer 2023

Alondra Marin: Undergraduate researcher developing a method to evaluate gender bias in Large Language Models.

Research Experience for Undergraduates

 Summer 2022

Michael Skolowicz: Undergraduate researcher developing evaluation methods for player position prediction in Playerunknown’s Battlegrounds.

Research Experience for Undergraduates

 Summer 2021

Jorge Aranda: Undergraduate researcher developing a neural network to find correlation between network traffic and player positions in Playerunknown's Battlegrounds.

Ngan Bao: Undergraduate researcher developing a neural network to find correlation between network traffic and player positions in CounterStrike: Global Offensive.

Research Experience for Undergraduates Summer 2018

Eve Gottwald: Undergraduate researcher implementing a version of the card game Hanabi that uses eye tracking to determine what the human player focuses on

Henry Mohr: Undergraduate researcher developing a detective game using belief modeling

Honors Projects supervised

Fall 2021: Emily Villalba

Fall 2022: Zhong Ooi

Data Science Minor Capstone Projects supervised

2021/22 AY: Babak Shajari

Fall 2022: Jade Wu, Kiana Yao

Undergraduate Senior Projects supervised

Fall 2021: Andrew Day, Yuan-Chieh Ying, Ameer Abdallah,

2021/22 AY: Clarence-Hugues Domond, Duc Quoc Anh Nguyen, Dylan Anh Trinh, Roya Salei

Spring 2022: Jorge Aranda, William Armstrong, Cole Dungca, Zicong Liu, Joshua Barrientos, Jihyun Lee, Kyle Townsend, Kyle Ullum, Shane Dirksen, Nathan Brown, Kenneth Shuto, Tran Nguyen, Van Huynh, Lorenzo Cabrera, Kayte Chien, Rebecca Lee, Justin Rebollar, Aaron Do, Ryan Yan, Robert Balatbat, Theodore Tran

Fall 2022: Christopher Tcherkezian, Michael Hessler

2022/23 AY: Austin Celestino, Sebastian Chinen, Joey Cindass, Gaia Dennison, Justin Ko, Michael Outmesguine, Christopher Tomes,

Spring 2023: Kayte Chien, Rebecca Lee, Joshua Barrientos, Grecia Alvarado, Laurence Garcia, Estefania Chavez, Daniel Appel, Samantha Macaraniag, Devon Mamwag, Kennedy Janto, Viet Nguyen, Andrew Kim, Ryan Trinh, Steven Nguyen, Alvan Zhang, Nathan Brown, Farhan Hussain, Byungchul Kang, Jibriel Ustarz, George Matta, Emily Perez, Jason Rowley, Alec Urbany, Isaac Diaz, Alex Gomez, Rida Siddiqui, Janet Cho, Anita Mehrazarin, Brandon Moya, Joshua Lai, Marty Scott, Thongsavik Sirivong

EDUCATION

North Carolina State University, Raleigh, NC

Ph.D., Computer Science, December 2018

- Thesis Topic: *Intentional Agents for Doxastic Games*
- Advisor: Chris Martens, PhD

Graz University of Technology, Graz, Austria

M.Sc., Computer Science, July 2013

- Thesis Topic: *Locally Context-sensitive Shape Grammars*
- Advisor: Sven Havemann, PhD

B.Sc., Computer Science, July 2011

- Thesis Topic: *Behavior Trees for Autonomous Soccer Robots*
- Advisor: Franz Wotawa, PhD

Lund University, Lund, Sweden

Erasmus exchange student, Computer Science, August 2008 – June 2009

SERVICE

Academic Service

General Chair for the AAAI conference on Artificial Intelligence and Interactive Digital Entertainment, 2023
Program Chair for the AAAI conference on Artificial Intelligence and Interactive Digital Entertainment, 2022
Artifact Evaluation Track Co-Chair for the AAAI conference on Artificial Intelligence and Interactive Digital Entertainment, 2021
Program Committee member for the AAAI conference, 2022 (main track)
Handling Editor for Frontiers Robotics and AI, 2021 (research paper)
Program Committee member for the IEEE Conference on Games, 2022 (AI for Game-Playing, and Auxiliary Papers tracks)
Program Committee member for the AAAI conference on Artificial Intelligence and Interactive Digital Entertainment, 2018, 2019, 2020, and 2021 (research track and playable experiences track)
Program Committee member for the IV Costa Rican Conference on Research in Computer Science and Informatics, 2019 (research track)
Program Committee member for the conference on Foundations of Digital Games, 2018, 2020 and 2021 (player modeling and visualization track)
Reviewer for IEEE Transaction on Games, 2018 and 2021 (research paper)
Subreviewer for the International Conference on Interactive Storytelling, 2016 (research track)

LANGUAGES

- Native German
- Full proficiency in English
- Fluent in Spanish
- Conversational Swedish

NON-ACADEMIC EXPERIENCE

Part-time Software Developer

2005-2008,2009-2013

AVL Advanced Simulation Technologies

Hans-List-Platz 1

Graz, Austria

Responsibilities: Integrating FE simulation software with user interfaces, automated testing and validation