

Ruhan Yang

Department of Computer Science
University of Colorado Colorado Springs
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ACADEMIC APPOINTMENTS

2026 - Present **Assistant Professor, Game Design and Development**
Department of Computer Science, University of Colorado Colorado Springs

ACADEMIC LEADERSHIP AND AFFILIATIONS

2026 - Present **Director, Games, Artifacts, and Multisensory Experiences (GAME) Lab**
University of Colorado Colorado Springs

2026 - Present **Faculty Affiliate, Center for Research Frontiers in the Digital Humanities**
University of Colorado Colorado Springs

EDUCATION

2025 **Ph.D., Creative Technologies and Design**, University of Colorado Boulder
Advisor: Dr. Ellen Yi-Luen Do.
Dissertation: *Techniques and Methods for Building Paper Modular Robots: cubo as an Integrated Example*

2021 **M.S., Creative Technologies and Design**, University of Colorado Boulder

2019 **B.S., Mechanical Engineering**, University of Colorado Boulder

RESEARCH INTERESTS

Human-Computer Interaction; Game Design and Development; Tangible Interaction; Computational Making and Fabrication; Physical Computing; Serious Games; Computing and STEM Education

GRANTS AND SPONSORED RESEARCH

Awarded

2026 - 2027 *From Sketches to Prototypes: How Hands-On Building Shapes Early Stage Market Reasoning*. Principal Investigator. UCCS EPIIC / Center for Entrepreneurship, Entrepreneurship Scholar Program. **\$5,000**.

2026 - 2027 *Recognizing and Reducing Bias in Faculty Course Questionnaires*. Principal Investigator. UCCS Faculty Equity and Inclusion Committee (FEIC), One-Time Grant on Faculty Equity. **\$547.32**.

2026 - 2027 *Designing a Card Game to Support Women's Visibility and Belonging in STEM*. Principal Investigator. UCCS Faculty Assembly Women's Committee and Office of the Provost. **\$750**.

Submitted and Pending Proposals

- 2026** *HCC: Physical-Computational Correspondence in Physical Computing Systems*. Principal Investigator. National Science Foundation, CISE Future Computing Research (Future CoRe). Submitted September 2026.
- 2026** *Emotional Safety Mechanisms in Competitive Play*. Principal Investigator. Game in Lab. Submitted September 2026.
- 2026** *REU Site: Research Integration for the Next Generation of Intelligent Systems Researchers*. Co-Principal Investigator. National Science Foundation, Research Experiences for Undergraduates (REU) Program. Collaborators: Dr. Kristen Walcott and Dr. Heather Song. Submitted August 2026.
- 2026** *Making Learning Systems Legible: Tangible Scaffolding for Neurodivergent Children*. Principal Investigator. LEGO Foundation Fellowship. Submitted July 2026.

PUBLICATIONS

- Ruhan Yang**, Yuchen Zhang, and Ellen Yi-Luen Do. 2026. Lighting the Reef: Modular Paper Circuits as Ecological Metaphor. In *Twentieth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '26)*, March 08 - 11, 2026, Chicago, IL, USA. ACM, New York, NY, USA, 9 pages. <https://doi.org/10.1145/3731459.3779321>
- Ruhan Yang** and Ellen Yi-Luen Do. 2025. Connect! A Circuit-Driven Card Game. In *Designing Interactive Systems Conference (DIS '25)*, July 5 - 9, 2025, Funchal, Portugal. ACM, New York, NY, USA, 5 pages. <https://doi.org/10.1145/3715668.3736371>
- Ruhan Yang** and Ellen Yi-Luen Do. 2025. Exploring Circuit Education for Early Learners. *American Society for Engineering Education Rocky Mountain Section Conference (ASEE RMS 2025)*, May 14 - 16, 2025, Boulder, Colorado, USA. <https://doi.org/10.18260/1-2-1146-55216>
- Ruhan Yang** and Ellen Yi-Luen Do. 2024. Fabricating Haptic Paper Interface. In *Special Interest Group on Computer Graphics and Interactive Techniques Conference Posters (SIGGRAPH '24)*, July 27 - August 01, 2024. ACM, New York, NY, USA. <https://doi.org/10.1145/3641234.3671052>
- Ruhan Yang** and Ellen Yi-Luen Do. 2024. Empowering Non-Technical Users: Building Paper Circuit Boards with Zone-Based Circuit Stickers. In *Special Interest Group on Computer Graphics and Interactive Techniques Conference Labs (SIGGRAPH '24)*, July 27 - August 01, 2024, Denver, CO, USA. ACM, New York, NY, USA. <https://doi.org/10.1145/3641236.3664425>
- Ruhan Yang** and Ellen Yi-Luen Do. 2024. Building Locker Mini-Worlds: A CAD Course with a Semester-Long Project. *American Society for Engineering Education Rocky Mountain Section Conference (ASEE RMS 2024)*, May 15 - 17, 2024, Boulder, Colorado, USA. <https://doi.org/10.18260/1-2-1113-49423>
- Ruhan Yang** and Ellen Yi-Luen Do. 2024. Let's Build a Traffic Light: Teaching Physical Computing to Children with EdBoard. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024)*, March 20 - 23, 2024, Portland, OR, USA. ACM, New York, NY, USA. <https://doi.org/10.1145/3626253.3635425>
- Ruhan Yang**. 2024. Paper Modular Robot: Circuit, Sensation Feedback, and 3D Geometry. In *International Conference on Tangible, Embedded, and Embodied Interaction (TEI '24)*, February 11 - 14, 2024, Cork, Ireland. ACM, New York, NY, USA. <https://doi.org/10.1145/3623509.3634899>
- Ruhan Yang** and Ellen Yi-Luen Do. 2024. PaBo Bot: Paper Box Robots for Everyone. In *Companion of the 2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI '24)*. Association for Computing Machinery, New York, NY, USA, 1158 - 1162. <https://doi.org/10.1145/3610978.3640696>

10. **Ruhan Yang** and Ellen Yi-Luen Do. 2023. Enhancing Accessibility in Soft Robotics: Exploring Magnet-Embedded Paper-Based Interactions. *ACM DIS 2023 Workshop 02: Soft Robotics and Programmable Materials for Human-Computer Interaction*. <https://arxiv.org/abs/2404.07360>
11. Peter Gyory, S. Sandra Bae, **Ruhan Yang**, Ellen Yi-Luen Do, and Clement Zheng. 2023. Marking Material Interactions with Computer Vision. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*, April 23 - 28, 2023, Hamburg, Germany. ACM, New York, NY, USA. <https://doi.org/10.1145/3544548.3580643>
12. **Ruhan Yang**, Krithik Ranjan, and Ellen Yi-Luen Do. 2023. Fabricating Paper Circuits with Subtractive Processing. *ACM CHI 2023 Workshop 02: Beyond Prototyping Boards: Future Paradigms for Electronics Toolkits*. <https://arxiv.org/abs/2404.07364>
13. S. Sandra Bae, Rishi Vanukuru, **Ruhan Yang**, Peter Gyory, Ran Zhou, Ellen Yi-Luen Do, and Danielle Albers Szafrir. 2023. Cultivating Visualization Literacy for Children Through Curiosity and Play. *IEEE Transactions on Visualization and Computer Graphics*, vol. 29, no. 1, pp. 257 - 267. <https://doi.org/10.1109/TVCG.2022.3209442>
14. Sandra Bae, **Ruhan Yang**, Peter Gyory, Julia Uhr, Danielle Albers Szafrir, and Ellen Yi-Luen Do. 2021. Touching Information with DIY Paper Charts & AR Markers. In *Interaction Design and Children (IDC '21)*. Association for Computing Machinery, New York, NY, USA. <https://doi.org/10.1145/3459990.3465191>
15. **Ruhan Yang**, Cody Candler, and Ellen Yi-Luen Do. 2020. EdBoard: An Educational Breadboard. In *Proceedings of the 2020 ACM Interaction Design and Children Conference: Extended Abstracts (IDC '20)*. Association for Computing Machinery, New York, NY, USA. <https://doi.org/10.1145/3397617.3397832>

AWARDS AND HONORS

2025	Center for Humanities & the Arts Graduate Summer Fellowship , University of Colorado Boulder
2024	Summer Graduate School Fellowship , University of Colorado Boulder
2021	Distinguished Graduate Student Award , ATLAS Institute, University of Colorado Boulder
2019 - 2021	ATLAS Institute Scholarship , University of Colorado Boulder

SELECTED RESEARCH AND MEDIA FEATURES

2026	<i>Why I Build Modular Robots with Paper</i> . Member Spotlight, CRAFT Network Newsletter, August 2026.
2024	<i>Technical and Beautiful</i> . Research Feature, CU Engineering Magazine, June 2024.

TEACHING EXPERIENCE

University of Colorado Colorado Springs

2026 Fall	GDD 1100: Introduction to Game Development , Sections 001 & 002
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University of Colorado Boulder

2022 Fall	ATLS 3100: FORM , Graduate Part-Time Instructor
2021 Fall	ATLS 3100: FORM , Teaching Assistant
2022 - 2025	Science Discovery: Summer Program Lecturer

INVITED TALKS AND SELECTED PRESENTATIONS

- 2026** *Why Doesn't the Light Turn On? Paper Circuits as Playable Feedback Systems.* UCCS-ICORE 2026 Symposium, University of Colorado Colorado SpringsO
- 2026** *From Tangible Play to Rehabilitation: Toward EdBoard CARE.* Scientific Computing, Applied Mathematics, Informatics, and Healthcare Technologies Symposium, University of Colorado Anschutz
- 2024** *cubo: Paper Modular Robot You Can Build at Home.* Three Minute Thesis, University of Colorado Boulder
- 2024** *Building Circuits with Circuit Sticks.* Junkyard Social Club Museum
- 2023** *Inspiration From Traditional Chinese Crafts.* ATLAS Colloquium, University of Colorado Boulder
- 2023** *From Paper Planes to Paper Robots.* Sketching in Hardware Summit 2023

SERVICE

University Service

- 2026** **Member, Tenure-Track Faculty Hiring Committee,** Department of Computer Science, University of Colorado Colorado Springs
- 2026** **Committee Member, Ph.D. Proposal Defense Committee for Marwan Alharbi,** Department of Computer Science, University of Colorado Colorado Springs
- 2026** **Workshop Collaborator and Facilitator, First2Go Coffee and Craft,** UCCS MOSAIC, University of Colorado Colorado Springs

Professional Leadership

- 2024** **Program Chair, Student Design Challenge,** ACM/IEEE International Conference on Human-Robot Interaction (HRI)

Conference Reviewing

- 2023 - 2026** ACM Conference on Human Factors in Computing Systems (CHI)
- 2023 - 2026** ACM SIGCHI Conference on Designing Interactive Systems (DIS)
- 2023 - 2026** ACM International Conference on Tangible, Embedded and Embodied Interaction
- 2023 - 2026** ACM Interaction Design and Children (IDC)
- 2026** ACM SIGCHI Annual Symposium on Computer-Human Interaction in Play
- 2026** ACM Creativity & Cognition (C&C)
- 2026** IEEE Visualization Conference (VIS)
- 2024** ACM Special Interest Group on Computer Science Education Technical Symposium
- 2024** ACM/IEEE International Conference on Human-Robot Interaction (HRI)
- 2024 - 2025** ASEE Rocky Mountain Section Conference

STUDENT ADVISING AND MENTORING

2025	Mentor, CU Science Discovery STEM Research Experience , University of Colorado Boulder
2024	Student PI and Mentor, CU Summer Program for Undergraduate Research (SPUR) , University of Colorado Boulder
2023 - 2024	Student PI and Mentor, Summer Multicultural Access to Research Training (SMART) , University of Colorado Boulder
2022 - 2025	Graduate Peer Mentor, Graduate Peer Mentoring Program , Graduate School, University of Colorado Boulder
2021 - 2024	Graduate Student Mentor / Student PI , ATLAS Institute, University of Colorado Boulder
2022	Graduate Mentor, YOU'RE@CU Research Program , University of Colorado Boulder
2017 - 2019	Tutor and Instructional Assistant, Student Academic Success Center , University of Colorado Boulder