

Dr. Peter Gyory

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RESEARCH AND TEACHING INTERESTS

Human-Computer Interaction (HCI), Tangible User Interfaces (TUI), Game Design, Creativity Support Tools, Physical Computing, User-Centered Design, Interactive Media Art, Computer Programming, Alternative Game Controllers

EDUCATION

Ph.D, Creative Technology and Design University of Colorado Boulder, Boulder, CO	2023
Master's of Science, Creative Technology and Design University of Colorado Boulder, Boulder, CO	2019
Bachelor of Science, Game Design and Development Rochester Institute of Technology (RIT), Rochester, New York	2016

TEACHING EXPERIENCE

ATLS-CSCI 4616-5616: Intro to Virtual Reality - ATLAS Institute, CU Boulder - 55 students - <i>Instructor</i> <ul style="list-style-type: none">Building upon my 2019 curriculum, I modified it for both Undergraduate and Graduate students to cover the basics of Virtual and Augmented Reality development. Topics included: Mobile VR, Mobile AR, XR sensing technology, application design for VR, Unity Development, and WebGL development.	<i>Fall 2023</i>
ATLS 4140-5140: Game Development - ATLAS Institute, CU Boulder - 15 students - <i>Instructor</i> <ul style="list-style-type: none">Created and Delivered a 15-week project-based curriculum for Undergraduate and Graduate students on developing Games. Topics included: Game Development, Unity Development, Project Management, and Game Design.	<i>Fall 2023</i>
ATLS 2200 - Web - ATLAS Institute, CU Boulder - 60 students - <i>Teaching Assistant</i> <ul style="list-style-type: none">As the Teaching Assistant, I supported the instructor in developing course materials and grading assignments on the basics of Web Development. I also taught 60 students across 3 recitation sections. Topics included: HTML, CSS, Javascript, AJAX, and Version Control.	<i>Spring 2021</i>
ATLS 1300: Computational Foundations 1 - ATLAS Institute, CU Boulder - 45 students - <i>Teaching Assistant</i> <ul style="list-style-type: none">As the Teaching Assistant, I supported the instructor in developing course materials and grading assignments on the basics of programming for creative applications. Topics Included: Javascript, Basic Programming Concepts, and P5.js.	<i>Spring 2020</i>
ATLS-CSCI 4519-4830: Intro To Virtual Reality - ATLAS Institute, CU Boulder - 31 students - <i>Instructor</i> <ul style="list-style-type: none">Created and Delivered a 15-week project-based curriculum for Undergraduate students on the basics of Virtual Reality development. Topics included: Mobile VR, Unity Development, Networking protocols, Motion Capture systems, and Version Control.	<i>Fall 2019</i>
ATLS 4519: Alternative Arcade Interfaces - ATLAS Institute, CU Boulder - 6 students - <i>Instructor</i> <ul style="list-style-type: none">Created and Delivered a 15-week project-based curriculum for Undergraduate students on building Alternative Game Controllers. Topics included: Game Development, Web Game Development, Fabrication, Physical Computing, and Game Design.	<i>Spring 2019</i>

PEER-REVIEWED PUBLICATIONS

ARTICLES

1. **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). Association for Computing Machinery, New York, NY, USA, Article 478, 1–17. <https://dl.acm.org/doi/abs/10.1145/3544548.3580643>
2. S. Sandra Bae, , Rishi Vanukuru, Ruhan Yang, **Peter Gyory**, Ran Zhou, Ellen Yi-Luen Do, and Danielle Albers Szafer, "Cultivating Visualization Literacy for Children Through Curiosity and Play," in *IEEE Transactions on Visualization and Computer Graphics*, vol. 29, no. 1, pp. 257-267, Jan. 2023, doi: 10.1109/TVCG.2022.3209442.
3. **Peter Gyory**, Perry Owens, Matthew Bethancourt, Amy Banic, Clement Zheng, and Ellen Yi-Luen Do. 2022. Build Your Own Arcade Machine with Tincade. In Creativity and Cognition (C&C '22). Association for Computing Machinery, New York, NY, USA, 312–322. <https://doi.org/10.1145/3527927.3533023>
4. Clement Zheng, **Peter Gyory**, and Ellen Yi-Luen Do. 2020. Tangible Interfaces with Printed Paper Markers. In Proceedings of the 2020 ACM Designing Interactive Systems Conference (DIS '20). Association for Computing Machinery, New York, NY, USA, 909–923. <https://doi.org/10.1145/3357236.3395578>
5. Sandra Bae, Ruhan Yang, **Peter Gyory**, Julia Uhr, Danielle Albers Szafer, 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, 433–438. <https://doi.org/10.1145/3459990.3465191>
6. **Peter Gyory**, Krithik Ranjan, Zhen Zhou Yong, Clement Zheng, and Ellen Yi-Luen Do. 2022. Directing Tangible Controllers with Computer Vision and Beholder. In SIGGRAPH Asia 2022 Emerging Technologies (SA '22). Association for Computing Machinery, New York, NY, USA, Article 2 <https://doi.org/10.1145/3550471.3564764>
7. **Peter Gyory**. 2022. Creating Platforms to Support Craft and Creativity in Game Controller Design. In Creativity and Cognition (C&C '22). Association for Computing Machinery, New York, NY, USA, 708–710. <https://doi.org/10.1145/3527927.3533733>
8. **Peter Gyory**, Clement Zheng, Daniel Leithinger, and Ellen Yi-Luen Do. 2019. HOT SWAP: Probing Embodied Game Interfaces With Reconfigurable Controllers. In Companion Publication of the 2019 on Designing Interactive Systems Conference 2019 Companion (DIS '19 Companion). Association for Computing Machinery, New York, NY, USA, 183–187. <https://doi.org/10.1145/3301019.3323901>
9. Sandra Bae, Ruhan Yang, **Peter Gyory**, Julia Uhr, Danielle Albers Szafer, 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, 433–438. <https://doi.org/10.1145/3459990.3465191>
10. Denise Powell, **Peter Gyory**, Ricarose Roque, and Annie Bruns. 2018. The telling board: an interactive storyboarding tool for children. In Proceedings of the 17th ACM Conference on Interaction Design and Children (IDC '18). Association for Computing Machinery, New York, NY, USA, 575–580. <https://doi.org/10.1145/3202185.3210778>
11. Srinjita Bhaduri, **Peter Gyory**, and Tamara Sumner. "3DARVisualizer: Debugging 3D Models using Augmented Reality." arXiv preprint arXiv:2105.10783 (2021). <https://arxiv.org/abs/2105.10783>
12. Srinjita Bhaduri, Katie Van Horne, **Peter Gyory**, Hannie Ngo, and Tamara Sumner. "Enhancing 3D Modeling with Augmented Reality in an after-school engineering program (Work in Progress)." In *2018 ASEE Annual Conference & Exposition*. 2018. <https://peer.asee.org/enhancing-3d-modeling-with-augmented-reality-in-an-after-school-engineering-program-work-in-progress>

Accepted Papers To Appear

1. Yuzhen Zhang, Ruixiang Han, Ran Zhou, **Peter Gyory**, Clement Zheng, Patrick C. Shih, Ellen Yi-Luen Do, Malte F Jung, Wendy Ju, Daniel Leithinger. "Wizard of Props: Mixed Reality Prototyping with Physical Props to Design Responsive Environments". To appear in ACM Tangible, Embedded, and Embodied Interaction (TEI). <http://tei.acm.org/2024>

Papers Under Review

1. **Peter Gyory**, Krithik Ranjan, S. Sandra Bae, Ellen Yi-Luen Do, and Clement Zheng. "The Computer Vision Toolbox for Tangible Interaction: A literature review". **Submitted to:** CHI Conference on Human Factors in Computing Systems 2024. <https://chi2024.acm.org/>
2. Krithik Ranjan, **Peter Gyory**, Sohail Ahmed Soomro, Michael L Rivera, and Ellen Yi-Luen Do. "The Computer Vision Toolbox for Tangible Interaction: A literature review". **Submitted to:** CHI Conference on Human Factors in Computing Systems 2024. <https://chi2024.acm.org/>

SELECTED MEDIA COVERAGE

1. **How to turn throwaway cardboard into a DIY arcade game** - *CU Boulder Today*, 2022
<https://www.colorado.edu/today/2022/07/20/how-turn-throwaway-cardboard-diy-arcade-game>
2. **Make your own game controllers with Tincade** - *University of Colorado Boulder*, 2022
<https://www.youtube.com/watch?v=LsRSNbrCEmE>
3. **DIY Tincade aims to bring Alt Ctrl games to the masses** - *Ars Technica*, 2022
<https://arstechnica.com/science/2022/08/make-your-own-cardboard-diy-arcade-games-with-tincade/>
4. **University of Colorado Boulder researcher turns leftover cardboard into arcade game** - *Daily Camera*, 2022
<https://www.dailycamera.com/2022/08/07/university-of-colorado-boulder-researcher-turns-leftover-cardboard-into-arcade-game/>
5. **Peter Gyory & Clement Zheng take home IndieCade's Innovation in Interaction Design award**
Atlas Institute Website, 2019
<https://www.colorado.edu/atlas/2019/10/14/peter-gyory-clement-zheng-take-home-indiecares-innovation-interaction-design-award>
6. **HOT SWAP wins top spot in alt.ctrl.GDC** - *Atlas Institute Website*, 2019
<https://www.colorado.edu/atlas/2019/03/29/hot-swap-wins-top-spot-altctrlgdc>
7. **Alt.Ctrl.GDC Showcase: HOT SWAP: All Hands On Deck** - *Game Developer*, 2019
<https://www.gamedeveloper.com/disciplines/alt-ctrl-gdc-showcase-i-hot-swap-all-hands-on-deck-i->
8. **Escaping from Chairs and Shredding Books** - *Ani-Gamers*, 2019
<https://anigamers.com/features/gdc-2019-games-escaping-from-chairs-and-shredding-books>

ACADEMIC SERVICE

Invited Reviewer

1. ACM Conference on Human Factors in Computing Systems (CHI) - 2024
2. ACM Conference on Human Factors in Computing Systems (CHI) - 2022
3. ACM Creativity & Cognition (C&C) - 2021
4. ACM Designing Interactive Systems (DIS) - 2021
5. ACM Conference on Human Factors in Computing Systems (CHI) - 2020
6. ACM Designing Interactive Systems (DIS) - 2020
7. ACM International Conference on Tangible, Embedded, and Embodied Interaction (TEI) - 2020

PROFESSIONAL WORK EXPERIENCE

Junior Interactive Developer, Sapien Nitro (Boston, MA)

May 2016 - May 2017

- Developed interactive web-based applications for clients.
- Worked in multidisciplinary teams of Designers, Developers, and Product Experts.

Full-Stack Development Intern, Choozle (Denver, Colorado)

Summer 2015

- Worked as a full-stack support member of the development team. Solving bugs and adding small features to the Choozle platform

PAPER PRESENTATIONS

- **Marking Material Interactions With Computer Vision** - CHI 2023
- **Build Your Own Arcade Machine with Tincade** - C&C 2022
- **HOT SWAP: Probing Embodied Game Interfaces With Reconfigurable Controllers** - DIS 2019

WORKSHOPS

- **Alternative Arcade Interfaces DIY Controller Jam** - ATLAS Institute - Oct. 2023
- **Cartoonimator Workshop** - Junkyard Social Club - Sep. 2023
- **Beholder Workshop** - National Cheng Kung University - Nov. 2022
- **DIY Game Controllers with Beholder** - CU Science Discovery - Nov. 2022
- **Studio Course: Tincade** - National University of Singapore - Fall 2021
- **Studio Course: DIY AR Interfaces** - National University of Singapore - Fall 2020
- **VR Jam** - ATLAS Institute - March 2019

EXHIBITIONS

- **Crowd Controllers With Beholder** - *Whaaat!?* Festival - 2023
- **Beholder Game Controllers** - *Whaaat!?* Festival - 2022
- **Tincade** - alt.ctrl.GDC - 2021
- **HOT SWAP: All Hands On Deck** - Indiecade - 2019
- **HOT SWAP: All Hands On Deck** - Electronic Entertainment Expo (E3): Indiecade Booth - 2019
- **HOT SWAP: All Hands On Deck** - alt.ctrl.GDC - 2019

AWARDS

- **Innovation In Interaction Design** - *Indiecade* - 2019
- **ALT.CTRL.GDC Award** - *Independent Games Festival* - 2019

TECHNICAL SKILLS

- **Programming Languages:** Javascript, HTML/CSS, Typescript, C#, C++, Python, WebGL, Rust
- **Software Tools/Platforms:** Godot, Threejs, Git, Github, Node.js, Android, React, Unity, Arduino, Raspberry Pi
- **Design Tools:** Figma, Fusion 360, Shapr3D, Prusaslicer, Adobe Illustrator, Adobe InDesign
- **Fabrication:** 3D printing, Physical Computing, Electronics, 3D Modeling, Laser Cutting