

Farjana Ria Khan

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Curriculum Vitae

I am a **researcher** in the field of **Human Computer Interaction**.
I explore **critical approaches** for **embodied and disruptive play** to leverage for **inquiry, participation, safety and empowerment** of **intersectionally marginalized communities in technology**.

Education

- 2022 (current) **University of California, Irvine | Irvine, CA**
Ph.D. in Informatics | Donald Bren School of Information and Computer Science
Advisors: Bo Ruburg and Aaron Trammell
Affiliated Labs: LUCI Lab, CATS Lab, Made with Play Lab, Connected Learning Lab
- 2018 - 2020 **University of Colorado, Boulder | Boulder, CO**
M.S. in Technology, Media, and Society | ATLAS Institute | College of Engineering
Thesis Advisor: Shaz Zamore
Affiliated Labs: Living Matter Lab, THING Lab, BTU Lab
- 2013 - 2018 **University of Colorado, Boulder | Boulder, CO**
B.A. in Art & Art History | College of Arts and Sciences
Minor in Technology, Arts, and Media | ATLAS Institute | College of Engineering
Minor in Japanese Studies | College of Arts and Sciences

Relevant Courses

- Engineering* Creative Technologies, Object, Haptic Interfaces, Calculus for Engineering
- C.S. / Science* Foundations of Computer Science, Game Prototyping, Game Development, Web Development, Qualitative Methods, Quantitative Methods
- Design / HCI* Meaning of Technology, Digital Art I, II, Art in Society, Advanced Perspectives in Contemporary Art, Critical Perspectives, Design Studios, Design Thesis, Social Analysis in Computing, Introduction to HCI

Experience

- 2023 (current) **Teaching Assistant | University of California, Irvine | Irvine, CA**
Instructor: Aaron Trammell | GDIM 49 (Games and Representation)
Holding office hours and grading assignments for the course. I also help undergraduate students understand theory on concepts about diversity and inclusion in games.
- 2023 (current) **Visiting Researcher | University of Michigan, Ann Arbor | Remote**
Principal Investigator: Oliver Haimson
NSF funded research for speculative AR technologies designed for and by transgender communities. I help with project management, designing, organizing, and facilitating participatory design workshops in-person and online. Additional responsibilities include study data collection and analysis, and paper writing for publication.

- 2023 **Teaching Assistant | University of California, Irvine | Irvine, CA**
Instructor: Theresa Jean Tanenbaum | GDIM 49 (Mixed Realities)
 Held office hours and graded assignments for the course. Helped undergraduate students understand theory on concepts about mixed reality and developing pervasive games.
- 2023 **Teaching Assistant | University of California, Irvine | Irvine, CA**
Instructor: Kurt Squire | GDIM 129 (Games for Impact)
 Held office hours and graded assignments for the course. Helped undergraduate students understand theory on concepts about game design and games for pro social impact.
- 2022 **Graduate Student Researcher | University of California, Irvine | Irvine, CA**
Advisor: Katie Salen-Tekinbas
 Funded by the JED Foundation, my collaborators and I compiled a literature review around mental health in youth in relation to social VR spaces. The literature review published on the Connected Learning Alliance site.
- 2021 **Mentor | Code Coven with Facebook Gaming | Remote**
 Mentored game designers from historically marginalized communities on game design, production, team management, and UX/UI for the Summer Program 2021
- 2019-2021 **Collaborating Artist & Team Lead/Producer | Meow Wolf Denver Convergence Station | Denver, CO**
 Meow Wolf is a nationally renowned art collective based in Santa Fe. As one of the local collaborators for their Denver exhibit, I designed and built a permanent installation with a nine-person team I lead and managed.
- 2020 **Research Assistant | University of Colorado, Boulder | Boulder, CO**
Advisor: Mirela Alistar
 Funded by the University's CHA small grants, I built and conducted research for the project, *Nurturing Light*, an escape-room style installation and living computing interface that embeds bioluminescent algae in the system. I digitally and physically fabricated the entire puzzle artifacts and interface, conducted user testing, and wrote on research findings as first author to submit for publication.
- 2019 **Research Assistant | University of Colorado, Boulder | Boulder, CO**
Advisor: Daniel Leithinger
 Research project in collaboration with the THING Lab and Sony Ericsson for initial development of AR/VR scanning applications. Helped with development working in Unity3D, Oculus Rift, and SR Works' SDK.
- 2018 **Learning Assistant | University of Colorado, Boulder | Boulder, CO**
Lecturer: Dan Rankin | ATLAS 2300 (TEXT)
 Instructed two recitations to help students learn about UX/UI design and typefaces using various Adobe Suite software as well as InVision. I also reviewed lecture and graded students' homework.

Notable Research Projects

- 2023 (current) **Trans AR Tech Workshops | "Designing Technologies for Marginalized Communities" | NSF Award #2210841**
Principal Investigator: Oliver Haimson
Collaborators: Kat Brewster, Aloe DeGuia, Malaya Mañacop, Denny Starks
 As part of a larger project, my team and I held participatory design workshops both virtually and in-person in Oakland, CA and Detroit and Ann Arbor, MI. The workshops focused on designing and futuring speculative AR technologies for the transgender community through the expertise and participation of local trans folk. Our method of data collection and analysis involved participants exploring their design process with "zine-making" or sketching and collage. This visual-ethnographic approach accompanied with group-led discussion and fieldnotes is meant not just to give us a holistic perspective of trans experiences, but to inform ourselves as researcher and designers of how we can best accommodate the nuanced desires and needs of the trans community. *Software and fabrication tools used: Zine-making, Canva, Miro, Rev, Atlas.it*

- 2019, 2023
(current) **Shouting Match: Fostering Emotion Self-Regulation in Fighting Games Through Embodied Play**
Collaborators: Agnes Romhanyi (Co-Lead), Nathan Lacsamana, Zoi Meaders, Danny Shafik, Donny Shafik
An alternative controller two-player 2D fighting game that uses shout commands as a core game mechanic. In games research, solving for toxicity in gaming often focus on investigating coping strategies for gamers to mitigate its harmful effects. Practices in emotion self-regulation, specifically in the context of team-based eSports, is centered. The fighting game community, however, has yet to be explored in current regarding toxic behavior and self-regulation. Shouting Match addresses this through novel methods of embodied play, utilizing expressive vocal culture of the fighting game community, and having players practice self-regulation through controlling their vocal expressions. Software and fabrication tools used: Arduino IDE, Python, Unity 3D, Adobe Illustrator, Procreate, Mixamo, Laser cutter, 3D printer
- 2020-2021 **Nurturing Light: Sustaining Living Interfaces by Facilitating Post-Anthropocentric Design Through Play**
Advisor: Mirela Alistar
An escape-room style installation/living computer interface where the user navigates a pitch-black puzzle environment and solely depends on dinoflagellates (bioluminescent algae) as guidance. Nurturing Light proposes an alternative design approach to better sustain living interfaces, or computing interfaces that are embedded with live organisms. Nurturing Light combines and utilizes post-anthropocentric and ludic design values in its design process. *Software and fabrication tools used: Arduino IDE, Adobe Illustrator, Laser cutter, Woodshop*
- 2020 **Planes: a Collaborative VR Puzzle Journey to Promote Social Unity**
Advisor: Shaz Zamore
As my masters thesis project, *Planes* is a multi-user, networked VR experience that involves anonymous collaboration, digital paper puzzle-solving, and reflective zoom paper workshops to help intertwine digital and real-world collaboration and learning. In the game, users anonymously (as in without names, voice, or other identifiers) interact with others to quickly solve virtual origami puzzles. Motivated by a need to create a more inclusive gaming culture, *Planes* uses anonymous participation to mitigate social exclusion caused by VR games, as well as challenge social barriers in online gaming culture with mindful interaction. *Software and fabrication tools used: Unity3D, Oculus Rift SDK, Photon, Paper prototyping*
- 2019 **Mechamarkers: Untethered Haptic Inputs for 3D Physical Interfaces**
Advisor: Ellen Yi-Luen Do
Collaborators: Clement Zheng (Lead), Peter Gyory
Mechamarkers is a toolkit and computer-vision based system for designers to help make and sense low-cost physical actuator for 3D interfaces. I helped ACME lab members build inputs and 3D interfaces, construct the computer vision system physically as well as the calculating the homography, conduct and transcribe user studies, and write on research findings as third author to submit for publication. *Software and fabrication tools used: Processing, Python, Adobe Illustrator, JavaScript, Otter.ai, Laser cutter, 3D printer, Cardboard prototyping*

Publications/Conferences

- 2023 **CHI Play 2023 | Publication | Co-First Author | Stratford, ON, Canada | DOI 10.1145/3573382.3616072**
Co-First Author: Agnes Romhanyi
"Controlling Your Voice in a Shouting Match: A Preliminary Study on Fostering Emotion Self-Regulation in Fighting Games Through Embodied Play"
- 2023 **DIS 2023 | Workshop Attendee | Pittsburgh, PA, USA**
Co-Author: Theresa Jean Tanenbaum
Workshop: Designing Tangible Interactive Artifacts for Religious and Spiritual Purposes
"Dare You Approach The Mighty Oracle?": Building a Design Framework for Tangible Storytelling Artifacts That Evoke The Divine"
- 2022 **Meaningful Play 2022 | Workshop | Co-First Author | East Lansing, MI, USA**
Co-First Author/Co-Presenter: Erica Principe Cruz
"Recast & Replay: Critically Redesigning and Broadening Queer Experiences in Games Through the Lens of Less Visible Identities in the Community"

Informal Workshops

- 2023 **“The Art of Soldering” | IGSA x CIG | Irvine, CA**
Hosted a workshop to introduce soldering techniques to graduate students. Collaborative event between the Informatics Graduate Student Association and department affinity group “Creative Interfaces Group”
- 2020 **“Visualize Your Research!” Workshop Series | Living Matter Lab | Boulder, CO**
Hosted a four - part weekly workshop series where I taught research masters and PhD students how to create figures, storyboards, flowcharts, etc. for research papers and proposals.
- 2020 **Electronics Sewing Workshop | BTU Lab | Boulder, CO**
Hosted a workshop where I taught BTU lab members and students from CU Boulder how to use the lab’s communal sewing machine, sewing basics, and tips for wearable electronics and sewing.
- 2020, 2019, 2018 **Soldering Workshop | BTU Lab | Boulder, CO**
Hosted regularly occurring workshops to teach fundamental soldering skills to beginners in electronics.
- 2019 **“Ins and Outs of Electronics” Workshop Series | ATLAS Institute | Boulder, CO**
Hosted a three - part weekly workshop series teaching graduate students fundamentals of electronics and object - oriented computing with Arduino (Arduino IDE and C++).
- 2019 **“So You Want to Make a Robot Fish?” Workshop Series | BTU Lab | Boulder, CO**
Hosted a semester - long workshop series that teaches BTU Lab members and ATLAS students how to build animatronic robot fish, based on my work RoboFish. Was also useful for beginners in electronics.
- 2019 **Basic Electronics Workshop | BTU Lab | Boulder, CO**
Hosted an intensive workshop to BTU members and ATLAS students on the fundamentals of electronics and Arduino, including Arduino IDE and C++.
- 2019, 2018 **Laser Cutter Prep Workshop | BTU Lab | Boulder, CO**
Hosted workshop to teach proper Laser Cutter prep and technical tips in Adobe Illustrator and Rhino.
- 2017 **Boulder POV Seminar | Boulder Public Library | Boulder, CO**
Boulder Point of View is a grassroots team of artists, entrepreneurs, and creative technologists to help better public relations with local creatives through digital tools and methods. I took part in team seminars over the course of the summer in a leadership position.

Selected Invited Presentations

- 2023 **“Zine Catalog of Augmented Trans Futures” | Informatics Student Speaker Series | Irvine, CA & Remote | Talk**
Part of graduate student speaker series for the Informatics department at UC Irvine. Discussed motivations, methods, and initial findings from NSF funded research for participatory workshops to design AR trans tech.
- 2023 **“The Game Researcher’s Guide to the Multi-Verse” | UCI x GATI | Irvine, CA | Talk**
Hosted by the Division of Undergraduate Education at UC Irvine and the Gifted and Talented Institute (GATI). Interactive talk on how building immersive experiences inform game development and teamwork.
- 2021 **“How to Lead a Team at an Inter-Dimensional Space Station” | Killscreen | Los Angeles, CA | Virtual Talk**
Presented post - mortem of my Meow Wolf project and leadership experience for Killscreen, an arts and culture collective.
- 2021 **“Cooking with Mycelium” | Next Nature Network | Amsterdam | Article Interview**
Interview by NNN magazine about experience fabricating with mycelium during project, MyCo Domicilia.

- 2020 **“MyCo Domicilia” | 2020 Bio Design Challenge | New York City, NY | International Summit Presentation**
International competition/virtual presentation. Was team lead of the University of Colorado’s first ever team.
- 2020 **Boulder Experiments in Arts & Technology (B.E.A.T.) | Boulder, CO | Zoom Presentation**
Presented BDC project on behalf of team.
- 2020 **Guest Lecturer | University of Colorado, Boulder | Boulder, CO**
Instructor: Maria Deslis | ATLAS 2300 (Process of Design)
Invited to be a guest lecturer to discuss principles of design with a focus on Gestalt Theory and unity principles.
- 2020 **Boulder Experiments in Arts & Technology (B.E.A.T.) | Boulder, CO | Demo**
Demoed alternative controller video game, OctaOut.
- 2019 **ATLAS Research Showcase ‘19 | Boulder, CO | Showcase**
Showcased research work, MechaMarkers, for the ACME lab, directed by Prof. Ellen Do.
- 2019 **Whaaat!?! Festival ‘19 | Boulder, CO | Showcase**
Volunteered to demo a game for student showcase.
- 2019, 2018 **ATLAS Expo ‘19, ‘18 | Boulder, CO | Expo**
3rd and 2nd time exhibiting work, showcased wearable tech and arduino-based projects.
- 2018 **Boulder Experiments in Arts & Technology (B.E.A.T.) | Boulder, CO | Gallery**
Presented animatronic fish that swims in “water.”
- 2018 **Art of Data | Canyon Galley | Boulder, CO | Exhibition**
Professional design, art, craft, and engineering exhibition of works that incorporated data from the City of Boulder Data Catalogs. Showcased an interactive laser-cut, led map that illustrates the city’s hiking paths.

Service

- 2023 (current) **AGS Council Member | Irvine, CA, USA**
Elected representative in the Associate Graduate Student Council at UC Irvine. Representing the Donald Bren School of Information and Computer Science.
- 2023 **Paper Reviewer | CHI 2024 | Honolulu, Hawaii**
- 2023 **Student Volunteer | CHI Play 2023 | Stratford, ON, Canada**
- 2023 **Provocations and WIP Reviewer | DIS 2023 | Pittsburgh, PA, USA**
- 2023 **Paper Reviewer | Creativity and Cognition 2023 | Online**
- 2023 **Alt.CHI Reviewer | CHI 2023 | Hamburg, Germany**
- 2023 **LBW Reviewer | CHI 2023 | Hamburg, Germany**
- 2018-2020 **BTU Lab Graduate Residency | Boulder, CO, USA**
Lab Director: Alicia Gibb
The BTU Lab is a student hackerspace, classroom, and graduate residency located at CU Boulder. Graduate residents help members on creative technologies projects, maintain the lab laser cutter, and host workshops.
- 2017-2018 **Art & Art History SAB Undergraduate Representative | Boulder, CO, USA**
Undergraduate representative in the Student Advisory Board for the Art & Art History department at CU Boulder. Represented Integrated, Media, and Inter-Disciplinary Practices department.

Awards

- 2022 **Chair's Award | \$2,500**
"...to recognize the exceptional promise you hold in making strong contributions to the research being conducted in the Informatics community."
- 2022 **Graduate Dean's Recruitment Fellowship | \$2,500**
- 2020 **CHA Small Grant Reward | \$2,000**
Advising Faculty: Mirela Alistar
- 2017, 2016 **Dean's List | Academic Honors | Awarded 2x**
"Each semester the College of Arts and Sciences publishes the Dean's List to recognize students who have demonstrated academic excellence."

Additional Writings/Informal Publications

- 2023 **Youth, Mental Health, and the Metaverse: Reviewing the Literature | Author | Connect Learning Alliance**
Additional Authors: Katie Salen Tekinbas, Madison E. Taylor, Andre Adame, Stephen M. Schueller
- 2020 **MyCo Domicilia | Main Author, Editor, Designer | Amazon Kindle**
Additional Authors: Fiona Bell, Theresa Matick, Malika Rakhminova, Arva Syed, and Shenali Uragoda
- 2019 **FRiaK Wearables | Blog**
Blog about wearable and textile electronics prototypes at: friakwearables.wordpress.com

Relevant Skills

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| Machine Shop | Laser cutting, 3D printing, CNC routing, woodworking, metal welding, digital embroidery, resin casting, screen printing |
| Hardware | Arduino, Raspberry PI |
| Design Tools | Illustrator, InDesign, Photoshop, Lightroom, Premiere, AfterEffects, Figma, InVision |
| Other Software | Eagle Fusion 360, KiCAD, EasyEDA, Blender, Rhino, Unity3D, Processing, P5 |
| Programming | C++, C sharp, HTML5, CSS, JavaScript, Node.js, Python, LaTeX |
| Soft Skills | Critical Thinking, Self-Motivation, Teamwork/Collaboration, Project Management, Leadership, Creativity, Communication, Empathy, Networking, Adaptability, I think I'm funny |