

# ANNIE KELLY

TECHNOLOGIST / ARTIST / RESEARCHER / EDUCATOR

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## EDUCATION

### University of Colorado Boulder

M.S. Creative Technologies and Design 12/2019  
B.S. Computer Science 05/2016

## EXPERIENCE

### Laboratory for Playful Computation / Researcher 10/15 - now

Develop creative technologies and curricula to design and evaluate STEAM learning experiences and for both adolescent and adult populations.

### University of Colorado Boulder / Instructor 01/20 - now

Teach a personally developed Digital Arts course covering graphic and web design, physical computing, and fabrication.

### Microsoft Research / Research Intern 06/18 - 08/18

Developed a beginner-friendly Augmented Reality toolkit called *ARcadia* that turns real world objects into interactive musical controllers.

### Freelance 2014 - now

Completed commissioned projects spanning interactive art and museum installations, mixed reality, web design, logo design, and other artwork.

## SKILLS

Programming	Python, C++, C#, JavaScript, Java, C, Bash, Unity, Raspberry Pi, Arduino, IoT, machine learning
Graphic Design	Adobe Photoshop, Illustrator
Web Design	HTML/CSS, JavaScript, Node, React, p5, Web Audio
Video / Animation	After Effects, Premiere, Processing, AR/VR, hand drawn
Sound Design	Logic, Max/MSP, Supercollider, music theory
Fabrication	Laser cutting, 3D modeling, prototyping, electronics
Research	Quantitative/qualitative methods, published in several journals and conferences

## PROJECTS

**The Cell 2019** | Interactive room-sized installation of DNA on CU campus  
**Heart Flush 2019** | Commissioned technology for performing arts piece  
**ARcadia 2018** | AR toolkit I developed at Microsoft Research  
**Universal Mind Control 2018** | Brainwave powered planetarium installation  
**Audiovisual Playground 2018** | interactive VR music sequencing game  
**The Show 2018** | Engineered software for interactive LED dance costumes  
**Metamorphosis 2018** | Kinect based museum butterfly lifecycle installation  
**DoggyVision 2018** | Augmented Reality experience of dogs' color perception  
**BlockyTalky 2015** | Customizable toolkit with sensors & expressive output  
*More projects can be found on my website.*

## PUBLICATIONS

## **Making changes: Counteracting Latina Young Women's Negative STEM Experiences through Culturally Responsive Physical Computing**

Liam Fischback, Kristin Searle, R. Benjamin Shapiro, Annie Kelly, Colby Tofel-Grehl  
In Proceedings of the 2020 International Conference of the Learning Sciences

## **"Our dog probably thinks Christmas is really boring": Re-mediating science education for feminist-oriented inquiry**

Annie Kelly, Christine Chang, Christian Hill, Mary West, Mary Yoder, Joseph Polman, Shaun Kane, Michael Eisenberg, R. Benjamin Shapiro  
In Proceedings of the 2020 International Conference of the Learning Sciences

## **Tangible and Playful Connected Learning**

Sherry Hsi, Annie Kelly, Lila Finch, R. Benjamin Shapiro, Colin Dixon, Mike Petrich, & Karen Wilkinson  
A workshop facilitated at the 2018 Connected Learning Summit

## **ARcadia: A Rapid Prototyping Platform for Real-time Tangible Interfaces**

Annie Kelly, R. Benjamin Shapiro, Peli de Halleux, & Thomas Ball  
In Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems

## **BlockyTalky: New programmable tools to enable students' learning of networks**

Annie Kelly, Lila Finch, Monica Bolles, & R. Benjamin Shapiro  
In Proceedings of the 2018 International Journal of Child-Computer Interaction

## **Universal Mind Control**

Annie Kelly & Monica Bolles  
Presented at the 2018 IMERSA Summit in Columbus, OH

## **BlockyTalky: A Prototyping Toolkit for Digital Musical Interfaces**

Annie Kelly, Monica Bolles, & R. Benjamin Shapiro  
A workshop facilitated at the 2017 International Conference on New Interfaces for Musical Expression

## **Becoming Butterflies: Interactive Embodiment of the Butterfly Lifecycle**

Annie Kelly, Matthew Whitlock, Stephen Volda, et al.  
Poster presented at the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing

## **BlockyTalky: Tangible Distributed Computer Music for Youth**

R. Benjamin Shapiro, Annie Kelly, Matthew Ahrens, et al  
Selected for the 2017 Computer Music Journal

## **Audiovisual Playground: A Music Sequencing Tool for 3D Virtual Worlds**

Annie Kelly & Kristofer Klipfel  
In Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems

## **BlockyTalky: A Physical and Distributed Computer Music Toolkit for Kids**

R. Benjamin Shapiro, Annie Kelly, Matthew Ahrens, & Rebecca Fiebrink  
In Proceedings of the 2016 International Conference on New Interfaces for Musical Expression

## **TEACHING**

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### **COURSES**

#### Digital Media Art (LIBB 2500)

CU Boulder 2020

Course website: <http://libbydigitalmedia.art/>

### **ADULT EDUCATION**

#### Physical Computing for Live Performance 2019

Worked with graduate students enrolled in an Advanced Composition course. Taught students to use the micro:bit to create their own performance technologies that map sensor input to output such as sound, lighting, and motion.

#### Stage Lighting Workshop for Novice Programmers 2019

Three hour workshop teaching musicians how to build physical interfaces that can be used in real-time to control professional stage lighting equipment.

#### Talking Trees Jam: Interactive Art Installations Embodying Environmental Change 2019

A weekend workshop where participants collaborated on interactive art installations that embody Colorado environmental data. Participants worked with real scientific data collected in Colorado forests and physical computing tools to bring their installations to life.

#### Creative++: A Creative Arts and Technology Jam 2017

A 2017 interdisciplinary design event for artists and engineers where participants worked in groups to build an interactive technology for creative expression.

### **YOUTH AND ADOLESCENT EDUCATION**

#### Build your own Interactive Pet Toys and Caretaking Supplies 2018

Co-facilitated a multi-day workshop for high schooler students to design, engineer, and program interactive toys and objects for their pets.

#### Interactive Computer Music for Middle Schoolers 2017

Co-designed a middle school curriculum around using a physical computing toolkit to create musical controllers that use real-time input from sensors.

#### Interactive Physical Computing for Middle Schoolers 2017

Co-designed a middle school curriculum around using a physical computing toolkit to create games that use real-time input from sensors to control lights and actuators.

## **AWARDS**

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\$10k grant from the Infosys Foundation

2019 ICER Travel Award

2015 Grace Hopper Scholar

## **INTERESTS**

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Playing bass in two Denver punk bands, painting, true crime