

# Andrew Ringler

## Curricula Vitae

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[andrewringler.com/cv](http://andrewringler.com/cv) (CV with links)

I am based in Boston in the United States. I create interactive public art installations that allow participants to create their own novel visual and auditory experiences. I challenge participants to invest time and effort learning new systems collaboratively, and through that investment receive the pride of achievement, and the joy of connecting with others.

## Projects

### Public and Gallery Exhibitions

- 2021—November **Almost Mirror** is wall mounted interactive display that encourages participants to enter more fully into consciousness the technical limitations of the medium of the full color digital display. Shown at Altered Realities produced by ArtSynergies at the [Cotuit Center for the Arts](#) from October 9<sup>th</sup>—November 13<sup>th</sup> 2021. [more information](#) . Cotuit Center for the Arts
- 2021—October **Sound Squares** is an abstract interactive experience where festival goers can create visuals and sounds by interacting with a freestanding outdoor screen. October 2<sup>nd</sup> 2021 at the Somerville Ignite Festival in Union Square Somerville, Massachusetts. [more information](#) . Somerville Arts Council
- 2019—December **City Built** is an algorithmically generated line-drawn city skyline shown as a building facade projection November 15<sup>th</sup> 2019—February 2020 in Union Square, Somerville Massachusetts. [more information](#) . Somerville Arts Council
- 2019—November **Ghost Mirror** is small wall mounted interactive screen that responds to people walking by. Shown at the Higgins Art Gallery At Cape Cod Community College as an invited guest of Scott Anderson. November 12<sup>th</sup>–December 9<sup>th</sup> 2019. [more information](#) . Higgins Art Gallery
- 2019—September **můjemoji** is a chat window projected on a building where visitors can chat live via a companion website using only emoji; installed for three nights in Valašské Meziříčí, Czech Republic (colloquially Valmez) during [Světlo Valmez](#) (September 6<sup>th</sup> & 7<sup>th</sup> 2019). Collaboration with [Alyssa Laurel Ringler](#) . [more information](#) . Czech Republic
- 2019—May **Public Radio** is a large giant outdoor working FM radio available to the public. Public Radio was conceived and designed by [New American Public Art](#) ; I was responsible for all electronics and programming. Installed May 2019 in Boston Seaport. [more information](#) . Boston
- 2019—March **Neave Trio Visualizations** are sound responsive projected visualizations created in collaboration with [Bing Lin](#) to accompany live concerts by the [Neave Trio](#) . 3/15/2019—Longy, Cambridge, Massachusetts. 6/15/2019—Praxis Fiber Gallery, Cleveland, Ohio. [more information](#) . Neave Trio
- 2018—November **Slightly Structured Visual Noise** is a sound responsive visual piece installed during the Cirque Noir Houston night festival on November 10<sup>th</sup> 2018. [more information](#) . Cirque Noir
- 2017—November **Wellspring Fords** is an interactive projected digital river; installed for two nights in Downtown, Boston during the [Illuminus](#) Festival (November 3<sup>rd</sup> & 4<sup>th</sup> 2017). Collaboration with [Cindy Sherman Bishop](#) and [Philip Gedarovich](#) . [more information](#) . ILLUMINUS
- 2017—October **Enchanted Forest** is a magical interactive experience for all ages containing xylophones, spiny lights and singing birds. Installed for four days during the [HUBWeek](#) Immersion festival at City Hall Plaza, Boston. Collaboration with [Fish McGill](#) and [Saul Baizman](#) . [more information](#) . HUB week

2017-August	<b>Ignite Beats</b> is an interactive fire and spice themed instrument enabling participants to compose music with synchronized visuals through the manipulation of blocks on a table (iteration of <i>Fruit Beets</i> ). Collaboration with <a href="#">Philip Gedarovich</a> . Shown at the <i>Somerville Ignite! Festival</i> . Shown at the <i>Clubhouse Network Teen Summit 2018</i> , Boston. <a href="#">more information</a> .	Ignite!
2017—Spring	<b>Art Screen Workshop</b> is two parts. First, it is a public interactive display running 24/7. Second, it is a series of free workshops where I teach students of any level how to create new interactive art for the screen. <a href="#">more information</a> .	CCTV
2016-December	<b>Step to Hanukkah Lights</b> celebrates Hanukkah, the Jewish Festival of Lights, by inviting the community to engage with an interactive menorah. Collaboration with <a href="#">Fish McGill</a> and <a href="#">Saul Baizman</a> . Shown at the <a href="#">Museum of Fine Arts Boston</a> , December 14 <sup>th</sup> —30 <sup>th</sup> 2016. <a href="#">more information</a> .	mfa
2016-October	<b>Fruit Beets</b> is an interactive instrument enabling participants to compose music with synchronized visuals through the manipulation of fruits and vegetables on a table. Collaboration with <a href="#">Philip Gedarovich</a> . Shown at the <i>Somerville Agricultural Festival</i> . <a href="#">more information</a> .	Agricultural Festival
2016-September	<b>Art Farm Fence</b> is an installation of art on the Somerville Art Farm fence with lasercut acrylic fruit, vegetables and signage. Collaboration with <a href="#">Alyssa Ringler</a> . <a href="#">more information</a> .	Somerville Arts Council
2016-April	<b>Sequencing</b> adaption of <i>Sequencing Marbles</i> . <i>MEA Thesis Exhibition 2016</i> at the Doran Gallery. <a href="#">more information</a> .	MassArt
2016-March	<b>Sequencing Marbles</b> is real-time musical composition experience using marbles. Collaboration between myself and <a href="#">Patlapa Davivongsa</a> . <i>Fresh Media 16'</i> at the Boston Cyberarts Gallery.	boston cyberarts
2016-March	<b>Macropavilion</b> is a public outdoor pavilion providing visitors with shade from the sun as well as an interactive LED light experience in Casco Viejo, Panama. Collaboration between myself, <a href="#">Valeria Lalinde</a> and Miguel Espino. <a href="#">more information</a> .	Panama City
2016-Jan	Adaption of <b>Draw Blocks</b> at the MassArt Design & Media Center opening ceremony. <a href="#">more information</a> .	MassArt
2015-May	<b>Draw Blocks</b> is an interactive table-top play and design area allowing multiple participants to collaborate in creating projected images. Patterned wood blocks act as tools within a rich and learnable visual language. <i>Fresh Media 15'</i> at the Boston Cyberarts Gallery. <a href="#">more information</a> .	boston cyberarts
2015-May	<b>TinyVacay</b> is an experimental web-app exploring the benefits of breath. <i>Fresh Media 15'</i> at the Boston Cyberarts Gallery. Collaboration between myself and <a href="#">Amy Jorgensen</a> . <a href="#">more information</a> .	boston cyberarts
2014-Fall	<b>Curatorial Committee</b> : <i>Gaining Perspective: A Visual History of MassArt</i> . MassArt President's Gallery, Boston City Hall, State House, Massart Design & Media Center. <a href="#">more information</a> .	MassArt

# Teaching

## Teaching (Credit Courses)


2017-Fall	<b>Physical Computing:</b> new course creation & curriculum development. Experience design for physical computing, tangible user interface (TUI), augmented and virtual reality. Undergraduate-level studio.	Lesley
2016-Fall	<b>Elements of Media:</b> novel revision of previous curriculums. Graduate-level studio, focused on the synthesis of tactile, visual, oral, aural and temporal information within dynamic media. <a href="#">more information</a> .	MassArt
2016-Fall	<b>Web Design 1:</b> adapted from <i>intro to web</i> , undergraduate level. <a href="#">more information</a> .	MassArt
2015-Summer	<b>Coding Dynamic Experiences:</b> new course creation & curriculum development. Learn how to articulate and communicate your ideas through the medium of software code. Topics include culture & technology, social networks, design as social practice, and data visualization. <a href="#">more information</a> .	MassArt
2015-Fall	<b>Web 1: Designing and Building the Modern Web</b> rename from <i>intro to web</i> . <a href="#">more information</a> .	MassArt
2015-Spring	<b>Introduction to Web Design:</b> adapted course from previous curriculums. Introduction to web design, communication, and development using HTML, CSS and JS. <a href="#">more information</a> .	MassArt

## Teaching (Non-Credit & Workshops)

2018-August 3-days	<b>Internet of Things (IoT) Co/Lab</b> Three-day workshop on the Internet of Things (IoT) for engineering students in Chennai, India. Co-ran with Sidharth Bhatia. In collaboration with the Climber, MIT-India, IMEL@MIT.	Chennai, India
2017-Spring five weeks	<b>Introduction to Javascript for Design</b> New course creation & curriculum development. Learn to create dynamic interactions, animations, generative designs, simple games, data visualizations, and art with Javascript. For first-time programmers. <a href="#">more information</a> .	MassArt
2017-Jan two weeks	<b>Learn to Build Your Own Videogame with the Unity Game Engine and Microsoft Kinect</b> Nine day workshop during MIT's IAP 2017. Co-led with Dr. Kyle Keane, Mark Vrablic and Abhinav Gandhi. <a href="#">more information</a> .	MIT
2017-Jan two weeks	<b>Collaborative Design With Arduino</b> Nine day workshop during MIT's IAP 2017. Co-led with Dr. Kyle Keane, Mark Vrablic and Abhinav Gandhi. <a href="#">more information</a> .	MIT
2016-Jan two weeks	<b>Collaborative Design With Arduino</b> Eight day workshop during MIT's IAP 2016. Co-led with Dr. Kyle Keane and Mark Vrablic. <a href="#">more information</a> .	MIT

## Engagements

2019-2-5	<b>Guest Lecture</b> on data visualization for Martha Schwartz' <a href="#">Beyond Resilience and Adaption: Geoen지니어ing &amp; Why We May Need It</a> at Harvard GSD.	Harvard
2018-June	<b>DIAGRAM Code Sprint</b> Coder during weekend long "codesprint" helping to make STEM education more accessible and inclusive for all learners. DIAGRAM Center, Benetech, U.S. Department of Education, Office of Special Education Programs. Sponsored by Microsoft. Sunnyvale, California.	DIAGRAM Center
2018-1-23	<b>Git + Github</b> Introduction to software version control, git and github for Saul Baizman's information architecture students.	MassArt
2017-11-19	<b>xTalk Digital Tools for Collaborative Learning</b> with Dr. Kyle Keane, Andrew Ringler, Mark Vrablic and Ian Kim Riley <a href="#">more information</a>	MIT

2017-9-6	<b>DMI TuneUp</b> <i>Processing+Arduino Workshop</i> , digital and electronic platforms for prototyping. For incoming <a href="#">Dynamic Media Institute</a> students.	<a href="#">MassArt</a>
2016-11-19	<b>Mentor</b> for <a href="#">HackingArts</a> ; an art and technology themed hackathon at the MIT Media Lab	<a href="#">MIT</a>
2016-11-10	<b>Guest Artist</b> for Maker Night at Perkins School for the Blind; with Dr. Kyle Keane Designed, discussed, interacted with two tactile instruments: <a href="#">Fruit Beets</a> and <a href="#">Bouncy Piano</a> .	
2016-7-6	<b>Artist Talk:</b> <i>The Art of Composition or: How I Learned To Stop Programming and Love the UNIX Pipe</i> My art through the lens of UNIX pipes. MassArt-PCE Lecture Series. <a href="#">more information</a> .	<a href="#">MassArt</a>
2016-7-6	<b>Artist Talk</b> for Sejal Patel's <i>Teaching in New Media</i> course Inspiration, works, programming and a Scratch workshop. <a href="#">more information</a> .	<a href="#">MassArt</a>
2015-4-14	<b>Guest Reviewer</b> for <i>Graphic Design Senior Thesis Portfolio Reviews</i>	<a href="#">MassArt</a>
2015-4-14	<b>Guest Reviewer</b> for <i>Information Architecture I</i> taught by Jan Kubasiewicz	<a href="#">MassArt</a>
2015-8-19	<b>Guest Reviewer</b> for <i>Prototyping Lab</i> taught by Ceren Paydaş	<a href="#">MassArt</a>
2015-1-15	<b>Lecture:</b> <i>Art+Code+Medium: How Different Software Languages &amp; Libraries Affect Your Creative Process</i> Lecture and live-coding with audience participation. <a href="#">more information</a> .	<a href="#">MIT</a>

### Other Teaching Experience

2017-Spring	<b>Mentor</b> for MFA student Yiji He, for independent study	<a href="#">MassArt</a>
2015-4-5	<b>Substitute Teacher</b> for <i>Senior Degree Project</i> taught by Jan Kubasiewicz	<a href="#">MassArt</a>
2014-Fall	<b>Teaching Assistant</b> for <i>Visual Language</i> taught by Nance Davies	<a href="#">MassArt</a>
2015-Spring	<b>Teaching Assistant</b> for <i>Information Architecture II</i> taught by Jan Kubasiewicz	<a href="#">MassArt</a>
2000—2001	<b>Teaching Assistant</b> for <i>COMP-206</i> —operating system programming and <i>COMP-273</i> —assembly programming	<a href="#">McGill University</a>

## Research

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- 2016—Present     **Designer** at Code Seal; a programming, education literacy group.
- 2016—Present     **Co-founder & Director of Design** at the Interactive Materials Education Laboratory (IMEL) at MIT; a research group in materials science at the intersection of technology, education, design, and public engagement. MIT
- 2016—Present     **Research Affiliate** under Professor W. Craig Carter in MIT's Department of Materials Science and Engineering. Student advising, project development and outreach. MIT

### Consulting Engagements

- 2018                **Autodesk Inventor VBA API** (Visual Basic) scripting for parts of the digital manufacturing pipeline for the Kempelen's Owls public art project.

### Film Shorts (Producer / Director)

- 2010                Everything In Its Place
- 2008                **Dog Fight**
- 2007                Something About Shoes (documentary)
- 2006                Happy as an Oyster
- 1998                **The Assignment**
- 1998                **The Murder**
- 1996                **The Ping Pong Showdown**
- 1995                **Gulag**

### Filmography (Other)

- 2008                Urban Jumble animations

## Awards & Grants

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- 2019                U.S. Embassy in Prague, Czech Republic project grant for múj-emoji interactive projection
- 2017                Cambridge Arts Council project grant for Art Screen Workshop
- 2016                Somerville Arts Council project grant for Art Farm Fence

## Additional Work Experience (selected)

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+ ongoing consulting

2015—Present	<b>Artist, Digital, Embedded, Physical</b> (see <a href="http://andrewringler.com">andrewringler.com</a> for projects) -Digital electronic instruments design <a href="#">Embedded Linux</a> , <a href="#">FreeRTOS</a> , <a href="#">Yocto</a> , <a href="#">Arduino</a> -Code & web <a href="#">Processing</a> , <a href="#">PHP</a> , <a href="#">node.js</a> , <a href="#">Android</a> , <a href="#">Openframeworks</a> , <a href="#">Arduino</a> , <a href="#">Raspberry Pi</a> & <a href="#">Electronics</a> -Performance, event and installation of public interactive art. <a href="#">Software</a> , <a href="#">Hardware</a> & <a href="#">Sculpture</a>	Somerville
2022-Summer	<b>Senior Software Engineer</b> at Scatter, Brooklyn NY -DepthKit development, 3d volumetric capture <a href="#">C++</a> , <a href="#">OpenGL</a>	scatter
2018—2022	<b>Data Visualization Scientist</b> at Payette, Boston MA -Interactive Experience design and installation. <a href="#">Python</a>   <a href="#">Linux</a>   <a href="#">Embedded</a> -Data visualization, communication and analysis <a href="#">Tableau</a>   <a href="#">Power BI</a>   <a href="#">SQL</a>   <a href="#">Python/d3</a> -Internal & public software <a href="#">Full-stack React</a> & <a href="#">node.js on Azure</a>	<b>PAYETTE</b>
2007—2014+	<b>Senior Software Developer</b> at Icosystem, Cambridge MA -Web <a href="#">Full-stack web on PlayFramework</a> ( <a href="#">Java</a> & <a href="#">Scala</a> ) -Desktop application design and development <a href="#">Scala/Java/Swing</a> -Predictive analytics, simulations (agent-based model), search (genetic algorithms), data analysis, data visualization	ICOSYSTEM
2006—2007	<b>Owner</b> of Aspen Advanced Technologies, Aspen, CO; Boston, MA -Custom home automation services (audio/video) & Scientific programming. <a href="#">C++</a> , <a href="#">PHP</a>	Aspen Tech.
2005—2006+	<b>Home Automation Programmer</b> at Electronic Systems Consultants, Aspen, CO -Programming of integrated residential control systems— <a href="#">VxWorks</a> , <a href="#">AMX</a> , <a href="#">DMX</a> , <a href="#">IR</a> , <a href="#">RS-232</a> , <a href="#">Audio</a> & <a href="#">Video</a>	EISIC
2004—2005+	<b>Systems Architect</b> at Think Development, Aspen, CO -Design, and programing of custom retail point-of-sale, inventory and reporting systems	THINK
1998—2004	<b>Shorter Engagements</b> -Environmental simulations; nitrogen flows, <a href="#">PHP</a> —BUMP MBL, Woods Hole, MA -Neurological event classifier, <a href="#">C++</a> —Felix Strumwasser, Woods Hole, MA -Research assistant, KNN, <a href="#">C++</a> —Professor Robert Snapp UVM, Burlington, VT -Research Intern—C-Map USA, Mashpee, MA	

## Skills

CODE	JavaScript, Python, Java, Scala, Swift, C, C++, C#, Visual Basic Mathematica, Matlab Bash, Groovy
WEB	accessible, standards-based, responsive, full-stack (back-end & front-end) node.js, expressjs, Play (Java/Scala)/PHP Wordpress PHP Theme & Plugin React, Vue, Svelte
DATABASE	MySQL, PostgreSQL, MongoDB, Redis, SQL Server
AUDIO & VIDEO	Processing, p5.js, openFrameworks, Max/MSP/Jitter MIDI, OSC screen, projection mapping (MadMapper/ofxPiMapper) AR, Fiducial, QR computer vision, ML, 2D & 3D sensors (Kinect/Leap) SuperCollider, Tidal Cycles, sound synthesis, sound analysis
PHYSICAL	microcontroller (Arduino, ESP8266) embedded Linux (Raspberry Pi) light & led (WS2812B, APA102, Hue, DMX, 12V analog) SPI, I2C, RS-232, RS-485, IR communication (networking, mesh, wifi, bluetooth, IR) API, IPC, RPC, UART, ADC, DAC analog & digital sensors
SYSTEM	macOS, IOS, Windows, Linux, Android openCV, Unity, WebGL, OpenGL
DATAVIZ	Tableau, PowerBI, d3, NodeBox
OPS	Azure, AWS, Heroku Docker, Vagrant, VirtualBox
ORG	Agile, Pivotal & Jira git, SVN, CVS
DIGI-FAB	laser cutting, CNC cutting, plasma CNC, vinyl cutting, 3D Printing
CAD	Grasshopper, Dynamo Rhino, Autodesk Fusion 360 & Inventor, OpenSCAD

## Education

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### **Massachusetts College of Art and Design at the Dynamic Media Institute**

Master of Fine Arts in Design, 2016

Thesis: "Please Challenge, Create Fun." ([Abstract and PDF](#))

### **McGill University**

B.Sc, Honors Computer Science, 2003

Papers of interest:

- "Texture Segmentation by Local Fractal Dimension as applied to Oceanic Search and Rescue" ([PDF](#))
- "Analysis of a Content-Based Image Retrieval System using a Weighted K-Nearest Neighbor Classifier on Multiple-Example Image Queries" ([PDF](#))

## Other Passions

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Design, drawing, Improv, acting, filmmaking, sailing, skiing, mountain biking, hiking, bouldering and trapeze.