

# Raphael Arar

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Portfolio  
<http://work.rarar.com>

## Profile

I work at the nexus of complex systems, transdisciplinary design and arts-based research. For the past decade, I've helped others both untangle messes and uncover opportunities through a balancing act of problem-solving and creative inquiry

## Professional Experience

Governing Board Member; Leonardo/ISAST; Oakland, CA/Tempe, AZ/Remote – 2018–Present  
Advising on strategic decisions for creative programming, branding and publications. Leading the brand redesign effort of a 50+ year old art, science and technology institution. Serving on the creative programming working group and assisting in curatorial endeavors.

Head of Design; One Project; Remote – 2021–Present

Leading the design, monitoring and readjustment of social-digital infrastructure in order to enable new economic models and systems of governance

Senior Design Manager; Khan Academy; Mountain View, CA (Remote) – 2019–2021

Serving as manager and principal designer of the learning platform team focusing on the future of student experiences both in and out of classrooms; led the design of a new product feature that received an NPS > 95% and a microsite that drove a 2x increase in the number of active teachers and learners to the platform

Principal Designer; Khan Academy; Mountain View, CA – 2018–2019

Led the end-to-end design effort of Khan Academy's first paid enterprise classroom products for K-12 differentiated learning, MAP Accelerator & Khan for Districts; shipped work exceeded our 22% user activation targets

Designer & Researcher; IBM Research; San Jose, CA – 2016–2018

Pioneered design-driven processes and led UI/UX, data visualization and tangible user interface design for R&D projects spanning new ML/AI systems; filed 11 patents (3 granted) and published over a dozen papers on the intersection of design, art and ML/AI systems

User Experience Design Lead; IBM; Cupertino, CA – 2014–2016

Created an accelerated design thinking methodology to scale the design and production of over 100 enterprise iOS/watchOS applications as part of the Apple+IBM partnership; facilitated design workshops with Fortune 100 clients; led and oversaw the UI/UX effort of teams globally

Lead Creative Designer; Kadenze; Santa Clarita, CA – 2013–2014

Crafted the identity and design language, managed a team of designers and instilled design processes for an arts-based EdTech startup

Designer (Freelance); Google, Inc. (Agency Team); Venice, CA – 2012–2013

Designed and implemented an internal data-driven web app to manage creative assets

Design Technologist (Freelance); Smithsonian Institute; Boston, MA – 2012–2013

Designed and built the web-based exhibits *Stories From Main Street* and *Stories of World Heritage*

Senior Creative Technologist; Hill Holliday; Boston, MA – 2011–2012

Led creative development of immersive ad campaigns for Dunkin' Donuts, Liberty Mutual and more

Interaction Designer; IBM iX; Cambridge, MA – 2009–2011

Founding member of Accelerated Visioning group—the first rapid prototyping service design group in the consulting division of IBM; led interaction design for award-winning B2B and B2C engagements

Interactive Designer & Developer; Modernista!; Boston, MA – 2009

Collaboratively devised bleeding-edge digital ad campaigns involving motion graphics and gaming

Interactive Designer & Developer; Paid Inc; Boston, MA – 2007–2008

Spearheaded data-driven web experiences for artists including Aerosmith, Run-DMC and others

#### Teaching Experience

Adjunct Faculty; University of Nevada, Reno; Reno, NV – 2021–Present

Teaching a self-authored course in the Digital Media art program on tangible media/physical computing that discusses the intersection of interaction design and new media art

Adjunct Faculty; San Jose State University; San Jose, CA – 2016–2019

Created courses for and taught MFA/BFA students in SJSU's Digital Media Art program; taught courses and workshops in critical theory, speculative design and art & technology

Adjunct Faculty; University of Southern California; Los Angeles, CA – 2014–2016

Lecturer in USC's Media Art + Practice Division and taught first-of-a-kind, self-authored course on bridging user experience fundamentals with critical theory

Art & Technology Fellow; California Institute of the Arts; Valencia, CA – 2014–2015

Taught skills-based workshops to MFA and BFA students in physical computing, digital fabrication and video art. Provided advisory assistance on MFA thesis projects.

#### Education

California Institute of the Arts; Valencia, California – MFA in Integrated Media, 2014

Boston University; Boston, Massachusetts – BA in Economics (+ CS), BA in Music, 2009

#### Recognition

2020

Apple's App of the Day (January 22, 2020)  
Khan Academy

2018

Lumen Prize Short List - Artificial Intelligence Art Category  
Nostalgia

	<p>TED Talk of the Day (April 2, 2018)</p> <p>TED.com</p>
2017	<p>Forbes 30 Under 30 Awardee, Enterprise Technology</p> <p>IBM Academy of Technology, A-Level Accomplishment</p> <p>IBM Travel Manager</p>
2016	<p>C3 (Creative Community Committee), Elected Member, Santa Cruz Museum of Art &amp; History</p> <p>IBM First Patent Filing Award</p> <p>Cognitive UX</p>
2015	<p>C3 (Creative Community Committee), Elected Member, Santa Cruz Museum of Art &amp; History</p>
2013	<p>MITX Visionary Award</p> <p>OPENPediatrics</p> <p>Webby Award</p> <p>Liberty Mutual Responsibility Project</p> <p>National Science Foundation Grant Researcher (California Institute of the Arts)</p> <p>Physical Computing</p>
2012	<p>National Science Foundation Grant Researcher (California Institute of the Arts)</p> <p>Computer Science</p> <p>Communication Arts Webpick of the Day</p> <p>John F. Kennedy Presidential Library &amp; Museum</p> <p>Dope Awards, 1st Place Web Winner</p> <p>John F. Kennedy Presidential Library &amp; Museum</p>
2010	<p>IBM Service Excellence Award</p>
2009	<p>Webby Award Nominee</p> <p>Modernista!</p>
Patents	<p>Providing force input to an application</p> <p>US10318144B2</p> <p>Managing consumer energy demand</p> <p>US10742037B2</p>

Method and system for displaying automated agent comprehension  
US10936823B2

Method and system for correcting speech-to-text auto-transcription using local context of talk  
US10832679B2

Suggesting a destination folder for a file to be saved  
US11093447B2

Cognitive visual and ontological mapping of tabular data based on a distribution of a measure of interest  
US10977294B2

Context aware user interface  
US10901758B2

Cognitive role-based policy assignment and user interface modification for mobile electronic devices (pending)  
US20200007411A1

Automated Assignment of Tasks Based on User Profile Data for Improved Efficiency (pending)  
US20200364646A1

Dynamic modification of placeholder text in conversational interfaces (pending)  
US20200134017A1

Analyzing temporal classes in user feedback (pending)  
US20200372516A1

Minimizing Risk Using Machine Learning Techniques (pending)  
US20200372397A1

Optimized transportation selection (pending)  
US20200372590A1

Using artificial intelligence to iteratively design a user interface through progressive feedback (pending)  
US20210011592A1

Customization and recommendation of tree-structured templates (pending)  
US20210011896A1

Method and system for detecting hearing impairment (pending)  
US20210015404A1

Topic Mining based on Interactionally Defined Activity Sequences (pending)  
US20210027783A1

Counterbalancing bias of user reviews (pending)  
US20210065257A1

Stabilizing consumer energy demand (pending)  
US20200059096A1

Matching users by leveraging indoor proximity and availability (pending)  
US20210124787A1

Speech-to-text transcription with multiple languages (pending)  
US20210210098A1

## Books

- 2019      Conversational UX Design: A Practitioner's Guide  
Robert J. Moore, Raphael Arar. ACM Press. 2019.
- 2018      Studies in Conversational UX Design  
Robert J. Moore, Margaret H. Szymanski, Raphael Arar and Guang-Jie Ren. Springer International Publishing. 2018.

## Publications

- 2020      PRIMER19, Futures for All, Parsons School of Design, New York City, USA, 13-15 June 2019  
Conference Review in Virtual Creativity, Volume 10, Issue 1. 2020. DOI: [https://doi.org/10.1386/vcr\\_00027\\_5](https://doi.org/10.1386/vcr_00027_5)
- Food Carbon Footprint Index (FCFI)  
Raphael Arar, Olivia Arar. 2020. Food Carbon Footprint Index (FCFI).  
In Proceedings of the 16th Participatory Design Conference (PDC). ACM, New York, NY, USA.
- 2019      Co-designing AI Futures: Integrating AI Ethics, Social Computing, and Design  
Daria Loi, Christine T Wolf, Jeanette L Blomberg, Raphael Arar, Margot Brereton. 2019.  
Co-designing AI Futures: Integrating AI Ethics, Social Computing, and Design. In Proceedings of the 2019 on Designing Interactive Systems Conference 2019. ACM, New York, NY, USA. DOI: <https://doi.org/10.1145/3301019.3320000>

2018

PD Manifesto for AI Futures

Daria Loi, Thomas Lodato, Christine T. Wolf, Raphael Arar, Jeanette Blomberg. 2018. PD Manifesto for AI Futures. In Proceedings of the 15th Participatory Design Conference (PDC). ACM, New York, NY, USA. DOI: <https://doi.org/10.1145/3210604.3210614>

Nostalgia: a human-machine transliteration

Raphael Arar. 2018. Nostalgia: a human-machine transliteration. In Proceedings of the 2018 IEE VisArts Conference. IEEE, New York, NY, USA.

Applying User-Centered Design to Business Modeling: CBM.next as a Case Study

Raphael Arar, Guang-Jie Ren, Shun Jiang, Valeria Becker, Lei Huang, Eric Young Liu. 2018. Applying User-Centered Design to Business Modeling: CBM.next as a Case Study. In Proceedings of the 2018 IEEE 20th Conference on Business Informatics (CBI). IEEE, New York, NY, USA. DOI: <https://doi.org/10.1109/CBI.2018.10065>

Using Energy Storage to Modify the Shape of Internally Generated Demand to Fit a Prescribed Shape for Externally Presented Demand

Ray Strong, Shubhi Asthana, Eric Butler, Kevin Roche, Raphael Arar, Cheryl Kieliszewski, Pawan Chowdhary, Sandeep Gopisetty. 2018. Using Energy Storage to Modify the Shape of Internally Generated Demand to Fit a Prescribed Shape for Externally Presented Demand. In Proceedings of the 2018 IEEE International Conference on Services Computing (SCC). IEEE, New York, NY, USA. DOI: <https://doi.org/10.1109/SCC.2018.00046>

2017

Wayfinding

Raphael Arar. 2017. Wayfinding. In Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '17). ACM, New York, NY, USA 1378-1381. DOI: <https://doi.org/10.1145/3027063.3052543>

Early Future Technology: Using Artificial Intelligence to Manage Design-Driven Intellectual Property

Raphael Arar, Ray Strong. 2017. Early Future Technology: Using Artificial Intelligence to Manage Design-Driven Intellectual Property. In Proceedings of the Portland International Conference on Management of Engineering and Technology (PICMET). IEEE, New York, NY, USA. DOI: <https://doi.org/10.23919/PICMET.2017.8125332>

Artificial Intelligence: Ethics, Innovation and Integration with Enterprise Practices

Raphael Arar, Jeanette Blomberg. 2017. Artificial Intelligence: Ethics, Innovation and Integration with Enterprise Practices. IBM Internal White Paper. San Jose, CA.

Conversational UX Design

Robert J. Moore, Raphael Arar, Guang-Jie Ren, and Margaret H. Szymanski. 2017. Conversational UX Design. In Proceedings of the 2017 CHI Conference Extended Abstracts on

Human Factors in Computing Systems (CHI EA '17). ACM, New York, NY, USA, 492-497. DOI: <https://doi.org/10.1145/3027063.3027077>

2016

Emerging User Experience Design for Industry Solutions

Raphael Arar. 2016. Emerging User Experience Design for Industry Solutions. IBM Internal White Paper. San Jose, CA.

2014

(+/-) Pendulum: Location in the Information Age

Raphael Arar. 2014. (+/-) Pendulum: Location in the Information Age . In Proceedings of the of the 20th International Symposium on Electronic Art (ISEA 2014). Dubai, UAE.

Participatory Data-driven Art Objects: Vessels for Kinetic Information

Raphael Arar. 2014. Participatory Data-driven Art Objects: Vessels for Kinetic Information. In Proceedings of the Conference on Computation, Communication, Aesthetics and X (xCoAx 2014). Porto, Portugal.

Anatomical Analogies: the Evolution of Harmony and Noise in relation to the Self and Society

Raphael Arar. 2014. Anatomical Analogies: the Evolution of Harmony and Noise in relation to the Self and Society. California Institute of the Arts Master of Fine Arts Thesis. Valencia, California.

2013

A History of Sequencers: Interfaces for Organizing Pattern-Based Music

Raphael Arar, Ajay Kapur. 2013. A History of Sequencers: Interfaces for Organizing Pattern-Based Music. In Proceedings of the the Stockholm Music Acoustics Conference and Sound and Music Computing Conference (SMAC/SMC-13). Stockholm, Sweden.

Talks

2021

Speculating on Alternative Models to Capitalism

Invited guest lecture at Pacific Northwest College of Art. Portland, OR. October 18, 2021.

Food Carbon Footprint Index (FCFI)

PostSENSORIUM - RIXC Art Science Festival 2021. Riga, Latvia (Remote). September 25, 2021.

Dreams of justice through discursive design

Interaction '21. Montreal, Canada (Remote). February 5, 2021.

2020

Understanding nuance and bias in emotional AI technologies through art

Invited talk at Intel Labs Israel. December 9, 2020

Deconstructing the attention economy through art

Invited remote talk at the University of Nevada - Reno (UNR). Reno, NV. April 10, 2020.

An aesthetic approach to untangling systems

Invited talk at Rochester Institute of Technology (RIT). Rochester, NY. February 25, 2020.

2019

Designing for the classroom & beyond

Invited talk for SF Design Week. San Francisco, CA. June 27, 2019.

5 things designers can learn from teachers

Invited talk for Layers: a Conference about Design & Technology. San Jose, CA. June 5, 2019.

An aesthetic lens to machine intelligence

Keynote speaker for the Oscar Pomilio Forum. Pescara, Italy. March 7, 2019.

2018

Interactions

Keynote speaker for a Marketing Town Hall to IBM's Chief Marketing Officer. San Francisco, CA. August 13, 2018.

The sight reminds me of our stupid fights. I miss them so much! Nostalgia and other things AI can't replace

Leonardo/ISAST Panel Discussion for CODAME ART+TECH Festival at The Midway. San Francisco, CA. June 6, 2018.

2017

Why Artificial Intelligence Research Needs Art

Invited talk for TED@IBM at SF Jazz Center. San Francisco, CA. December 6, 2017.

Exploring the Human-Machine Feedback Loop Through Art

Invited talk for Leonardo Art Science Evening Rendezvous (LASER) at San Jose State University. San Jose, CA. November 9, 2017.

The Evolution of the Moving Image: Exploring the Role of Film Schools in the Age of Extended Reality and Immersive Media

Panel discussion with Eric Darnell (Pixar) and Karen Dufilho (Google) moderated by Leighton Pierce (CalArts Film School Dean) at Draper University. San Mateo, CA. November 5, 2017.

How Art Shapes User Experience

Invited talk at the Computer History Museum. Mountain View, CA. October 6, 2017.

WORKSHOP#2: What Now? The world Post-Automation...

Panel discussion with Jim Spohrer (IBM), Ron Poznansky (IBM) and Phil Balagtas (McKinsey) as part of the Speculative Futures/PRIMER Conference Series hosted at IBM Studios. San Francisco, CA. July 6, 2017.

The Intersection of Aesthetic Practices and Bleeding-edge Design

Invited talk at IBM Watson West as part of the 50th Anniversary of the Turing Award. San Francisco, CA. June 22, 2017.



#### Conversational User Experience Design

Workshop lead at ACM CHI 2017 at the Colorado Convention Center. Denver, CO. May 6, 2017.

#### Art/Science and the Art of Illusion

Invited artist talk at the El Camino College Planetarium. Torrance, CA. April 29, 2017.

#### Conversational UI Best Practices

Invited talk as part of the LAUNCH Festival at the Palace of Fine Arts. San Francisco, CA. April 6, 2017.

#### Applying Science to Conversational UX Design

Invited talk with Robert J. Moore for SXSW 2017 at JW Marriott Ballroom. Austin, TX. March 13, 2017.

#### Cultivating Cognitive Experiences

Invited talk as part of Nerd Nite Silicon Valley at The Tech Museum. San Jose, CA. February 2, 2017.

2016

#### Design for the Aging Population: UX Considerations

Invited talk for the IBM Academy of Technology Outthink Virtual Conference. May 12, 2016.

#### Trends and Impressions from SXSW

Invited talk for IBM Research Staff at Almaden Research Center. San Jose, CA. May 26, 2016.

#### Intro to Arduino: Output

Workshop lead at Idea Fab Labs. Santa Cruz, CA. May 26, 2016.

2015

#### DIY Projection Mapping

Invited artist talk at the El Camino College Planetarium. Torrance, CA. October 10, 2015.

#### Designing for Remote Collaboration

Invited talk at the School of Cinematic Arts at the University of Southern California. Los Angeles, CA. April 14, 2015.

#### Using Keynote to Prototype Interactions

Workshop lead as part of the Apple+IBM Partnership. Cupertino, CA. April 3, 2015.

#### Video Projection Mapping: Aesthetic Considerations

Workshop lead at the California Institute of the Arts. Valencia, CA. April 3, 2015.

2014

#### (+/-) Pendulum

Invited artist talk at Zayed University as part of ISEA. Dubai, UAE. November 8, 2014.

#### PhoneGap 101: Utilizing Web Technologies for Mobile Applications

Workshop lead at Machine Project Gallery. Los Angeles, CA. June 10 & 12, 2014.

Web Fundamentals for Mobile Design

Workshop lead at Machine Project Gallery. Los Angeles, CA. June 3 & 5, 2014.

Design Thinking for Interactive Literary Art & Digital Storytelling

Invited lecture at Art Center College of Design. Pasadena, CA. May 15, 2014.

Artist Portfolio Best Practices

Invited lecture at the California Institute of the Arts. Valencia, CA. May 3, 2014.

Intro to Arduino

Workshop lead at Machine Project Gallery. Los Angeles, CA. February 9, 2014.

Historical & Contemporary Precedents for Media Arts & Design

MFA Thesis Defense at the California Institute of the Arts. Valencia, CA. January 31, 2014.

2013

Advanced Processing: Programming Generative Art

Workshop lead at Machine Project Gallery. Los Angeles, CA. December 10 & 11, 2013.

Intro to Processing: Programming Fundamentals

Workshop lead at Machine Project Gallery. Los Angeles, CA. December 3 & 4, 2013.

Musical Soldering

Workshop lead at 1450 Ocean Gallery. Santa Monica, CA. October 12, 2013.

Light-sensitive Oscillators: Learn to Make Sound Circuits

Workshop lead at Machine Project Gallery. Santa Monica, CA. June 16, 2013.

2012

Amalgamation & Displacement: Art that Spans Time & Media

Invited artist talk at the University of Nevada, Reno as part of Prospectives International Festival of Digital Art. Reno, NV. October 8, 2012.

2011

Interaction Design for Digital Experiences

Invited talk at the IBM Center for Social Software. Cambridge, MA. September 3, 2011.

Selected Press

2021

“Why Design?” A Conversation Series

Modernist Studio

<https://www.moderniststudio.com/featured/future-of-education-why-design/>

How Cognitive Virtual Agents Can Revolutionize The Customer Support Industry  
Forbes

<https://www.forbes.com/sites/forbestechcouncil/2021/03/04/how-cognitive-virtual-agents-can-revolutionize-the-customer-support-industry/>

2019

SF Design Week: Designing for classrooms and beyond  
Clever

<https://blog.clever.com/2019/10/sf-design-week-designing-for-classrooms-and-beyond/>

2018

At IBM, Researchers Are Working To Make Robots Engaging Conversationalists  
Inc. Magazine

<https://www.inc.com/greg-satell/at-ibm-researchers-are-working-to-make-robots-engaging-conversationalists.html?cid=sf01001>

Conversational UX design: What it is and who's paving the way  
TechTarget

<https://searchcio.techtarget.com/feature/Conversational-UX-design-What-it-is-and-whos-paving-the-way>

How to make AI agents better conversationalists: Context is key  
TechTarget

<https://searchcio.techtarget.com/feature/How-to-make-AI-agents-better-conversationalists-Context-is-key>

Tackling the 'ask me anything' challenge of a conversational interface  
TechTarget

<https://searchcio.techtarget.com/feature/Tackling-the-ask-me-anything-challenge-of-a-conversational-interface>

2017

30 Under 30  
Forbes Magazine

<https://www.forbes.com/sites/kathleenchaykowski/2017/01/03/30-under-30-2017-the-young-innovators-transforming-enterprise-tech/#322b4769335b>

This IBM researcher integrates science, math and art in his work  
Silicon Valley Business Journal

<https://www.bizjournals.com/sanjose/news/2017/02/09/this-ibm-researcher-integrates-science-math-and.html>

Why Today's Designers Are Different  
Inc. Magazine

<https://www.inc.com/yazin-akkawi/how-technology-has-given-design-a-new-meaning.html>

Why not? Pushing and prodding the possible, at TED@IBM

TED Institute

<https://blog.ted.com/why-not-pushing-and-prodding-the-possible-at-tedibm/>

10 ways that IT pros and developers can keep their tech skills up to date

TechRepublic

<https://www.techrepublic.com/article/10-ways-that-it-pros-and-developers-can-keep-their-tech-skills-up-to-date/>

Music, Integrated Media Alumnus Raphael Arar Makes Forbes' '30 Under 30' List

24700: News from California Institute of the Arts

<http://blog.calarts.edu/2017/01/05/music-and-integrated-media-alumnus-raphael-arar-makes-forbes-30-under-30-list/>

Five Alums, BU Academy Graduate on Forbes "30 Under 30" Lists

BU Today

<https://www.bu.edu/today/2017/alums-forbes-30-under-30/>

Top 30 Under 30 in Cloud

Computer Business Review

<https://www.cbronline.com/news/cloud/top-30-under-30-in-cloud/>

2016

Thinking Design in the Lab

IBM.com

<https://www.ibm.com/blogs/research/2016/08/design-thinking-ibm-research/>

The Imaginary 20th Century

Entropy

<https://entropymag.org/the-imaginary-20th-century/>

2014

Machine Project Takes Over the Gamble House

KCET

<https://www.kcet.org/shows/artbound/machine-project-takes-over-the-gamble-house>

AxS Festival: Sights, Sounds, and Science Collide in Pasadena

KCET

<https://www.kcet.org/shows/artbound/axs-festival-sights-sounds-and-science-collide-in-pasadena>

Jewish art culture: Movin' on up to the East side

Jewish Journal

<http://jewishjournal.com/culture/arts/129325/>

2013

Forty Artists Aboard a Mobile Art Lab Want to Collaborate With You  
GOOD

<https://www.good.is/articles/forty-artists-aboard-a-mobile-art-lab-want-to-collaborate-with-you>

Catch the Bus

Rise Art

<https://www.riseart.com/article/2013-06-03-catch-the-bus>

Digital art exhibit pioneering new movement

[ninemsn.com](http://ninemsn.com)

Aluminum Heartbeat

CNET

<https://www.cnet.com/uk/pictures/future-tech-expo-sci-fi-saxes-3d-printed-human-hearts-pictures/7/>

2012

Preview: Cyberarts

DigBoston

<http://collisioncollective.org/show/collision-18>

GAME PLAY Artist Interview: Raphael Arar ("Synth-a-Sketch")

B(RICK)LOG

<http://bricktheater.blogspot.com/2012/07/game-play-artist-interview-raphael-arar.html>

WHIRL: Build It Up to Boogie Down

DigBoston

## Exhibitions / Art

2021

the wrong biennale no 5

Vibes. Group online exhibition (co-curator in partnership with Leonardo/ISAST).

The Holland Project - University of Nevada, Reno

Motor Studies. Solo exhibition. Reno, NV.

PostSENSORIUM RIXC Art Science Festival - RIXC

Food Carbon Footprint Index (FCFI). Group Exhibition. Riga, Latvia / Remote

2020

Prosthetic Memories, Writing Machines - Noema Magazine

Noema AI Poet. [Commissioned net art accompanying an essay on AI.](#)

Emerge Festival - Arizona State University, Mesa Arts Center

Food Carbon Footprint Index. Group exhibition. Mesa, AZ.

The Holland Project - University of Nevada, Reno  
Motor Studies. Solo exhibition. Reno, NV.

Participatory Design Conference (PDC) - Manizales, Colombia / Remote  
Food Carbon Footprint Index (FCFI). Group exhibition. Manizales, Colombia / Remote.

2019 Dreaming in silicon, a design fiction workshop - Backyard San Jose/WeWork  
Participant-driven design fiction workshop on the future of Silicon Valley. San Jose, CA.

Crash Override 04 – The Lucky Horseshoe/Resident Advisor  
Sound art performance with custom electronics. San Francisco, CA.

Human Design: Shaping ideas - Aurum/Ideas Factory  
Fail Engine. Group exhibition. Pescara, Italy.

2018 A Life/Art/Science/Tech (LAST) Festival presented by Stanford University - SLAC National  
Accelerator Laboratory  
Nostalgia. Group exhibition. Menlo Park, California.

2017 International Symposium on Electronic Art - Centro Cultural Universitario Rogelio Salmona  
Wayfinding. Group exhibition. Manizales, Colombia.

CHI 2017 - Colorado Convention Center  
Wayfinding. Group exhibition. Denver, CO.

Art of Science/Science of Art - El Camino College Planetarium  
Art of Science/Science of Art. Solo exhibition. Collaboration with Chris Weisbart. Torrance,  
CA.

2016 30 years of research - Almaden Research Center (IBM Research)  
Wayfinding. Group exhibition. San Jose, CA.

Changemakers - Santa Cruz Museum of Art & History  
Wayfinding. Group exhibition. Santa Cruz, CA.

Old ways won't open new doors - Doc's Lab  
Wayfinding. Group exhibition. San Francisco, CA.

Crashing into walls we've built - The Night Light  
Wayfinding. Group exhibition. Oakland, CA.

Sleep is not for those who dream - Lock & Key

- Wayfinding. Group exhibition. Los Angeles, CA.
- 2015 The Imaginary 20th Century - ZKM Centre for Art & Media  
Sound art for an archival art platform. Group exhibition. Karlsruhe, Germany.
- Forbidden Planet Night - El Camino College Planetarium  
Forbidden Pixel. Solo exhibition. Collaboration with Chris Weisbart. Torrance, CA.
- 2014 The Entrance - Machine Inspired Art Gallery  
Echo echo bot. Solo exhibition. Los Angeles, CA.
- International Symposium on Electronic Art - Zayed University  
(+/-) Pendulum. Group exhibition. Dubai, UAE.
- The Machine Project Field Guide to the Gamble House - The Gamble House Museum  
Projected shadows. Group exhibition. Collaboration with Chris Weisbart. Pasadena, CA.
- Gemini Heart - Center for Integrated Media  
Gemini Heart. Solo exhibition. California Institute of the Arts. Valencia, CA.
- cutLog - The Clemente  
Horizon. Group exhibition. New York, NY.
- Improvised Sound Ping Pong Tournament - Machine Project  
Curation and live sound art performance. Group exhibition. Los Angeles, CA.
- Pre-Glo - Centre for the Living Arts  
Untitled Video Collage. Group exhibition. Mobile, AL.
- 2013 Chance Meeting in a Storefront - Machine Project  
Ping pong sound installation. Solo exhibition. Los Angeles, CA.
- Perform Chinatown - KesselsKramer Gallery  
SYNTH-A-SKETCH. Solo exhibition. Los Angeles, CA.
- Dimanche Rouge - Espoo Museum of Modern Art  
BITPHONE. Group exhibition. Espoo, Finland.
- Dublab 14th Anniversary Celebration - Maker City LA  
Experimental Raver Table Tennis. Group exhibition. Los Angeles, CA.
- NOW13 - Dark Horse Experiment  
Parasitke. Group exhibition. Melbourne, Australia.

	Engineered Art - CalTech Community Art Gallery Metal Hearts. Group exhibition. Pasadena, CA.
	Ambiguities & Illusions - Spaces Gallery Attic. Group exhibition. Hardwick, MA.
2012	COLLISION18:present - Cyberarts Gallery Pathways. Group exhibition. Boston, MA.
	SIMULTAN Festival - Facultatea De Arte / Mansarda Finding Comfort in Claustrophobia. Group exhibition. Timisoara, Romania.
	Ignition 5.0 - The Fuse Factory SYNTH-A-SKETCH. Group exhibition. Columbus, OH.
	SQUARE - Teatro San Giorgio Pathways. Group exhibition. Udine, Italy.
	iDEAS_12 - New World School of the Arts Attic. Group exhibition. Miami, FL.
	Athens Video Art Festival - Ayias Irinis Square Finding Comfort in Claustrophobia. Group exhibition. Athens, Greece.
	Together Festival - MACHINE SYNTH-A-SKETCH. Group exhibition. Boston, MA.
	BEAM Festival - Beldam Gallery SYNTH-A-SKETCH. Group exhibition. London, United Kingdom.
2011	GamePlay - The Brick Theater SYNTH-A-SKETCH. Solo exhibition. Brooklyn, NY.

## Skills

### Design

Systemic Design, User Experience Design, Service Design, Interface Design (including mobile, web and software applications), Tangible Interaction Design (including physical computing), Information Design (including data visualization), Discursive/Speculative/Critical Design, Graphic Design, Rapid Prototyping, Information Architecture, Creative Direction, Art Direction, Digital Strategy, Branding, Usability Testing

### Programming

Javascript (Node.js, React), Arduino Python, Java, C++, C, HTML5, CSS3, MongoDB/CouchDB/Cloudant, Unix



Fabrication

Industrial Design, 3D Printing, Laser cutting, CNC Machining, Metalworking, Carpentry

Environments & Tools

Figma, Sketch, Adobe Creative Suite, Fusion 360, Atom/Sublime Text, Eclipse, Xcode, Rhinoceros, Final Cut Pro, Omnigraffle

Volunteer Work

Leonardo / The International Society for the Arts, Sciences and Technology  
Member of the Governing Board

Yoga for All Movement

Identity Design, Website Design, Print Design

Boston Lyric Opera

Website Design, Print Design

Cambridge Symphony Orchestra

Website Design, Identity Design