Nathan Villicaña-Shaw

Experience Designer, Creative Technologist, Educator

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**Exhibitions**

|  |  |  |
| --- | --- | --- |
| **Year**  2017 | **Exhibit Title**  Veggie Kingdom\* | **Venue**  Digital Arts Expo |
|  | 6 \* 9 = 42 | Digital Arts Expo |
|  | Digital Love | Digital Arts Expo |
|  | WindBot\* | Digital Arts Expo |
|  | No Humans Allowed | WaveCave Gallery |
| 2016 | Antisocial | MTIID Masters Show |
|  | Electrical Box | WaveCave Gallery |
|  | Cathode Ray Tubes | WaveCave Gallery |
|  |  | Kadenze Inc. |
|  | Rotary SNES | Kadenze Inc. |
|  | SNES Trinity | Las Vegas Mini Makers Faire |
|  |  | Makers Faire Bay Area |
|  |  | Kadenze Inc. |
|  |  | Digital Arts Expo |
|  | Never Forget | Integrated Media Showcase |
|  | Symbiotic SNES | Integrated Media Showcase |
|  |  | Makers Faire Bay Area |
|  | Yin~Yang\* | Digital Arts Expo |
|  |  | MTIID Masters Show |
|  | Computer Music | Digital Arts Expo |
| 2015 | Yin~Yang\* | CalArts MFA MTIID Fall Show |
|  | 1990 | CalArts Festival, Digital Arts Expo |
|  | Digital Rain\* | Digital Arts Expo |
|  | Binaural\* | Digital Arts Expo |
|  | Cubist Pi\* | Digital Arts Expo |
| 2014 | Toys | Digital Arts Expo |
|  | Polygon Blood Arena 3D\* | Digital Arts Expo |

**Projects**

|  |  |
| --- | --- |
| 2017 - present | The Body Without Fatigue\* |
|  | *Group of still and moving pictures produced with machine learning computational techniques. In collaboration with Norman Klein and Margo Bistis* |
| 2017 | Color Independent Slit-Scan Video Processing |
|  | *Processing program for color independent, temporal slit-scan processing* |
| 2017 | Battery Powered Mechatronics |
|  | Small, 5V and 12V battery powered mechatronic personalities |
| 2016 – 2017 | The Pantheon |
|  | *Comprehensive hardware and software system for creating mechatronic installations and instruments* |
| 2015 – 2016 | Modular SNES |
|  | *Arduino controlled circuit-bent SNES with patch bay interface* |
| 2015 – 2016 | Retrono |
|  | *A/V synth built from repurposed NES hardware emulators* |
| 2015 | Symbiotic SNES |
|  | Arduino powered interface which allows for novel, new multiplayer modes for SNES games |
| 2015 | Discovery Synth\* |
|  | *Raspberry Pi powered experimental digital interface and synthesizer* |
| 2015 | Pi Speaker\* |
|  | *Wireless Raspberry Pi powered speaker and synthesizer* |
| 2014 - 2015 | SnapperBots |
|  | *System for music performance using electromagnetic relay switches* |
| 2015 | Rotary SNES |
|  | *Circuit-bent SNES with two rotary switches for controlling bend states* |
| 2015 | Return to Mothership\* |
|  | *Large game space where players use different colors of light to defend their spaceship from asteroids.* |
| 2015 | MyStomp |
|  | *Raspberry Pi and Arduino powered digital stomp box* |
| 2014 | Circuit Bent Genesis |
|  | *Circuit Bent SEGA Genesis with a breadboard interface for controlling bends* |
| 2014 | Voltage Slammer |
|  | *Circuit bending probe and interface for controlling up to sixteen circuit bent devices with one interface.* |
| 2013 | Chronsonome\* |
|  | *Chronome RGB grid controller with ultrasonic rangefinders and 10-DOF.* |
| 2013 | Modular Stompboxes |
|  | *Analog effect pedals with multiple component combinations which can be switched out in real-time using rotary switches.* |

**Performances**

|  |  |
| --- | --- |
| 2016 | Human-Robot Ensemble - CalArts Machine Lab |
|  | Hedonism Bot, ChucK, heatsink, mechatronic instruments |
| 2015 | *CalArts AV Ensemble* - CalArts ROD Concert Hall |
|  | *Korg Nanokontrol, PureData, composer* |
| 2015 | *Human-Robot Ensemble* - CalArts Machine Lab |
|  | *SnapperBots, feedback, circuit boards, co-composer* |
| 2014 | *Kekack Ensemble* - Wild Beast Concert Hall |
|  | *Monkey Chanter* |
| 2013 | *CalArts Javanese Gamelan* - CalArts Gamelan Room |
|  | *Saron* |
| 2013 | *Threes Company* - CalArts ROD Concert Hall |
|  | *ChucK, co-composer* |
| 2013 | *Laney College Jazz Ensemble* - Laney College Concert Hall |
|  | *Electric Bass* |
| 2009 - 2013 | *The Machetes* - various SF Bay Area venues, Surf/Folk/Rock |
|  | *Electric Bass, composition* |
| 2007 - 2011 | *The Molestations* - various SF Bay Area venues, Punk/Blues/Rock |
|  | *Electric Bass, composition* |

**Curation**

2017 Digital Arts Expo

*Curator for the WaveCave gallery*

2016 Digital Arts Expo,

*Curator for the ROD Lobby*

2015 Digital Arts Expo

*Co-curator for Main Gallery*

**Recording**

2013 - present BiTDEPH

*Experimental electronic music*

2013 - 2015 Various

*Employed by CalArts concert production for live sound reinforcement, live recording and webcam operation.*

**Bibliography**

|  |  |
| --- | --- |
| 2017 | The Machine Lab: A Modern Classroom to Teach Mechatronic Music |
|  | *Published in ICMC 2017 proceedings* |
| 2017 | Electromagnetic Translucence: artistic approaches to interface design for installations, interfaces, and mechatronic performance |
|  | *CalArts MFA written thesis* |
| 2015 – 2017 | <http://digitalartsexpo.calarts.edu/> |
|  | *Features installations presented at the 2014-2017 Digital Arts Expos* |
| 2015 – 2016 | <http://mtiid.calarts.edu/> |
|  | *Computer Music*, *Digital Rain* |
| 2015 – 2017 | <http://wavecave.calarts.edu/> |
|  | *Features installations Cathode Ray Tubes, Electrical Box and No Humans Allowed* |
| 2015 | [oomlout.co.uk](http://oomlout.co.uk/blogs/news/56768769-nathan-shaw-demonstrates-his-arduino-powered-circuit-bent-snes) |
|  | *Features the Arduino SNES project.* |

**Employment**

|  |  |
| --- | --- |
| 2017 – present | California College of the Arts |
|  | *Lecturer for the Interaction Design Department specializing in electronics, programming, tangible user interfaces, and natural user interfaces.* |
| 2014 – present | Self Employed – Creative Technologist |
|  | *Freelance creative technologist specializing in custom hardware and software solutions for corporate, personal, and artistic applications.* |
| 2014 – present | Self Employed – Installation Artist |
|  | *Interactive installation artist who focuses on human-circuit interaction.* |
| 2016 – 2017 | California Institute of the Arts |
|  | *Graduate assistant for Interface Design, Composition for Robots, and Advanced Circuit Design* |
| 2017 | Walt Disney Imagineering |
|  | *Participated in CalArts Educational Initiative. Worked with senior imaginer mentor to develop and present blue-sky project to Disney executives.* |
| 2015 - 2017 | Junior Research Engineer at Kadenze Inc. |
|  | *Develop internal data visualization tools, create programs to algorithmically grade students* |
| 2016 - 2017 | California Institute of the Arts |
|  | Graduate assistant for the Electronics Lab |
| 2014 – 2017 | California Institute of the Arts |
|  | *Technical Assistant for Concert Production, Digital Arts, and the Music Technology departments.* |
| 2016 | On Track Themes |
|  | *Independent Contractor, helped build public installations.* |
| 2015 | [Light Riders Production](http://www.lightridersproductions.com/about/) |
|  | *Independent Contractor, helped build the [LIGHTGRID project.](https://www.youtube.com/watch?v=KRbIlEG53XQ&index=1&list=PLBmfOGuwJTeow3PYxDk5bvZtlIsutSM4H)* |
| 2015 | Radiance Lightworks |
|  | *Independent Contractor, helped build a LED Curtain.* |

**Education**

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| --- | --- |
| 2017 | CalArts – MFA in Music Technology: Interaction, Intelligence & Design  *installation art, programming, engineering, spacial semiotics, human-circuit interaction, data visualization, teaching, 3.99 equivalent GPA over 71 units* |
| 2017 | Walt Disney Imagineering Educational Initiative  Worked closely with Imagineer mentor and 15 other students over five weeks to craft project proposals which were presented to executive leadership at Walt Disney Imagineering. |
| 2015 | CalArts, Valencia Ca, BFA in MTIID, Minor in Digital Arts  *programming, design, music performance, engineering, 3.81 equivalent GPA over 78 units* |
| 2014 | UC Berkeley Extension  *programming, electrical engineering* |
| 2011-2013 | Laney College, Oakland Ca, AA in Music  *performance, composition, music theory, music history, 4.0 GPA* |
| 2012 | Berkeley City College, Berkeley Ca  *English, Digital Arts* |
| 2005-2007 | Sierra College, Rocklin, Ca  *photography, music, film* |

**Teaching**

|  |  |
| --- | --- |
| 2017 | Instructor for Objects and Space at CCA (fall semester)  *Digital and physical prototyping, Physical Computing, Interaction Design, Junior/Senior level course which focuses on the design and prototyping of Tangible User Interfaces* |
| 2017 | Guest Lecturer for Interface Design 2 at CalArts (two weeks)  PCB design for milling with EAGLE CAD and the OtherMill. |
| 2016 | Guest Lecturer for Composition for Robots (four weeks)  *How to interface with and compose for mechatronic instruments* |
| 2016 | Guest Lecturer for Interface Design at CalArts (two weeks)  *How to design PCB’s in EAGLE CAD* |
| 2015 | Co-Teacher for Advanced Circuit Design  *Graduate level course on intermediate electronics, `programming for microcontrollers, and synthesizer design.* |
| 2014 – 2016 | Hardware Hacking Club at CalArts  *Hardware hacking, electronics, microcontrollers* |
| 2014 - 2015 | Circuit Bending Club at CalArts  *Circuit bending, basic electronics, microcontrollers, deconstructing consumer electronic devices for artistic pursuits* |

**Grants & Scholarships**

|  |  |
| --- | --- |
| 2016 | CalArts Scholarship ($8000) |
| 2016 | Curators Grant ($150) |
| 2016 | Travel Grant ($200) |
| 2015 | CalArts Scholarship ($8000) |
| 2015 | CalArts Club Grant, Hardware Hacking Club ($600) |
| 2014 | Cal Grant ($10,700) |
| 2014 | CalArts Scholarship ($8000) |
| 2014 | Métier Grant ($200) |
| 2014 | CalArts Club Grant, Circuit Bending Club, ($300) |
| 2014 | Métier Grant ($300) |
| 2013 | CalArts Scholarship ($8000) |