

# Ryan Michael McGee, PhD

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*Creative software engineer, designer, researcher, teacher, and new media artist experienced in development of custom and commercial software for spatial audio, sonification, sound design, synthesis, lighting, visualization, interactive installations, and VR*

## EDUCATION

- PhD in Media Arts and Technology | University of California, Santa Barbara | 2015  
Dissertation: "Scanning Spaces: Paradigms for Spatial Sonification and Synthesis"  
Committee: JoAnn Kuchera-Morin (Chair), Curtis Roads, George Legrady  
Deutsch Foundation Fellowship (2013-2014), Graduate Dean's Advancement Fellowship (2013)
- Master of Science in Media Arts and Technology | University of California, Santa Barbara | 2010  
Thesis Project: "Sound Element Spatializer" GPA: 3.9/4.0
- Bachelor of Science in Electrical Engineering | The University of Texas at Dallas | 2007  
Engineering Honors Scholarship (2005-2007) GPA: 3.7/4.0 (Cum Laude)
- Texas Academy of Math and Science | The University of North Texas | 2003-2005  
Publicly funded, residential, early university program

## PROFESSIONAL EXPERIENCE

Proficiency with *C/C++, OpenGL, OpenCV, JUCE, VST/AU/AAX Plug-In Development (DSP and UI), Unity, openFrameworks, Cinder, Processing, Max/MSP, Mac, Windows, Linux, iOS, Android*

- Owner / Principal Engineer | Life Orange LLC | 2017 - Present  
Agile software development for audio plug-ins, DSP, VR, sound design, spatial audio, LED control, interactive installations.  
Clients: Unity Technologies, SYNG, Intel Studios, Walt Disney Imagineering, With.in, Slate Digital, TONSTURM, Chromasonic
- Developer | MEZMO | 2015-2016  
Created a mesh network for connecting artists to fans at dense venues using offline BTLE P2P + ultrasonic communication with indoor location positioning of spatial light, sound, and haptics on mobile devices
- Contract Software Developer | 2012-2016  
Software development for several pro-audio companies, interactive multimedia artworks, architectural lighting, mobile, and multi-touch applications. Notably, I was the original developer for the Raven MTX/MTi mixing consoles and lead a small team to develop all software products for Slate Media Technology from 2012 to 2015  
Other clients: Dolby, Neyrinck, Penteo/Perfect Surround, Final Mix Inc
- Founder / Developer | Unfiltered Audio LLC | 2012-2016  
DSP for Renoun Reverb RackFX, business operations, technical consulting, and software prototyping
- Research Intern | Nokia Research Hollywood | 2011  
Created C++/Qt application for dynamic mapping of mobile sensors to sound synthesis parameters.
- Electrical Design Engineer | Polatomic Inc, Richardson, TX | 2007-2008  
Designed and programmed user interface for an embedded data acquisition system used on Navy P-3 aircraft.
- Student Engineer | Southwest Research Institute, San Antonio, TX | 2007  
Wrote MATLAB scripts to predict orbit propagation, designed simple analog circuits, calibrated embedded digital audio recording systems, authored technical documents
- Intern | And/Or Gallery, Dallas, TX | 2006-2007  
Artwork installation and customer assistance for new media art gallery
- Mac Specialist | Apple Store Willow Bend, Plano, TX | 2005-2006  
Assisted retail customers and lead public workshops on Final Cut Pro/iMovie/iTunes

## ACADEMIC EXPERIENCE

- Lecturer | [UCSB Department of Art](#) | Winter 2016  
[Art 22: Introduction to Computer Programming for the Arts](#)
- Teaching Associate | [UCSB Department of Art](#) | Fall 2015  
[Art 22: Introduction to Computer Programming for the Arts](#)
- [AlloSphere Research Group](#) | UCSB | 2012-2014  
Development of custom C++ software for spatial audio, sonification, and immersive graphics within a 10 meter spherical 3D audio-visual display
- Teaching Associate | [UCSB Department of Art](#) | Fall 2014  
[Art 102: Advanced topics course on audio/visual creative coding in the browser using Javascript and P5.js](#)
- Teaching Associate | [UCSB Department of Art](#) | Spring 2013  
[Art 122: Advanced topics course on software and hardware development](#) using Processing and Arduino
- Teaching Assistant | UCSB, Media Arts and Technology | 2009-2011  
Led lab and discussion sections involving C++ audio APIs, digital sound synthesis, audio recording/mixing, multi-touch computing, sound spatialization, and graphics rendering
  - Realistic Image Synthesis (Fall 2011)
  - Digital Audio Programming: Spatial Audio (Winter 2011)
  - Multimedia Engineering Technology (Spring 2010)
  - Music and Technology (Winter 2010)
  - Digital Audio Programming: Sound Synthesis (Fall 2009)
- Teaching Assistant | [UCSB Department of Physics](#) | 2010-2011  
Course TA and instructor for undergraduate lab and discussion sections involving mechanics, waves, optics, and magnetism.
- Graduate Student Researcher | [UCSB Department of Physics](#) | 2010  
Developed cross-platform software application for the sonification of cosmic microwave background power spectra. Awarded NASA California Space Grant.

## PUBLICATIONS

- McGee, R., Rogers, D.V., [Musification of Seismic Data](#). Proceedings of the International Conference on Auditory Display (ICAD) 2016
- McGee, R., [Spatial Modulation Synthesis](#). Proceedings of the International Computer Music Conference (ICMC). 2015.
- McGee, R., [VOSIS: a Multi-touch Image Sonification Interface](#). Proceedings of New Interfaces for Musical Expression (NIME). 2013.
- McGee, R., Dickinson J., Legrady G. [The Voice of Sisyphus: an Image Sonification Multimedia Installation](#). Proceedings of the International Conference on Auditory Display (ICAD). 2012.
- McGee, R., Ashbrook D., White S. [SenSynth: a Mobile Application for Dynamic Sensor to Sound Mapping](#). Proceedings of New Interfaces for Musical Expression (NIME). 2012.
- McGee, R. and Wright, M. [Sound Element Spatializer](#). Proceedings of the International Computer Music Conference (ICMC). 2011.
- McGee, R., Fan, Y.Y., and Ali, S.R. [BioRhythm: a Biologically-inspired Audio-Visual Installation](#). Proceedings of New Interfaces for Musical Expression (NIME). 2011.
- McGee, R., van der Veen, J., Wright, M., Kuchera-Morin, J., Alper, B., and Lubin, P. [Sonifying the Cosmic Microwave Background](#). Proceedings of International Conference on Auditory Display (ICAD). 2011.

## INSTALLATIONS / TALKS / PERFORMANCES

- World of Knowledge Film Festival | Jury Member | St. Petersburg, Russia (remote/online) | October 14-18, 2020
- Runnin' | Sundance New Frontier | VR Music Video Installation | Park City, UT | January 24th-31st, 2019  
Premiere of VR music video utilizing Intel's volumetric video capture, software developed by Life Orange in partnership with Intel Studios, Reggie Watts, and Wajatta. Also @ SXSW 2019 - Winner of Jury Award for Best Interactive.
- IEEE Vis Arts | Live video sonification performance | Phoenix, AZ | October 3rd, 2017
- Currents New Media Festival | Live video sonification performance | Santa Fe, New Mexico | June 9th, 2017
- TABULA | Custom LED graphics control software for permanent lighting installation, 385 Sherman, Palo Alto, CA
- SV+VS (Sonifying Visuals + Visualizing Sound) | DDP (DongDaeMoon Design Plaza), Seoul | Aug - Sep, 2016  
VOSIS iPad image sonification software installation
- Life Orange | Live Radio Performance on KCSB, Santa Barbara | August 12th, 2016  
Utilized custom software for image sonification, earthquake audification and live-coding in Gibber
- Magnitude | @Nitro, Sydney, NSW | July 17th, 2016  
1 hour public sound/led performance of electronica and light generated from seismic data
- Terramomentum | Australian National University, Canberra NSW | July 4-7th, 2016  
Subsonic, haptic, seismic installation as part of ICAD 2016
- Kinetic v3 | SBCAST, Santa Barbara, CA | May 28th and June 2nd, 2016  
Live audio-visual performance over quadraphonic outdoor PA with wall projection
- Kinetic v3 | AlloSphere, UCSB | May 27th, 2016  
Live audio-visual performance over a 54.1 spherical sound system with full surround 3D projection
- SV+VS (Sonifying Visuals + Visualizing Sound) | Fellows of Contemporary Art, LA | Jan-March 2016  
Participating artist and iPad image sonification performance
- Creating the Sensorial Space | Dolby, San Francisco, CA | November 12th 2015  
Panel discussion on spatial sound design and composition
- Concourse | Dolby, San Francisco, CA | September-October 2015  
30 Channel Generative Sound Installation Synchronized with 100ft Display Wall (with Reza Ali)
- Seismic Spaces | Futra Presents Pangea, Los Angeles, CA | November 7th, 2015  
Live performance of music made from sonifications of major earthquakes
- Seismic Spaces / DOMUS | Materials and Applications, Silverlake, CA | May 30th, 2015  
Live performance of music made from sonifications of major earthquakes
- Kinetic v1 and v2 | AlloSphere, UCSB | June 6th, 2014 & May 29th, 2015  
Live audio-visual performances utilizing a 32.1 spherical sound system with full stereo 3D projection
- No Heritage | Lotte Lehman Concert Hall, UCSB | October 13th, 2011  
Octaphonic acousmatic work featuring accelerometer audification, image sonification, and high-speed Doppler
- Skate 1.0 | Los Angeles Architecture and Design Museum | July - September, 2011  
Collaborative 12.2 channel light and sound installation with Electroland
- BioRhythm | Mindshare, Los Angeles | August 19th, 2010  
Collaborative real-time PPG bio sonification installation with Yuan-Yi Fan and Reza Ali
- W.A.N.T.S. | Lotte Lehman Concert Hall, UCSB | February 25th, 2010  
Octaphonic acousmatic work for soprano and motorcyclist featuring fibonacci spirals of sound