Andrew Allen programmer, researcher, artist

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EDUCATION

2009-2014 **Ph.D. Computer Music**, University of California: San Diego
Dissertation: *Ruratae: a physics-based audio engine*
Advisor: Miller Puckette

2007-2009 **M.A. Music Composition**, Eastman School of Music
Thesis: *Takemitsu and His Garden: Tradition in Contemporary Gagaku*
Advisor: Robert Morris

2003-2007 **B.M. Music Composition**, University of South Carolina
Performance Certificate in Tuba

SELECT AWARDS AND DISTINCTIONS

2014 Artist-in-Residence, Microsoft Research
Research and creative development of virtual dynamic wind instruments.

2010 BMI Student Composer Award
Awarded for *Garden of Forking Paths* (2009), for sax, guitar, marimba and piano.

NACUSA Young Composers' Competition
Awarded for *Keichu's Wheel* (2008), for flute, 2 harps, and percussion.

2009 UC San Diego Graduate Scholarship
Full scholarship for graduate study at UC San Diego.

Howard Hanson Large Ensemble Prize
Awarded for *Kraken Engorges* (2008), for chamber symphony.

2008 Austin Peay State University Young Composer Competition Award
Awarded for *Breakbeat Mechanima* (2006) for pierrot ensemble.

Anthony & Carolyn Donato Prize
Awarded for *Two Movements for Solo Piano* (2007).

2007 Eastman School of Music Graduate Scholarship
Full scholarship for graduate study at Eastman.

2006 USC Magellan Scholar Grant

For research in computer music and algorithmic composition.

RESEARCH INTERESTS

My researched is focused on researching and developing physically-informed real-time interactive audio systems. It involves the areas of computational physics, graphics, computer-human interaction, signal processing and musical arts. Additionally, I've looked at agent-based algorithms for generative music, computer-assisted improvisation and applications for acoustic signal processing in the field of bioinformatics.

RESEARCH EXPERIENCE

2014   **Research Intern**, Microsoft Research

Research and development of real-time computational acoustics simulations.

Bioinformatician, UC San Diego Antiviral Research Center

Research and development of web-based high-volume DNA sequencing tools.

2013   **Developer-in-Residence**, UC San Diego Department of Music

Developed customized music composition and performance tools for use in-house.

2012   **Experimental Developer**, House Ear Institute

Worked with neuroscientists to develop ear training and dictation software for cochlear implant patients.

2011-2012   **Research Assistant**, UC San Diego

Developed custom modular DSP library for PureData for use by composer Rand Steiger.

2007-2009   **Studio Assistant**, Eastman Computer Music Center

Supported on-site complex multi-channel setups for computer music concerts.

SELECT PROFESSIONAL CONFERENCE INVITATIONS

2013   Acoustical Society of America

Guest Presentation on physically-derived audio systems. Demo of *Ruratae* (2013), pc game.

2012   Linux Audio Conference

Guest Presentation on rhythmic detection algorithms.
Demo of *GRE: Graduate Rhythmic Examination* (2010), performed by Steven Solook.

2011   Cascadia Composers Festival

Guest Presentation on creativity and recent areas of interest.
Keichu's Wheel (2008) for flute, 2 harps, auxiliary percussion and stone chimes, performed by Cascadia ensemble.

2010   New York City Electronic Music Festival

Performance of Leaflet (2009), for flute, piano and live electronics by NYCEMF ensemble.

SELECT CREATIVE PROJECTS

2013   Ruratae

Sandbox musical instrument creation game. Custom engine that simulates sonic vibrations of user-crafted musical instruments in real-time.

2012   GRE: Graduate Rhythmic Examination

Multi-media work for percussion and "sentient" electronics. Performer is presented a algorithmically-generated composition to perform. Based on their accuracy and musicality, the computer grades them and presents another composition either easier or more difficult than the previous. Repeated until game over reached. Commissioned by Steve Solook.

2011   Microworks

A collection of five-second works mostly involving a solo percussionist. Commissioned by Dustin Donahue.

2010   9 Idiotic Plays on Plantation Idioms

Fluxus interpretations for percussion trio. Commissioned by Christopher Clarino and the Volta Trio.

2009   Leaflet

Worked for improvising flute, piano and electronics. All players read from the same score, the computer improvises around the material using a variety of methods. Each performance is unique in this way.

TEACHING EXPERIENCE

Associate-In Professor, UC San Diego

2014   *Video Game Music and Sound Design*, MUS15, UC San Diego

Designed course syllabus, lectured on music and sound design in video games, the historical and technical developments and limitations of the medium, the cultural implications of the media and aesthetic domains of active composers. Invited several guest composers, sound designers and programmers. Approximately 300 students.

2011, 2013   *Music of Asia*, MUS13AS, UC San Diego

Designed course syllabus, lectured on popular and traditional musics and musical practices of Asia, specifically Japan, China, Korea, Tibet, India, Indonesia, Mongolia and Fiji. Discussed relevant issues of classical theory, ritual practice, exoticism and western hegemony, performativity and identity in popular idioms. Approximately 180 students on average.

2012   *Music of Japan*, MUS13AS, UC San Diego

Designed course syllabus, lectured on popular and traditional musics of Japan. Discussed important historical developments of popular music, the confluence of traditional and western elements in early popular musics, performativity, (self-)exoticism and the crisis of identity in modern Japanese popular idioms. Emphasis of student group creative projects as final assessment. Approximately 30 students.

Teaching Assistant, UC San Diego

2013   *Musical Acoustics*, MUS170

Instructor: Miller Puckette. Additionally led workshops on class material, held review sessions. Guest lectured on tuning systems and the principles of sound propagation through musical instruments.

2010   *Contemporary Music*, MUS14

Instructor: William Fried. Additionally, guest lectured on tuning systems, instrument design and construction and the musical aesthetics of Harry Partch.

Sound in Time, MUS5

Instructor: Mark Dresser. Additionally, guest lectured on the writings of Toru Takemitsu.

2009   *Music of Asia and Oceania*, MUS13AS

Instructor: Eun Young Jung. Led weekly round-table sessions with students to discuss interpretations and impressions of course's presented musical practices.

Teaching Assistant, Eastman School of Music

2008   *Advanced Computer Music*

Instructor: Allan Schindler. Work individually with students to develop computer music creative projects of wide-ranging aesthetics.

2007   *Introduction to Computer Music*

Instructor: Allan Schindler. Assisted students in developing fundamentals of computer music theory and technique and assisted with creative projects.

ADMINISTRATIVE AND COMMUNITY EXPERIENCE

2013-2014   UC San Diego Center for AIDS Research (CFAR)

Assisted researched by volunteering to develop fast DNA sequencing applications.

2010-2012   Universal Language Orchestra

Led children's "found-object" orchestra rehearsals and instrument building sessions and performances. Coordinated large group of children (Age 8-12) in various musical activities.

2007-2011   OSSIA New Music

Board member of organization. Main duties included web and poster design, PR, leading rehearsals and technical assistance at performances.

2007-2009   Eastman Computer Music Center (ECMC)

Main duties included maintaining building and repairing computer systems and technical assistance with performances of computer music at Eastman and in the greater Rochester area.

2005-2007	USC Southern Exposure

Student assistant to new music series. Coordinated rehearsals and provided assistance during performances.

SKILLS

Programming Languages

C, C++, GLSL, OpenCL, CUDA, Python, JavaScript, HTML, CSS

Development Frameworks

Visual Studio, XCode, Bash, Matlab, Pyramid, SQL, Git, Vim

Developer Expertise

Signal Processing (Physical modelling, 3D audio, Filter design, Procedural audio), Algorithmic Composition, Computational Physics, Real-time Interactive Systems, Graphics, Databases, Web 2.0, Bioinformatics, UI/UX

REFERENCES

Tom Erbe (tre@soundhack.com)

UC San Diego Professor of Computer Music

Robert Morris (rmorris@esm.rochester.edu)

Eastman Professor of Composition and Theory

Miller Puckette (msp@ucsd.edu)

UC San Diego Professor of Computer Music

Nikunj Raghuvanshi (nikunjr@microsoft.com)

Microsoft Researcher

Alan Schindler (aschindler@esm.rochester.edu)

Eastman Professor of Composition, Director of Eastman Computer Music Center

Rand Steiger (rand@ucsd.edu)

UC San Diego Professor of Composition