JACK KILGORE

https://jackilgore.com/
820 Camino Corto ⋄ Goleta, CA 93117
(+1) 818 370 6090 ⋄ kilgorej99@gmail.com

EDUCATION

University of California: Santa Barbara *September 2017 - Present*
Fourth Year Undergraduate Overall GPA: 3.86
Department of Computer Science

TECHNICAL STRENGTHS AND TOOLS

Computer Languages	C++14, C, Python, Supercollider, Java, MIPS Assembly
Libraries & Software Tools	CMake, Git/Github, JUCE, Allolib, lldb/gdb, Jupyter Notebooks, Numpy, Essentia, Vivado, CI
Text and Coding	Latex, XCode, VSCode
Web	HTML, CCS, Javascript
High Level Software	Photoshop, Reaper, Abelton, Agile Methodologies

EXPERIENCE

Emission Control 2 May 2019 - October 2020
Undergraduate Research and Open Source Software Development

- Emission Control 2 (EC2) is an interactive real-time application for granular synthesis and sound file granulation. The software emphasizes fine grain control, powerful modulation, and per-grain signal processing. EC2 was a collaborative effort with Prof. Curtis Roads (Project Manager, Designer, and Mentor) and Rodney DuPlessis (Designer, GUI). Note that EC2 is loosely based on David Thall's Emission Control for Supercollider.
- Head software developer working mainly on building, optimizing, and designing the audio engine, parameter/modulation/MIDI controls, application build process and portability, and general back-end work.
- Built with C++ and CMAKE using the UCSB Media Art and Technology Department's Allolib framework. Special thanks to Dr. Andrés Cabrera for his guidance and help with the Windows port.
- Source code and manual can be found here: `https://github.com/EmissionControl2/EmissionControl2`
- Software can be found here: `https://github.com/EmissionControl2/EmissionControl2/releases`
- David Thall's Emission Control can be found here: `https://www.curtisroads.net/software`

UCSB ECE 160 Signal Analysis Projects March 2020 - June 2020
Undergraduate Projects

- Projects using Numpy, Essentia, sklearn, and various dsp techniques to build tools for analyzing and classifying sound files.
- Project 1: Genre classification of a set of sound files.
- Project 2: BPM estimation of arbitrary sound files.
- Project 3: Music similarity between an input sound file and a database of sound files.
- Colab notebooks can be sent upon request.

The Höller FM Synthesizer January 2020 - March 2020
Undergraduate Group Project

- The Höller is a polyphonic FM synthesizer written in C++. This was an exercise in learning how to use the audio framework JUCE for making audio plugins.

· Source code can be found here: `https://github.com/jackkilgore/fmSynthesizer`

Chromatic Tuner September 2019 - December 2019
Undergraduate Project

· Built a chromatic tuner in C using a Nexys A7: FPGA, a rotary encoder, and LED screen.
· Designed and fabricated the tuner using a finite state machine.
· Implemented and optimized the FFT algorithm from scratch in C to be run on an embedded system.
· Implements dynamic sampling techniques and other theory found in DSP.
· Final paper and demo can be given on request.

Assistant Engineer at KCSB June 2018 - June 2019
Occupation

· Worked as the assistant to the Chief Engineer of UCSB's radio station, KCSB.
· Soldering experience through creating audio cables and fixing headphones.
· Built an amplifier system for live concerts.
· Coordinated and executed live events.
· Performed live sound mixing and setup.

ACADEMIC ACHIEVEMENTS

· Reward Faculty Research Grant from the UCSB Academic Senate for Emission Control 2. Special thanks to Curtis Roads.
· Currently a Dean's Honor Student in the UCSB School of Engineering.
· Formerly a Dean's Honor Student in the UCSB School of Letters and Sciences.

RELEVANT COURSES

Core Courses
Embedded & Real-Time Systems
Data Structures & Algorithms
Digital Audio Programming
Formal Languages/Compilers (ongoing)
Decision Making (ongoing)
Computational Science

Other Courses
Probability / Statistics
Calculus & Linear Algebra
Physics
Electronic Music Composition

POSITION OF RESPONSIBILITY

Eagle Scout Earned in 2016

· I planned and coordinated a community service event for a local community center. We landscaped and cleaned up the lawn for the community events (AA meetings, daycare,etc.)
· Throughout my time as scout, I led multiple groups of people in wilderness training.

California Youth and Government August 2016 - March 2017
Secretary

· I regularly spoke in front of about 100 other students to perform the minutes and various other activities.
· Organized and led a group of about a dozen people throughout the length of the program. Duties involved organizing meeting times, performing icebreakers, encouraging, and helping students run for office.

ARTISTIC ENDEAVORS

Various visual and sound work can be found here: `https://jackilgore.com/`

Music Composition: Dusk 2019

- Dusk is a music composition performed at the International Computer Music Conference 2019 and the New York City Electroacoustic Music Festival. A stereo piece using field recordings and granulation techniques.
- A version of this material was used in Michael Seh's submission to the UCLA's New Wight Gallery for the "DESMA's Breaking the Rules Exhibit"
    - `https://femmagazine.com/desmas-breaking-the-rules-exhibit/`

20.8(3) Microseconds 2019-Present

- Audio project with Alex Meinhof. We focus on building narrative and emotions out of the environments we stumble upon. Largely inspired by walking.
- The composition, "By the Broken Barn", was accepted to the International Computer Music Conference 2020 in Santiago, Chile. Note that this has been postponed till 2021 due to COVID-19.
- Live performances in Santa Barbara.

Radio Show, "Feed My Back" 2018-2019

- Had a radio show on KCSB called "Feed My Back". Played experimental electronic music while giving demos of Supercollider patches and explaining my excursions through digital audio and music.

Personal Sound Design and Compositions 2018-Present

- Spending many hours exploring audio synthesis and granular approaches to music through the audio programming language Supercollider.
- Have built up techniques for audio mangling, sequencing, text-based phrasing, etc.
- A repository showing some small work can be found here: `https://github.com/jack-kilgore/patternGranulator`. Audio dependencies can be sent by request.
- Experience with mixing/mastering using DAWs, as well as composition.
- Some experience with visual programming languages, such as Pure Data and Max/Msp.
- Patches and compositions been performed live in various music spaces in Santa Barbara and Los Angeles.

MISC. INTERESTS

- Enjoys writing proofs and thinking rigorously about simple things. Proud of quite a few solutions to problems from theory courses taken throughout undergraduate studies.
- Enjoys running far. Wants to run a marathon one day.
- Enjoys drawing; will provide better documentation one day.
- Enjoys baking and cooking.
- Enjoys building digital systems that output sound and sometimes visuals. The materialization of satisfying output has not been reached, but that is a reason to get up in the morning.