Zachary Burkett

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EDUCATION

Universitat Pompeu Fabra   *2025 - Expected 2026*
Masters of Sound and Music Computing

University of Central Florida | **Burnett Honors College**   *2022 - 2025*
Bachelor of Science in Computer Science, Music Minor   GPA: 3.85
Honors: Suma Cum Laude, Dean's List (F' 22, S' 23, F' 23, S'23, F'24), National Merit Scholar

SKILLS / CERTIFICATIONS

Programming Skills: Python | Java | C | C++ | C# | HTML/CSS | JavaScript | React | JUCE | Tensorflow | Git
Microsoft Programming Certifications: Software Development | Java | Python | JavaScript | HTML/CSS
Software Skills: MTA Windows OS Software Development | MacOS | Linux | Adobe Suite | Microsoft Office
Music Software Skills: Ableton | Reaper | Logic Pro | MaxMSP | PureData | Max for Live | Audacity

EXPERIENCE

APPLeSEEd Lab at UCF | *Undergraduate Research Assistant on C macro translation project*   *2024 - 2025*
                                                                                                Orlando, FL
- Co-authored a paper researching semantic translation of C macros, analyzing LLM performance of code translation, titled *Semantic translation of macro usage for maintainability,* planned to submit to the OOPSLA software engineering conference
- Used Python and Clang to analyze and create graphics to visualize C macro usage in the Linux kernel
- Collaborated using remote technology, Zoom, Slack, and Github, increasing project development
- Took a leading role in benchmark dataset creation, organization and testing LLM performance
- Created automated testing suite for AI translation of C macros

University of Central Florida | *Competitive Programming Team Member*   *2022 - 2023*
                                                                                            Orlando, FL
- Worked in teams of 3 to quickly and efficiently solve programming challenges
- Implemented data structures: Tries, AVL trees, binary search trees, graphs, multi-dimensional arrays
- Used programming concepts: Dynamic programming, abstraction, recursion, polymorphism

RELEVANT COURSEWORK

Digital Signal Processing for Sound and Music - Implemented DSP algorithms, DFT, sinusoidal/residual/harmonic stochastic models, sound transformations, sound/music description algorithms
Music Perception and Cognition - Psychoacoustics, audio research methods, auditory neuroscience
ML for Sound and Music - Models for genre classification, deep learning models, autoencoders

PERSONAL PROJECTS (SEE ZACHBURKETT.WEBSITE FOR MORE)

CrushDrive | *Ableton Live audio effects plugin created in Max for Live and JUCE*
- Created demo audio, website and application using Max, Bootstrap CSS, Photoshop, and Github
- Developed as an investigation into the capabilities of Max for Live and Ableton, as well as plugin design
- Audio processing techniques: filtering, bit reduction, overdrive, mixing, modulation, and visualization
- Using JUCE framework to make a VST plugin that can be used with any digital audio workstation

Chordle | *Daily chord guessing game inspired by Wordle*
- Interactive chord guessing game made in HTML, CSS, JS and Tone.JS
- Solved music theory/software design challenges, ex. chord note names need to be relative to the chord generated, prevented audio distortion due to lag

Break Pet | *Eye break reminder utility app for MacOS*
- Solo developed website, application, and graphics for Break Pet
- Created as a "fix your own problem" project to help reduce eye strain while working on computer
- Made with: Three.JS/WebGL, GLSL graphics shaders, Bootstrap CSS, Swift, Photoshop, Github, Xcode

Cross Platform Colorimetric Sensing Application | *React.js and computer vision application*
- Worked in a team to create a React application for all mobile platforms to detect ammonia concentration
- Worked with UCF Nanotechnology lab to increase accessibility to medical analysis using OpenCV