David Grunzweig
Software Engineer and Designer

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Experience

Night Sea Studios - Creative Technologist
July 2023 - Present, Berkeley, CA
➔ Co-founded in 2016 with Johan Ismael as a generative audiovisual art studio exploring software as a medium. We create real-time, web-based artworks using technologies like Three.js, GLSL, Web Audio, Typescript, and WASM.
➔ Created a custom library of audio processing code in Typescript, utilizing the web audio framework, audio worklets, and WebRTC. By avoiding using external libraries and heavily minimizing code size, we saved hundreds of dollars on the Etherium upload costs for our NFT releases.
➔ Lead developer and sound designer for multiple longform generative artworks. Our artwork was featured by ArtBlocks, TenderArt NYC, (fx)hash, and Foundation, and we performed original works live at festivals Mutek SF, ArtBlocks Marfa, Mostra BCN, and Chillits.

Google - Senior Hardware Engineer (L5)
January 2021 - June 2023, Mountain View, CA
➔ Lead algorithm designer and developer of a highly efficient binaural spatial audio renderer for 5.1 and 7.1 audio content with real-time headtracking. Enabled the creation of the Pixel Buds Pro Spatial Audio feature, which launched in February 2023 to millions of Pixel Bud Pro users.
➔ Converted our library from sample-by-sample processing to SIMD accelerated block-based audio processing, resulting in significant CPU and battery savings when launched on the Pixel phone.
➔ Lead the creation of an automated testing framework for audio algorithms, enabling GIT integration testing for spectrum regression, reference audio matching, and performance benchmarks.
➔ I collaborated with the UX and research team to develop a complex perceptual (qualitative) and quantitative testing methodology to ensure the product met performance and quality expectations of end-users, external content partners, and internal standards.
➔ Selected for membership in a 30 person committee which helped the entire mobile hardware organization connect by producing documentation, networking events, and monthly knowledge sharing.

Dysonics - Lead DSP and Software Engineer
June 2014 - December 2020
➔ Joined as the first intern when the company was 3 people and stayed through our acquisition by Google 7 years later. The company's size peaked at 7 employees, requiring constant learning, adaptation, and fast-paced work from the entire team.
➔ Played the role of full-stack developer for the Rondo360 binaural rendering plug-ins and app, creating UI and UX with JUCE, XCode, and backend processing with C and C++.
➔ Co-lead the design and development of a real-time reverberation model, combining ray-tracing and stochastic approaches for accurate acoustic modeling of customizable rooms, sound sources, and listener targets.
➔ Developed and shipped DSP code in C for microphone de-noising and clean up, post-processing, and binaural spatialization for a client shipping millions of gaming laptops worldwide.
➔ Lead the conversion of our DSP library to C for use on an embedded SHARC chip in the Cleer Crescent product.

Skills

Signal Processing and Algorithm Design
Reverberation Algorithms, Acoustic Simulation, Post Processing, Spectral Processing, Filter Design (IIR + FIR)
Creative Design
Generative Art and Composing, Interactive Artwork, Sound and Graphic Design
Software Development
C, C++, Typescript, ReactJS, CSS, WASM, JUCE, GLSL, SIMD, Embedded, MATLAB

Education

Stanford University - MA in Music, Science, and Technology
Sept 2014 - Dec 2015
GPA: 3.6
Stanford University - BS in Electrical Engineering with Honors in the Arts
Sept 2012 - June 2014
GPA: 3.5