
Key Skills

Programming Languages: .NET/C# · Python · NumPy/SciPy · C++ · JUCE · OpenGL · MATLAB · SQL
Audio: Digital Signal Processing · Virtual Analog Modeling · Nonlinear Techniques · Modular Synthesis
Software Engineering: Asynchronous Programming · Architecture Design · Defensive Design · Continuous Integration · Testing Strategies and Automation · Realtime Systems · Resource-Constrained Environments · Embedded Systems · Performance Optimization
Numeric Simulation · Data Acquisition and Conditioning · Backend Web Development
General: Technical Writing · Academic Research and Analysis · Data Visualization · Rapid Prototyping

Work Experience

- Slime Child Audio** *Founder, Audio Software Developer* Boston, MA 2019 – Present
- Designed, developed, and released acclaimed suite of cross-platform music production plugins in C++.
 - Implemented, tuned, and optimized DSP algorithms incl. virtual analog and phase distortion synthesis.
 - Worked with professional musicians to fine-tune user experience and sonic palette.
 - Fostered cohesive visual language using custom-rendered 3D GUI components and design.
 - Authored educational and academic material for both technical and lay audiences.
 - Taught as a guest lecturer on music technology at SUNY Purchase College.
- Future Audio Workshop** *Software/Graphic Design Contractor* Boston, MA 2024
- Designed and built reactive visualizers for audio synthesis plugin in C++/GLSL.
 - Implemented UI/UX design for JUCE plugin, including custom components.
- Harebrained Schemes** *Senior Software Engineer* Seattle, WA 2020 – 2023
- Led development for studio's first console video game release.
 - Planned, implemented console support for Unity game: platform integration, certification, and release.
 - Architected and authored multiple internal libraries in C# and Python, including frameworks for asynchronous programming, static code analysis, offline Unity asset manipulation, and app lifecycle.
 - Created automated error reporting system leading to significant reduction in bugs.
 - Wrote extensive documentation on console development and requirements.
- Bose Corporation** *Software/Firmware Contractor* Framingham, MA 2018 – 2019
- Created and maintained extensible software library for interfacing with audio hardware platform.
 - Developed and implemented realtime sound spatialization algorithm.
 - Assisted with embedded firmware development and testing.
 - Designed product demos, use cases, and diagnostic tools.
- Zapdot, Inc.** *Software Engineer* Cambridge, MA 2018 – 2019
- Developed novel object placement and manipulation algorithm for touch interfaces.
 - Built custom physics simulation including stability prediction and movement assistance.
 - Developed comprehensive product testing regimen, automated testing platform, and QA tools.
- Northeastern University** *Fabrication Lab Supervisor* Boston, MA 2017
- Prepared, and optimized student work for fabrication using laser cutter, CNC router, and 3D printer.
 - Supervised and assisted students with all aspects of creating architectural and sculptural projects.
 - Developed novel CNC optimization algorithm to increase machine throughput.
- Planetary Resources** *Embedded Systems Intern* Seattle, WA 2016
- Created ground control software for asteroid prospecting satellite, with emphasis on accident-prevention, reliability, and usability.
 - Designed and implemented development, testing, and debugging toolset for aerospace platform.
 - Developed and executed extensive manual and automatic testing routines.
 - Designed, fabricated, and deployed a distributed IoT sensor node platform for agriculture applications.

Education

Northeastern University *Undergraduate Degrees* Boston, MA
BS Mathematics · BFA Media Arts · Game Design Minor · GPA: 3.92 (Summa Cum Laude) · CS Capstone
University Scholars Program · Honors Program · Meserve Award for Creative Excellence · Prototype
Grant Recipient · Indie Game Showcase Award · American Institute of Aeronautics and Astronautics

École Polytechnique Fédérale de Lausanne *Continuing Education* Lausanne, Switzerland
Completed 10-week graduate-level Digital Signal Processing course (with distinction)