Andrea Ellinger

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Skills and Tools

- C++ and C
- Audio programming
- Low level multi-threaded audio output
- Audio DSP filter effects
- FMOD API and FMOD Studio
- Wwise
- Acoustics physics and math

- Game engine architecture
- Gameplay and game AI programming
- UI and tools programming
- Visual Studio and Xcode
- SVN, Mercurial, Git
- Phabricator (source control, bug tracking, code reviews, documentation)

Relevant Experience

R&D Software Engineer   **July 2016 - present**

DigiPen Institute of Technology

- Designed and implemented all aspects of a new cross-platform low-level audio API in C++
- Audio API features include multi-threading, support for WAV and Ogg Vorbis files, streaming from disk or memory, 3D attenuation and panning using up to nine channels and multiple listeners, over a dozen built-in DSP effects (reverb, high/low pass, flanger, modulation, etc.), built-in additive synthesizer, threaded lockless audio file decoding, customizable node graph structure
- Integrated API into the Zero Engine, DigiPen's custom C++ game engine and editor (used for high school and college classes and available for professional projects, recently released as an MIT-licensed open source project)
- Refactored and extended Zero Engine's sound system, made sound nodes scriptable, created an automated testing project, and added UI to the editor for dynamically displaying the sound node graph and the volume equalizer
- Created music and sound effects for a Zero Engine demo project with scripts for adaptive audio, including generated music using the additive synthesizer and Markov chain-based chord sequences
- Created lectures and exercises for sound design students to learn basic scripting

R&D Intern   **January 2015 – April 2016**

DigiPen Institute of Technology

- Initial work on creating the first version of the audio API and integrating it into the Zero Engine

Student Games   **January 2013 – June 2015**

Sonitus Duco, Forsaken, Sound of the Rain

- Technical lead on all three games, creating overall engine architecture and core engine systems in C++
- Other code includes audio (Wwise and FMOD API), gameplay, level editor, UI, 2D physics, 2D graphics (DirectX), data serialization, automated testing
- Created music and sound effects and implemented them in Wwise

Education

Bachelor of Science in Engineering and Sound Design   **2016**

DigiPen Institute of Technology   *with honors*