3. Open Source Multimedia project -- Dr. Lesley Shannon

**Background:** Digital Signal Processing (DSP) is a key application-area in the modern age. From music, to photos to movies, DSP has become part of the underlying mathematics of multimedia. However, the universality of the DSP and computing technology is not apparent to the future generations of computer engineers. As such, we are working to develop and release an open source platform for programming and activities to inclusively engage children ranging from 9-14. This platform will be beta tested in Vancouver and then distributed nationally for use by outreach groups and teachers across Canada.

**Objective:** The student will be working to advance our existing prototype with basic functionality to an interactive platform that supports multiple activities for both sound (and ideally image) processing and porting these activities across Linux and Windows Operating Systems. They will be required to expand our existing unit testing and code coverage framework as well as to use git hub and maintain good software engineering practices as this is an ongoing project.

**Skills needed:**
- Strong High-level language programming skills (preferably C++);
- Competent to navigate large code bases.
- Comfortable with Agile and Scrum based software development
- Strong Critical thinking skills required and the ability to work independently
- Comfortable with Fourier Transforms
- The completion of CMPT 225 and/or ENSC 351 is required
- Experience with MATLAB would be an asset.
- Familiar with Z-Transforms would be an asset.
- Experience with git-hub would be an asset.
- Experience with the Linux kernel and/or device driver design might also be an asset, but not required.
- Experience porting applications between operating systems would be an asset
- Interest in music might also be an asset.

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