**ECE 4822: Engineering Computation IV**

**Homework No. 6: Parallel DSP Filters Using OpenMP**

**Goal:** Learn how to decompose algorithms into parallel computations.

**Description:**

Develop parallel implementations of FIR and IIR filters as described here:

*https://en.wikipedia.org/wiki/Parallel\_processing\_(DSP\_implementation)#Conceptual\_example*

Initially code this in C++ using OpenMP. Here are two nice tutorials:

*https://learn.microsoft.com/en-us/cpp/parallel/openmp/a-examples?view=msvc-170*

*https://hpc-tutorials.llnl.gov/openmp/*

Compile and link your code (*x.cc*) using this command:

*g++ -fopenmp x.cc -o x.exe*

Though this code won’t be efficient for small filters, it gives you a good idea how data flow must work in a streaming signal processing application.

In the next assignment, you will port this code to a GPU.