Windowed-Sinc Filter

- y = sin(2*pi*f*t) / t

Create the filter

```
sample_rate = 1000; %hz
t = -4:1/sample_rate:4;
num_points = length(t);

f = 8;
sinc_filter = sin(2*pi*f*t) ./ t;

%adjust for when t = 0 and normalize
sinc_filter(~isfinite(sinc_filter)) = max(sinc_filter);
sinc_filter = sinc_filter./sum(sinc_filter);
```

Window the filter

- use hann window https://www.mathworks.com/help/signal/ref/hann.html
- https://en.wikipedia.org/wiki/Window_function

```
windowed_sinc = sinc_filter .* hann(num_points)';
```