Case study 3: Circuits as Resonators, Sensors, and Filters

ESE 105

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function myFilterCircuit(Vin,h) receives a time-series voltage sequence sampled with interval h, and returns the output voltage sequence produced by a circuit

inputs: Vin - time-series vector representing the voltage input to a circuit h - scalar representing the sampling interval of the time series in seconds

outputs: Vout - time-series vector representing the output voltage of a circuit

```
function Vout = myFilterCircuit(Vin,h)

R = 1800; % resistance
L = 12e-1; %inductance
C = .05e-6; %current

time = length(Vin);
x = zeros(2,time);
%run the simulation

for t=1:time
    %use given h and vin in this equation
    x(:,t+1) = [1 h/C ; -h/L 1-(h*R)/L ] * x(:,t) + [0;h/L]*Vin(t);

end

v = x(1,:)';

Vout = v;
end
```

```
Not enough input arguments.

Error in myFilterCircuit (line 24)
time = length(Vin);
```

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