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

ESE 105

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function myResonatorCircuit(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 = myResonatorCircuit(Vin,h)

x = zeros(2,960000);
C = 1e-7; % current
R = .5e2; % resistance
L = .9255; % inductance

%run the circuit for approximately 5 seconds
for t = 1:960000
    x(:,t+1) = [1 h/C ; -h/L 1-h*R/L] * x(:,t) + [0;h/L]*Vin(t);

end
Vout = x(1,:)';

end
```

```
Not enough input arguments.

Error in myResonatorCircuit (line 27)
    x(:,t+1) = [1 h/C ; -h/L 1-h*R/L] * x(:,t) + [0;h/L]*Vin(t);
```

Published with MATLAB® R2021a