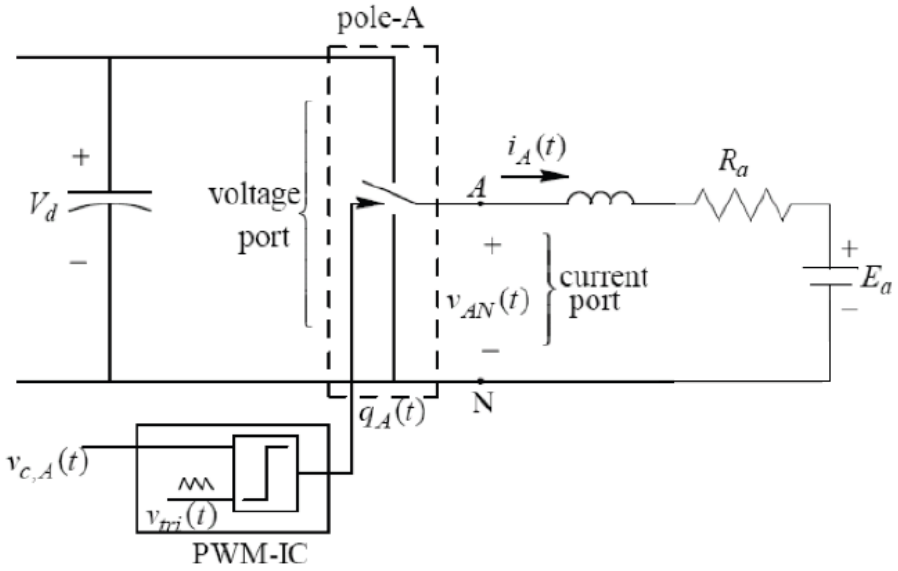
Switched converter pole



⇨ $i'(t)=v_{AN}(t)/L - E/L - (R/L)*i(t)$ (II)

v_{AN} is controlled by the switched converter. When $V_{cA}>=v_{tri}$, $v_{AN}=V_d$; and $v_{AN}=0$ otherwise.

Here's how we can model this in Acumen. Let's start by creating our v_{tri} signal as a saw-tooth wave between zero and 10, and frequency 1KHz.

```
class TriggerSource()
   private Vtri=0; Vtri'=1000; end
   Vtri'[=]1000;
   if Vtri>=10  Vtri=0; end
end
```

We need `Vtri` to go from 0 to 10 in 0.001 seconds, so we set its derivative to 10/0.001=10000. When `Vtri` reaches 10, we reset it to zero. Next we model the switched converter. This class depends on two variables, the source voltage V_d and the control voltage V_{cA}.

```
class SwitchedConverter(Vd,Vca)
   private Van = 0; trigger = create TriggerSource(); end
   if trigger.Vtri>=Vca  Van [=] Vd; else  Van [=] 0; end
end
```

The equivalent circuit in this case can be modeled with equation (II). Don't forget to instantiate the switched converter with $V_d=100$ and $V_{cA}=8$.

```
class EquivalentCircuit(R,L,E)
   private i=0; i'=0;
      converter = create SwitchedConverter(100,8);
   end
```

```
   i'[=]converter.Van/L - E/L - (R/L)*i;
end
```

We finish our model by instantiating our equivalent circuit in `Main`.

```
class Main(simulator)
   private circuit = create EquivalentCircuit(0.5,0.012,40);
end
   simulator.timeStep = 0.0001;
   simulator.endTime = 0.1;
end
```