Applied Case Studies in Machine Learning and Deep Learning in Key Areas II

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V
R
I

- Voltage
- Resistance
- Current

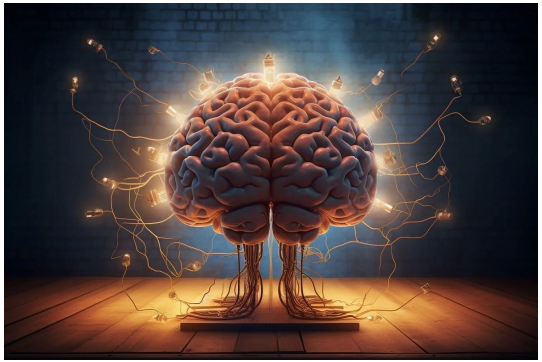
What are they in simple words ?

Current

Definition Rate of flow of charge
Amount of charge per unit time that crosses one point

$I = \Delta Q / \Delta t$

Unit: ampere (A)

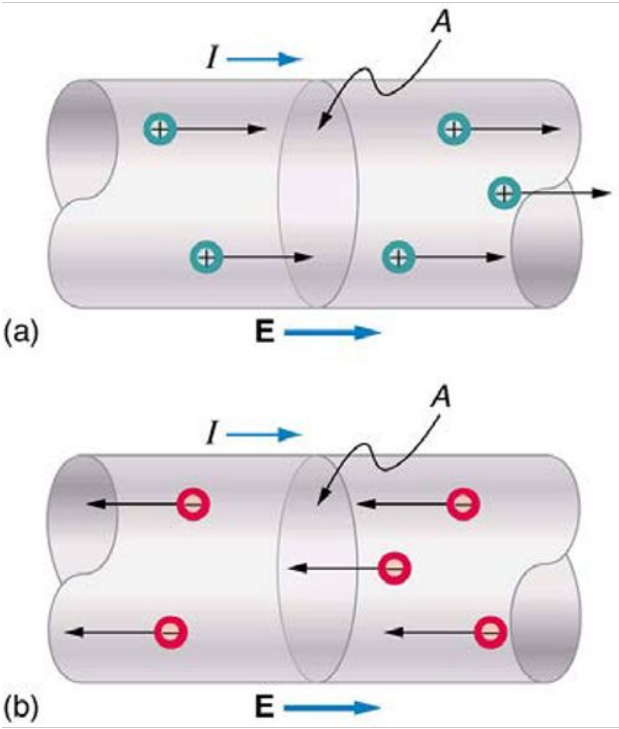


Current

Electrons are the charge that flows through

Historically thought positive charges move

Conventional current imaginary flow of positive charges
Flows from positive terminal and into negative terminal
Real current flows the opposite way

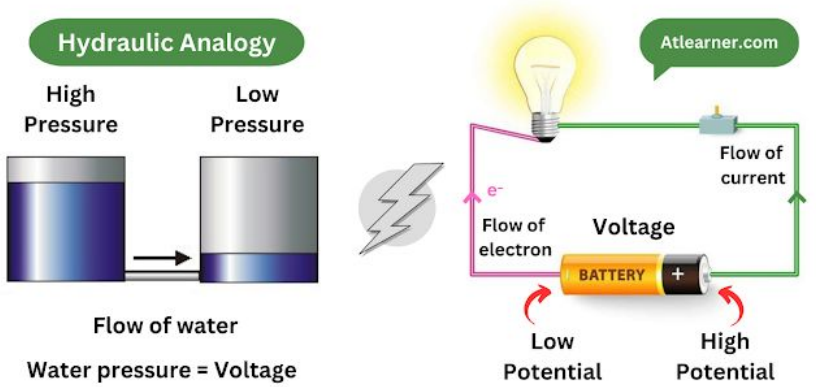


Voltage

In simple words : Voltage describes the “pressure” that pushes electricity

Voltage is the difference in electric potential between two points.

Unit: V (volts)



Ohm Laws

$$V = RI$$

Electrical Power

Electric power is the rate of transfer of electrical energy within a circuit

$$P = V I$$

It is measured in Watts

Resistance - Capacitance - Inductance

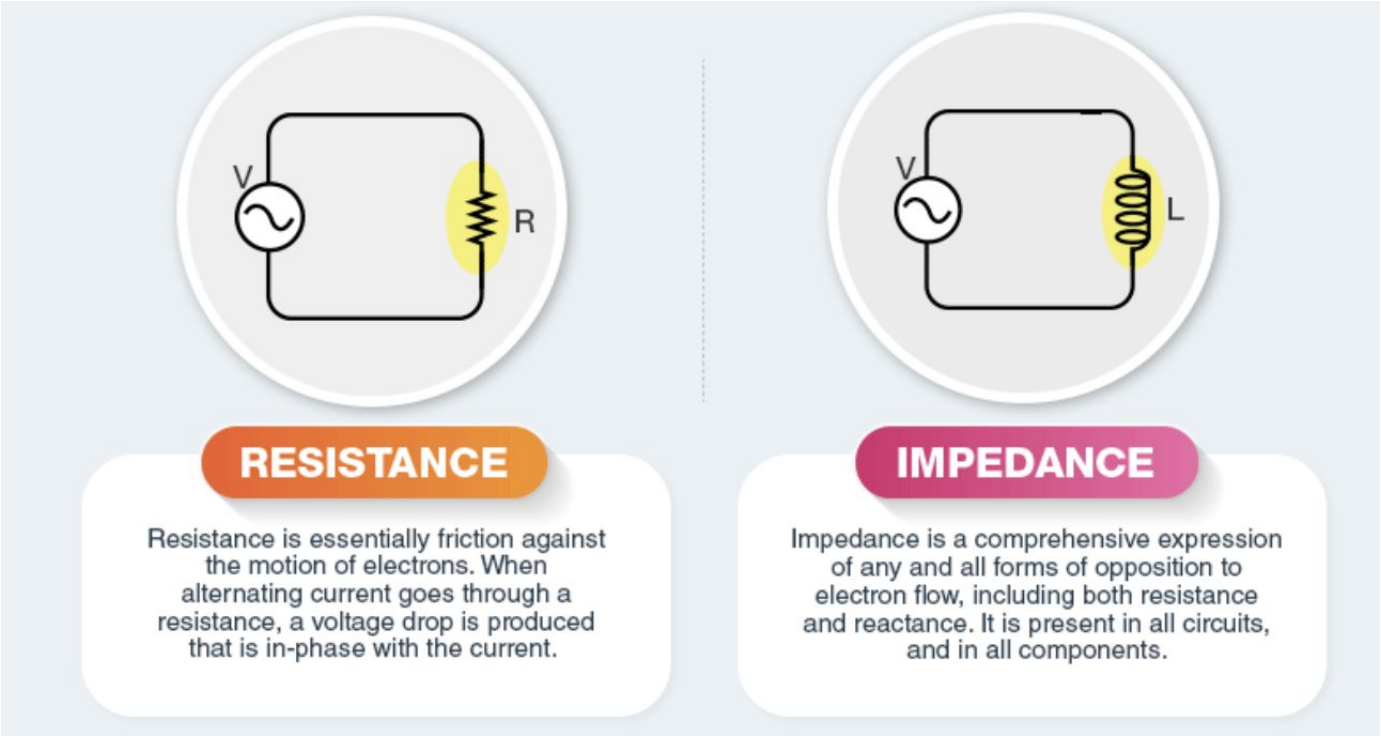
Every material , even our body, has a certain R, C and I

Resistance: is a measure of the opposition to current flow in an electrical circuit.
Unit : Ω (ohms)

Capacitance : is the capability of a material object or device to store electric charge.
Unit : Farad

Inductance : the tendency of an electrical conductor to oppose a change in the electric current flowing through it.
Unit : (Henry)

Difference Between Impedance and Resistance



The human body is full of electricity

Electricity is required for the nervous system to send signals throughout the body and to the brain, making it possible for us to move, think and feel.