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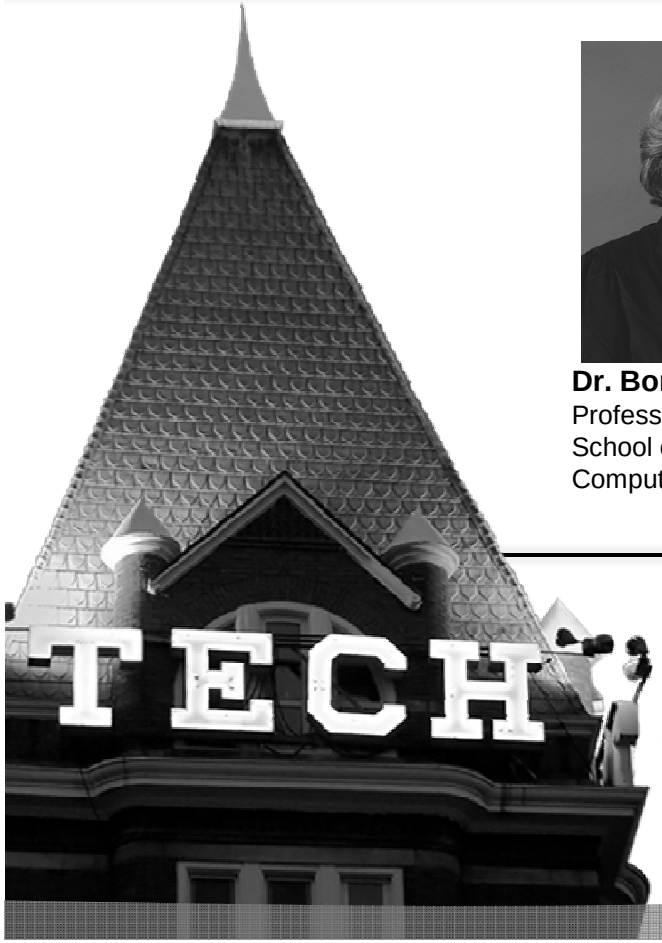

Linear Circuits

Dr. Bonnie Ferri
Professor and Associate Chair
School of Electrical and
Computer Engineering

An introduction to linear electric circuit elements and a study of circuits containing such devices.

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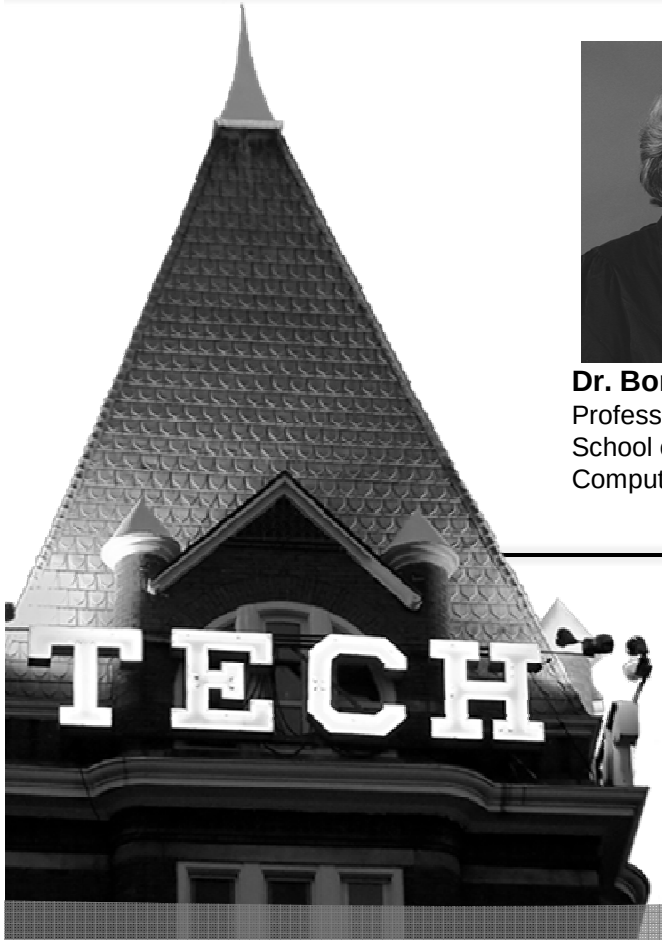

Application: Resistors in Sensors

Dr. Bonnie Ferri
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Show sensors that depend on variable resistance.

Module 2: Resistive Circuits

- Resistance
- Kirchhoff's Laws
- Resistors
- Superposition
- Systematic Solution Methods
- Maximum Power Transfer
- Applications: Sensors

Resistors in Sensors

Sensor: device that converts a physical quantity to an electrical signal

Variable Resistors:

Pziezoelectric R ↓ as pressure ↑

Thermister R ↓ as temperature ↑

Strain Gauge R ↑ as strain gauge elongates

Potentiometer R varies with position

Lab Demo: Variable Resistors in Sensors

Summary

- Resistance often varies with physical properties
- Sensors utilize this property to convert physical quantities to voltage

Next Lesson

- Wheatstone bridge application

Credits

Thanks to Marion Crowder (School of Electrical and Computer Engineering at Georgia Tech) for video-taping the experiment

Thanks for James Steinberg and Kevin Pham for technical assistance

Flexforce sensor manufactured by Tekscan®