# Speech Processing and Body Engineering

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## Activities

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<th>Socially-Intelligent Interfaces</th>
<th>Manipulating Voices- Scary Sounds</th>
<th>Conductivity</th>
<th>Chemical Reactions</th>
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<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
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</table>

- **Wave Properties For Understanding E-M Waves**

## Engineering Design

**Vortex Cannon**

**Bernoulli’s Principle** - As air picks up speed, air pressure drops

**Measuring Average Speed** - \( \text{Dist} = \text{Rate} \times \text{Time} \)

**Newton’s Vehicles**

**Objective** - Design a vehicle which demonstrates Newton’s 3rd Law of Motion

**Newton’s 3rd Law of Motion** - For every action, there is an equal and opposite reaction.

## Acids-Bases

![Image](image5.png)

- **HCl**
- **HNO₃**
- **H₂SO₄**

Reference: Dr. Takayuki Arai  
[http://www.splab.ee.sophia.ac.jp/](http://www.splab.ee.sophia.ac.jp/)

## Speech Production

![Image](image6.png)

**USC SPAN**

Reference: [dbone@usc.edu](mailto:dbone@usc.edu) [http://bela.usc.edu/](http://bela.usc.edu/)