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# Societal Impact Case Studies – *live links in agenda on canvas*

Instructions: Complete the following in groups

1. Choose 1 of the below innovations.
2. Explore/learn about the technology and purpose of the innovation. Use provided resources as a starting point. Feel free to use alternate/additional resources.
3. Complete the **worksheet** handed out in class.

## Option 1: Robotic AI Prosthetic Hand

- Company website – Esper Bionics
- This AI-powered prosthetic hand is bringing design and style to a life-changing product. (July 2022, zdnet.com)
- Esper Hand is "human-like" prosthetic arm that can be controlled by the mind (Sept 2022, YouTube)
- 5 Things Amputees Should Know about the Esper Bionic Hand (Nov, 2022, livingwithamplitude.com)
- From gogadget.com: The prosthesis has received FDA approval from the U.S. medical regulator and approval to be sold in the U.S. and to work with U.S. insurance companies. When sales will start and how much the Esper Hand will cost is not yet known. But earlier, representatives of the company said that the cost of prosthesis in Ukraine will be $6000 and in developed markets - $10 000-16 000.

## Option 2: Cell-Cultured Wood

- Company website: Foray Bioscience
- Toward customizable timber, grown in a lab. (May 2022, MIT News)
- The Lumber Shortage Sucks, But Lab-Grown Wood Could Save Your Next DIY Project (June 2022, popular mechanics)
- Physical, mechanical, and microstructural characterization of novel, 3D printed, tunable, lab-grown plant materials generated from *Zinnia elegans* cell cultures (April 2022, Materials Today) – this is a research article so it's a bit dense but provides a lot of detailed information on the technology.

## Option 3: Clean Energy from Waves

- Designing the Future of Wave Energy (March 2023, NREL.gov)

There are multiple project partners, each with different design technologies, discussed in the article. Just **choose one** to review (you won't have time to look at them all).

  - CalWave Power – the xWave
  - Columbia Power – the StingRAY
  - IDOM Inc. - Floating Oscillating Water Column

- PacWave - Wave energy test site (pacwaveenergy.org)
- Various Advantages and Disadvantages of Wave Energy (conserve-energy-future.com)