

# Society 5.0:

Advanced  
Technologies in the  
Existential Era

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Zingale, PhD

EDT, Rijeka

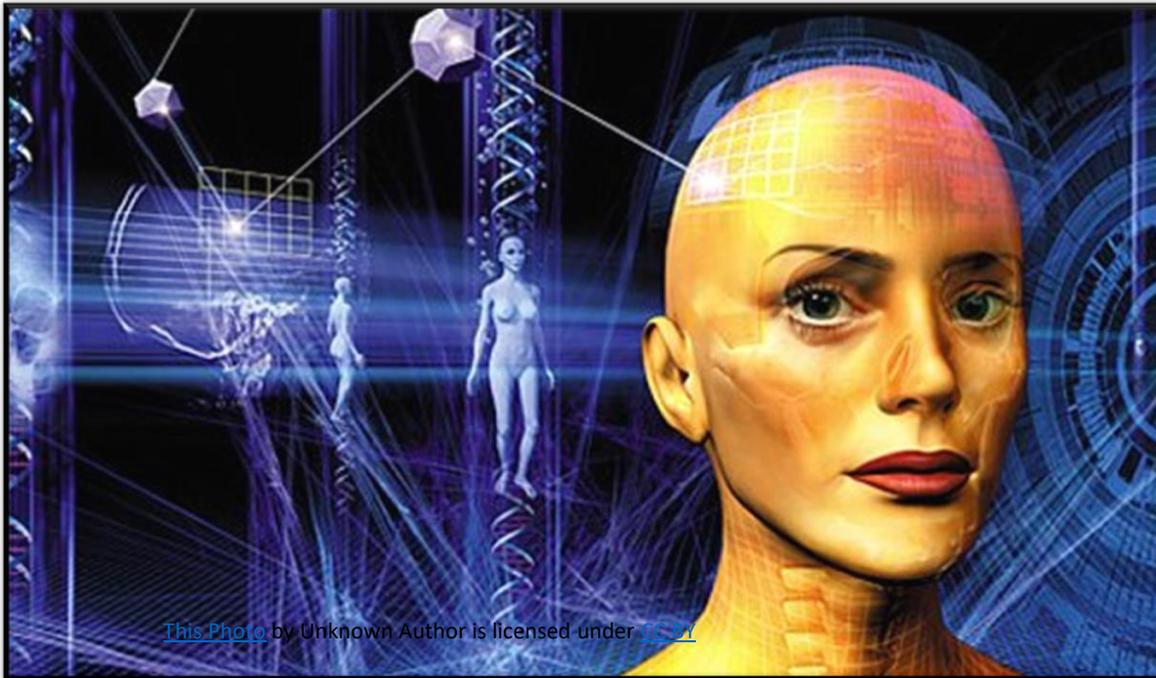
June 24, 2022



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# Last Year Meet the future mayor of Rijeka



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# Brookings – “Advanced Tech is NOT a futuristic Vision”

- Transportation - Autonomous Vehicles
- Finance - High Frequency Trading on Exchanges and Robo-advisers
- National Security – data and video surveillance and troving, facial recognition, cyber networks, etc.
- Health Care – deep learning medical diagnostic systems
- Criminal Justice – future perpetrator rankings and profiling based on behaviors, age, arrest records, etc.
- Cities – improving services, planning, resource and energy management, smart city hall



# Japan's 5.0

- Japan's Basic Science and Technology Plan (2020)
- Focuses on a data-driven, knowledge led, non-monetary society
- Written by a multi-disciplinary group

Title	Industrie 4.0 (Germany)	Society 5.0 (Japan)
Design	<ul style="list-style-type: none"><li>• High-Tech Strategy 2020 Action Plan for Germany (BMBF, 2011)</li><li>• Recommendations for implementing the strategic initiative INDUSTRIE 4.0 (Industrie 4.0 Working Group, 2013)</li></ul>	<ul style="list-style-type: none"><li>• 5th Science and Technology Basic Plan (released 2016)</li><li>• Comprehensive Strategy on Science, Technology and Innovation for 2017 (released 2017)</li></ul>
Objectives, scope	<ul style="list-style-type: none"><li>• Smart factories</li><li>• Focuses on manufacturing</li></ul>	<ul style="list-style-type: none"><li>• Super-smart society</li><li>• Society as a whole</li></ul>
Key phrases	<ul style="list-style-type: none"><li>• Cyber-physical systems (CPS)</li><li>• Internet of Things (IoT)</li><li>• Mass customization</li></ul>	<ul style="list-style-type: none"><li>• High-level convergence of cyberspace and physical space</li><li>• Balancing economic development with resolution of social issues</li><li>• Human-centered society</li></ul>



# Karl Marx (Material Life) Four Stages

- Primitive Communism
- Agrarian Slaves
- Feudalism
- Capitalism



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# August Comte (Mental Life) Thought in terms Three Stages of Causation and Understanding

- Theological
  - Metaphysical
  - Positive
- 
- Gods
  - Abstract speculations:
    - Natural rights, social contracts, self-evident truths
  - Observations and empirically determined society



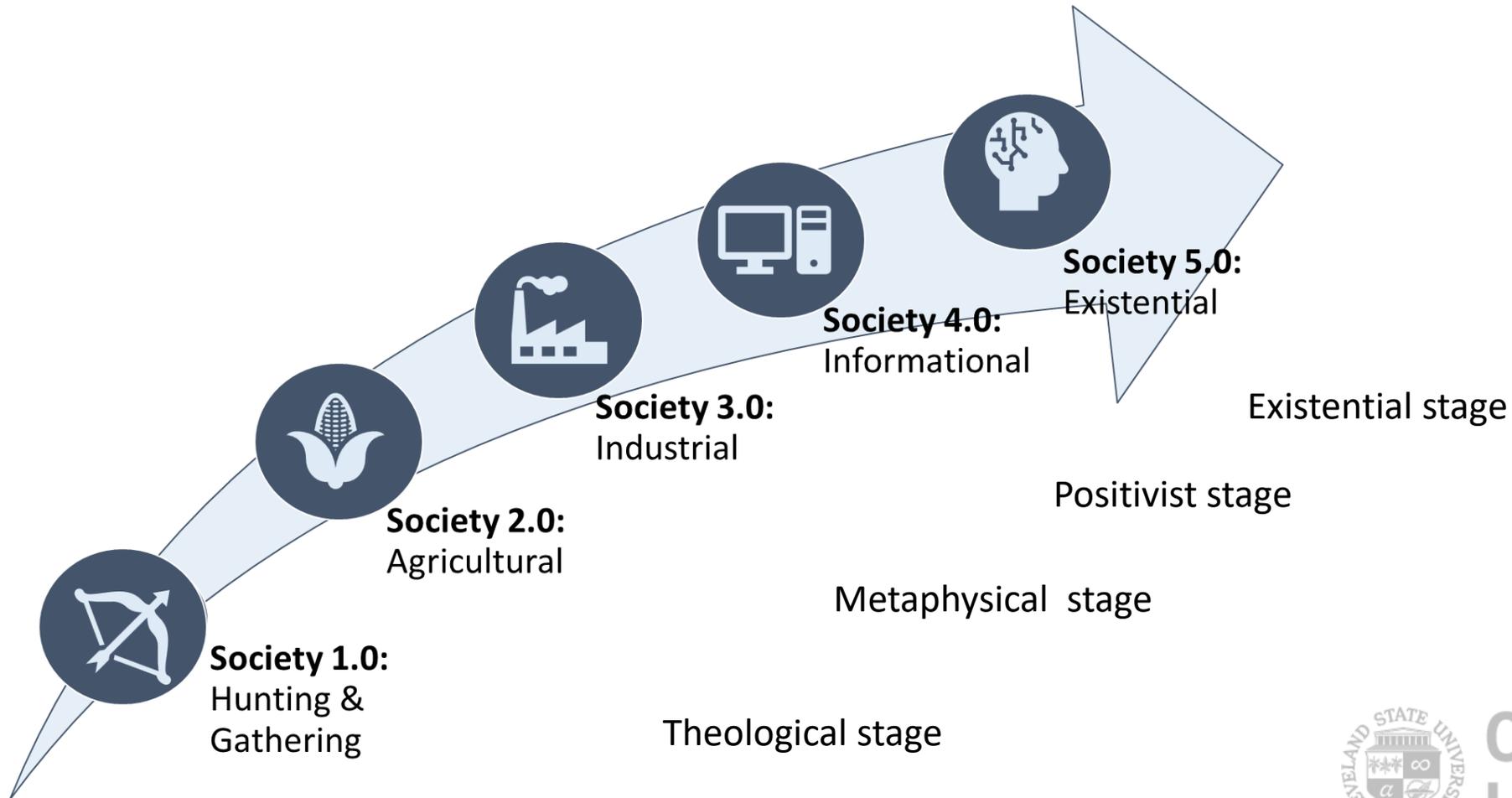
# Gerhard Lenski (1924- 2015)

- Defined Society in terms of their technological sophistication
- Each advance of technology the relationship between and humans and nature is altered.
  - Rudimentary societies fluctuate with their environment
  - Advanced societies have more control over their environment
- Encompasses all aspects of social life
  - Mental (Comte)
  - Material (Marx)



# Society 5.0: Existential

## *Embodied Tech and the Sylicarbon Future*



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# Existential

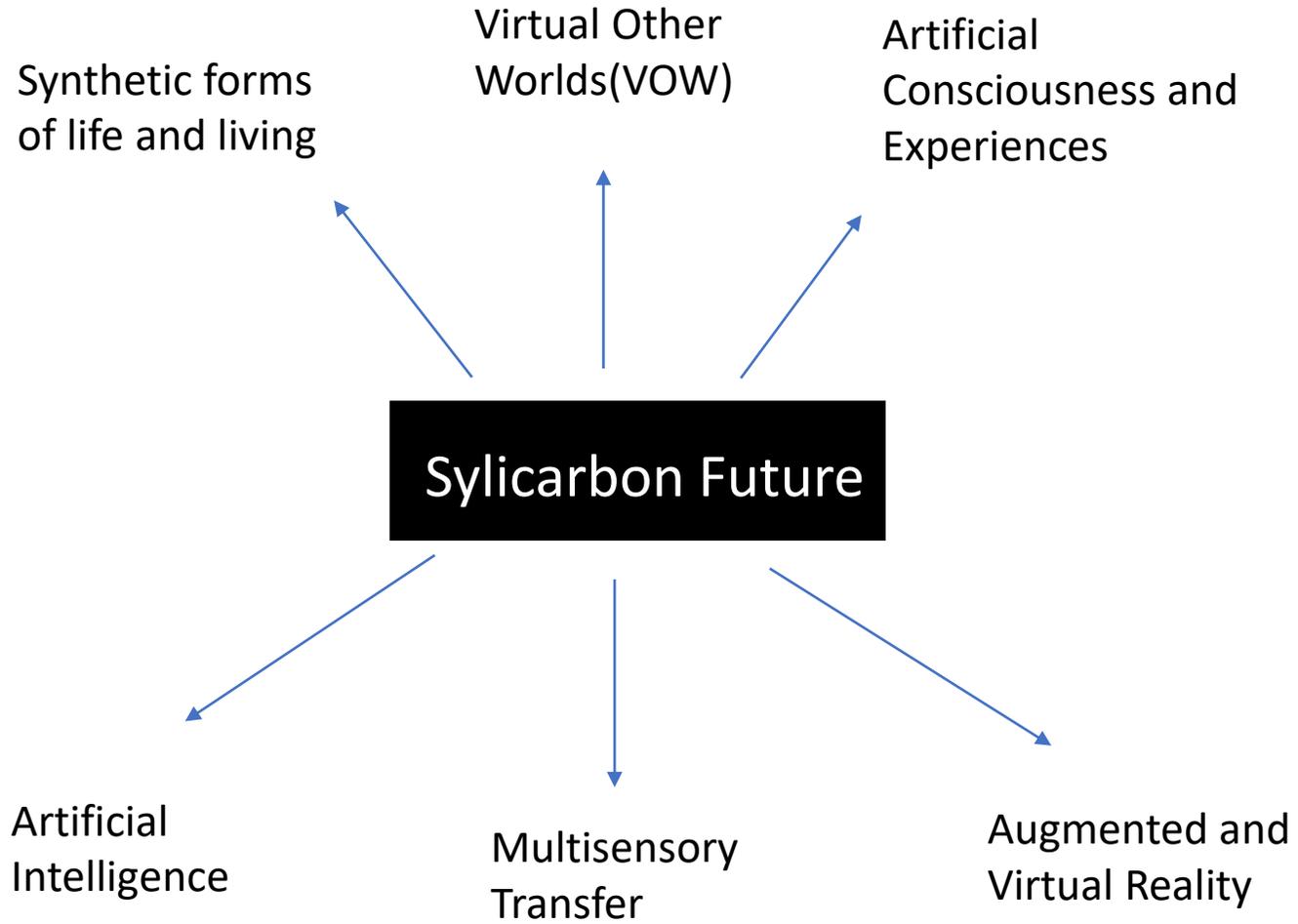
- Mental - What does it mean to exist, How do I exist, where do I exist, who am I.
- Material – post capitalism
  - State capitalism or stratified capitalism combined with...
  - The Sharing Economy



# Case Study: the transfer of touch over distance via neuroreality™



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# Society 5.0's "Sylicarbon Future" : the potential

The New York Times

## System Suicide and Sexual Assault, the Force Dons Headsets

Officials are hoping that an immersive virtual reality experience aimed at getting airmen to intervene will succeed where traditional training have failed.



## NASA 'Holoported' a Doctor Onto the International Space Station

We're living in a Star Trek episode, basically.

Monisha Ravisetti   
April 17, 2022 12:27 p.m. PT



## Artificial intelligence to predict heart disease

31 MAY 2021 | 2 MINS

technology could spell a medical breakthrough as the leading cause of death in Australia.

Researchers at The University of Western Australia have developed a new AI technology that can predict the risk of coronary heart disease. The technology uses machine learning and artificial intelligence was able to predict the risk of coronary heart disease. The build-up of plaque affects more than 100 million people worldwide. It is a serious, time-consuming and may be

## Beyond synthetic biology, synthetic ecology boosts health by engineering the environment

by Kat J. McAlpine, Boston University



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In a new *Nature Communications* study, researchers from BU's Microbiology Department have shown that synthetic ecology can boost health by engineering the environment. There's a lot of interest right now in synthetic biology, but like the



# What will Society 5.0 Mean

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- Unfathomed medical breakthroughs
- Unfathomed experiential opportunities
- Redefined Educational Systems - Knowledge Expansion and a hyper-informed Society (AI assistants)
- Redefined Social Structures and Human Connections
- Redefined Work and Economy
- Others??



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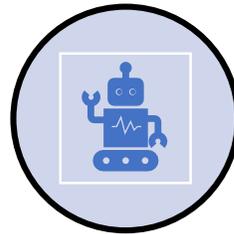
# It Could Also Mean

- Post-Modern confusions with reality
- Governmental Misalignment – Marginalization
- Strained Democracies
- Societal and Community Confusion
  - Connections, Crime, Capital
- Human-Machine Conflation
- New Physics
- Mental Disorders
- Increased Inequities
- Others ???

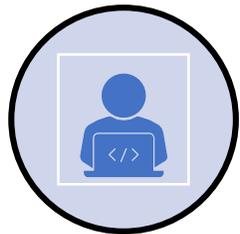
# Society 5.0's Big Questions



How are these technologies shaping and reshaping our human experience?



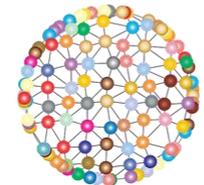
How are technologies influencing the ways we interact?



What do we want technologies to do for us/humanity?



What do we want the future of life to look and feel like?



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# Society 5.0 Situated at CSU

**Internal**  
within CSU

Internet of Things Collaborative

T.E.C.H. Hub

Center for Human-Machine Systems

National Science Foundation Research Traineeship Program

HELPPS Consortium

University Innovation Fellowship

**S5**

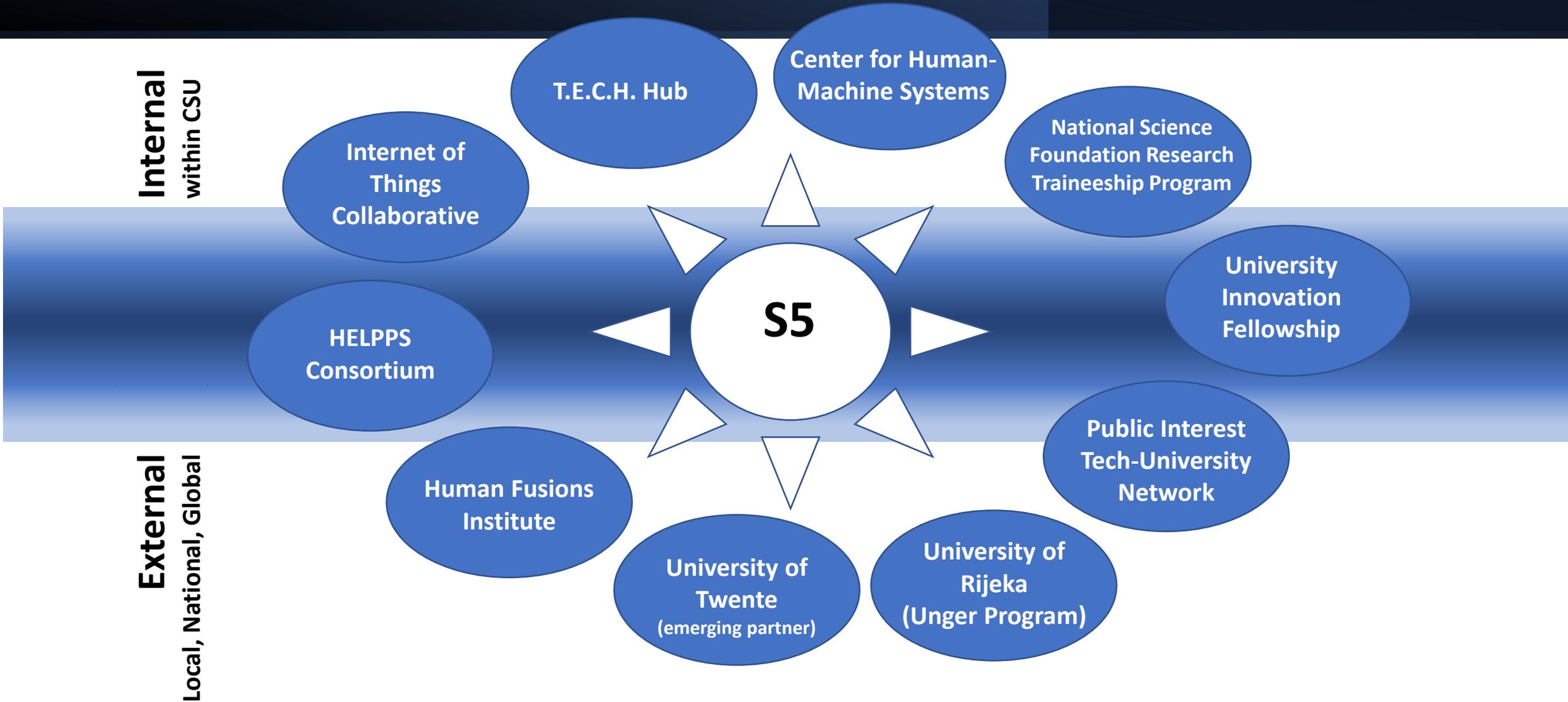
Human Fusions Institute

Public Interest Tech-University Network

**External**  
Local, National, Global

University of Twente  
(emerging partner)

University of Rijeka  
(Unger Program)



# Graduate Certificate and Website

- Society 5.0 Graduate Certificate
  - 4 courses
  - Fall 2022: Transdisciplinary Perspectives or Logic of Inquiry
- [urban.csuohio.edu/society5.0](http://urban.csuohio.edu/society5.0)

Maxine Goodman Levin College  
of Urban Affairs >

## SOCIETY 5.0

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Levin Calendar  
Professional Development  
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Research Centers  
Site Map: A-Z Index  
Society 5.0

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Society 5.0

## SOCIETY 5.0



### What is Society 5.0?

Society is rapidly approaching a fifth stage of development that includes emerging disruptive technologies, such as artificial intelligence, multi-sensory transfer, augmented and virtual realities, advanced robotics, and synthetic forms of life. As in the previous four stages of societal development, (1) hunter-gathering; (2) agrarian; (3) industrial, and (4) informational, the role of technology has shaped everyday

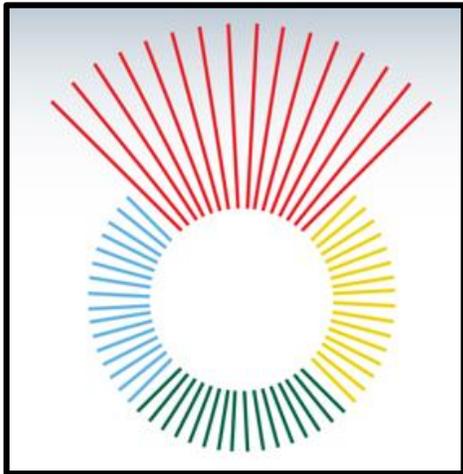
# Transdisciplinary City Halls and Governing the Future

**Abigail Poeske**  
**PhD Student**  
**Cleveland State University**  
**Levin College of Urban Affairs**  
**EDT June, 2022**  
**University of Rijeka**

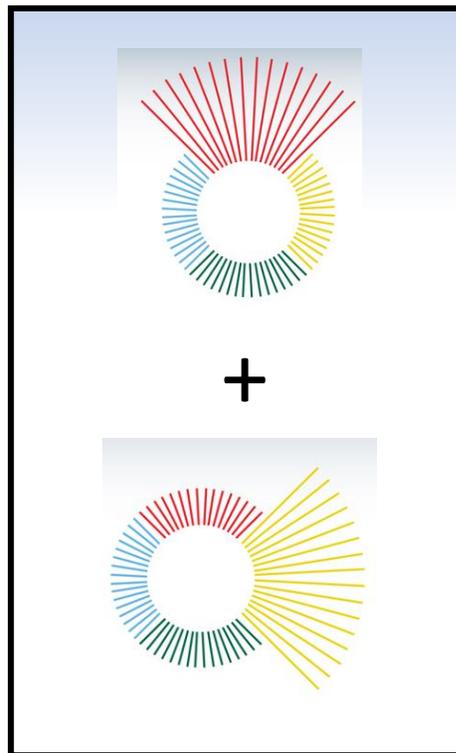


# Transdisciplinarity

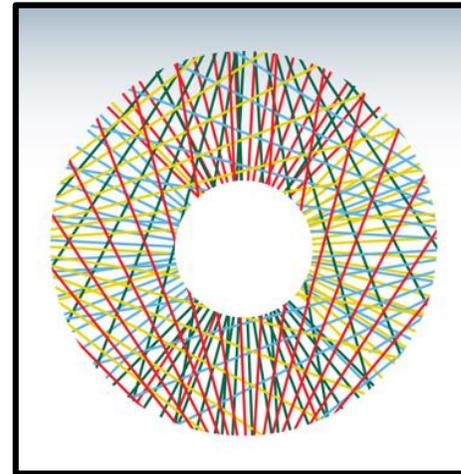
Monodisciplinary



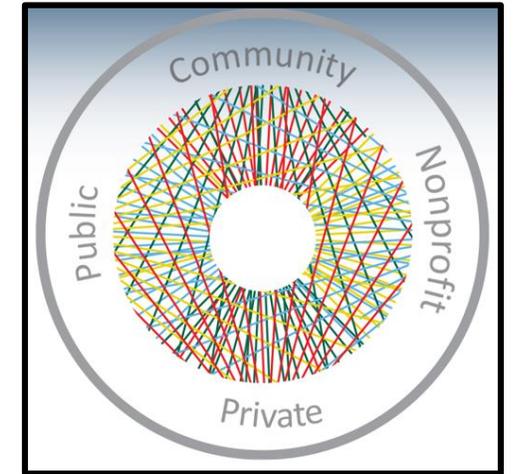
Multidisciplinary



Interdisciplinary

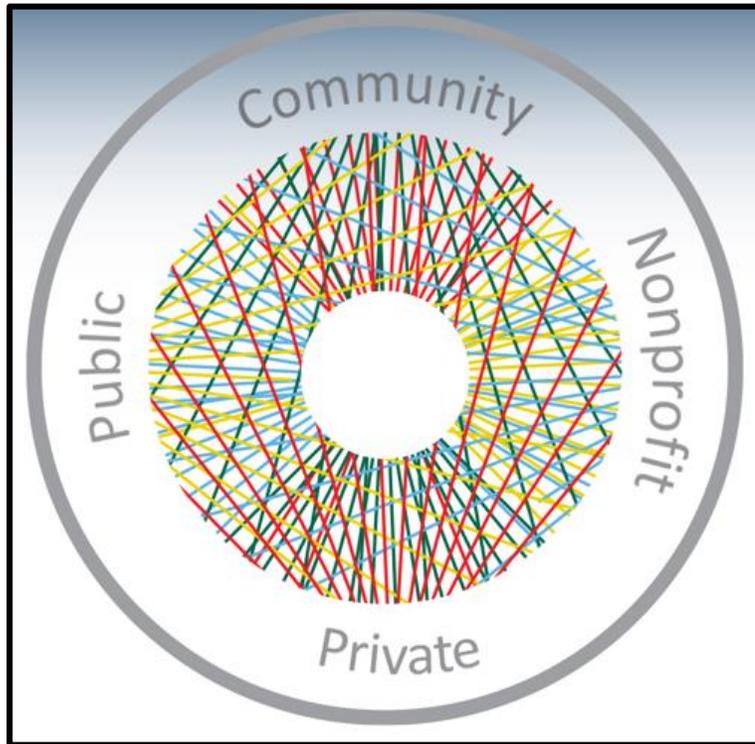


Transdisciplinary



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# Transdisciplinary City Halls: Collaborative Governance



## **Violence Prevention in Cleveland**

Across City Hall: Public Safety, Education, Youth & Families, Parks & Recreation, Economic Development, Innovation & Technology, Communications

Beyond City Hall: universities, nonprofits, philanthropic foundations, faith community (churches), grassroots orgs, community leaders and members



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# Default Approach in Government?



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# Solving the Wicked Problems of Today and Tomorrow



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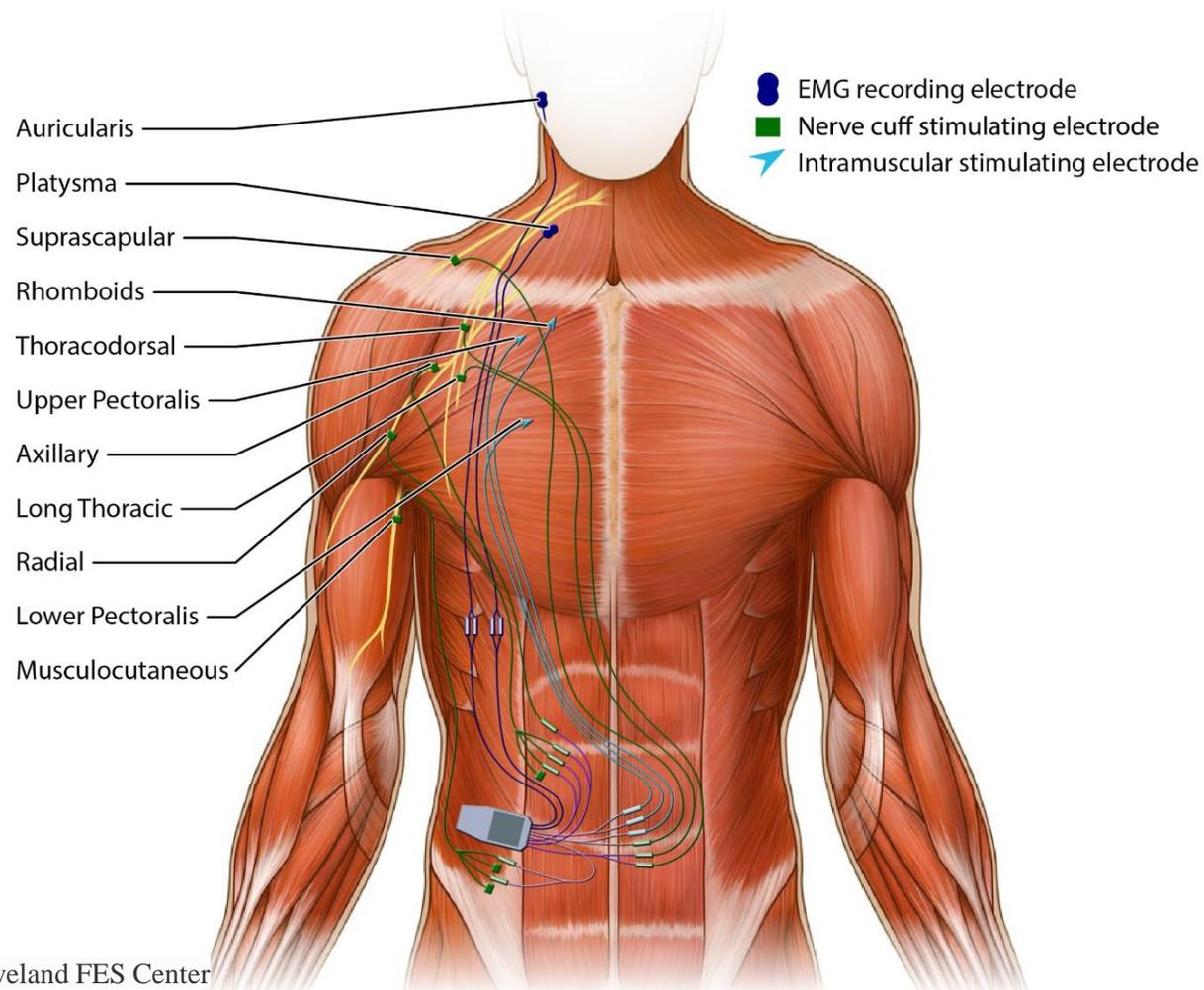
# Disability and Society 5.0: a Rehabilitation Engineer's Perspective

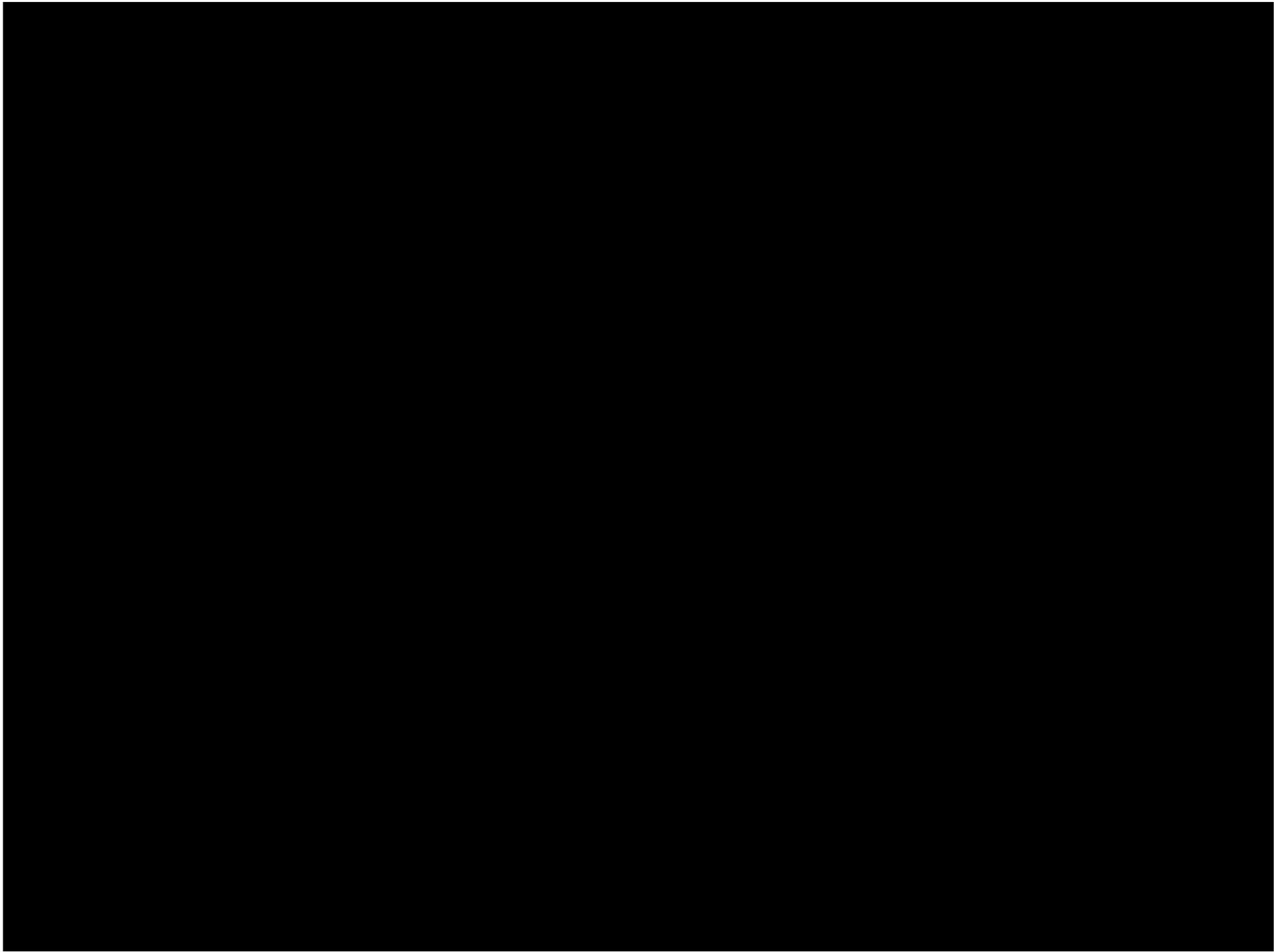
**Cameron LaMack**  
**PhD Student**  
**Cleveland State University**  
**Washkewicz College of Engineering**



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# Functional Electrical Stimulation: a possible solution for Spinal Cord Injury

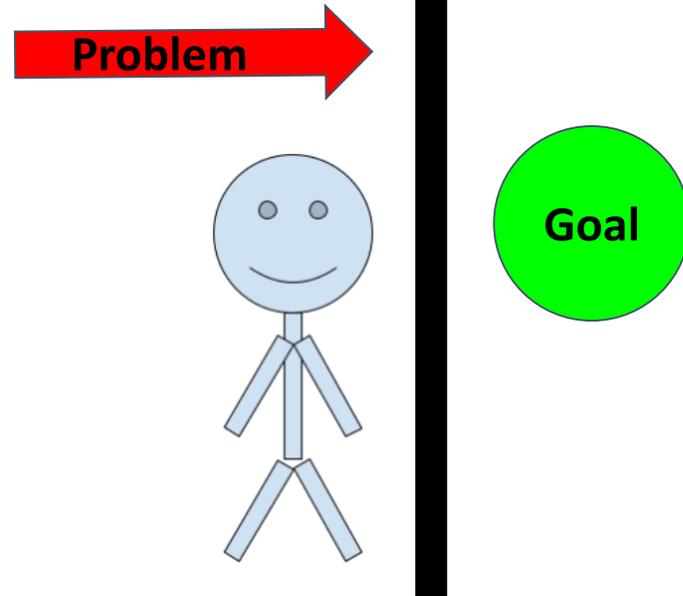
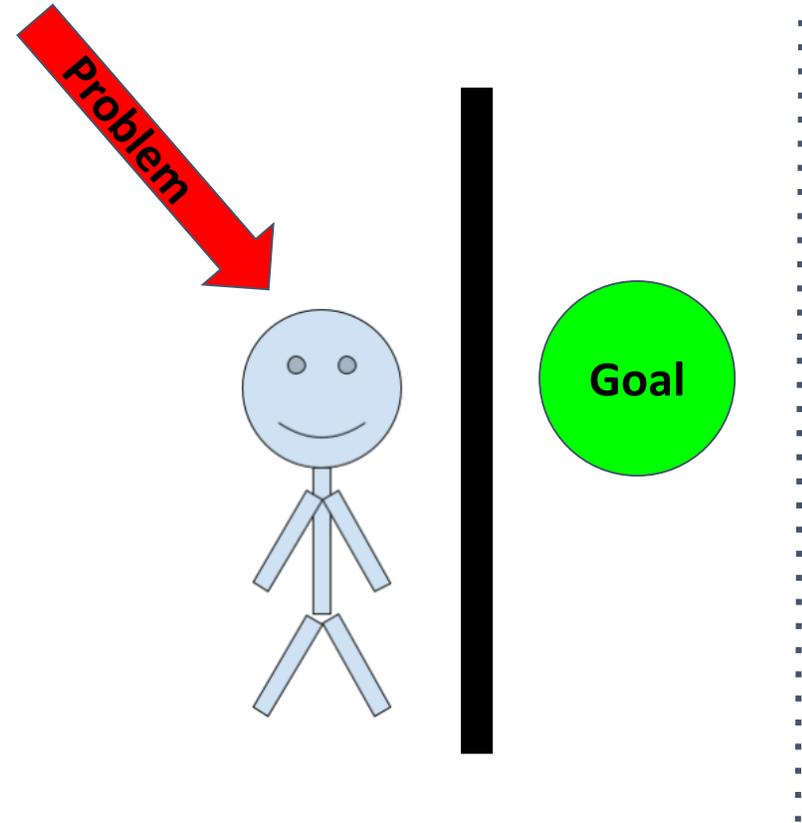




# Models of Disability

**Medical Model of Disability**  
(impairment is the problem to be fixed)

**Social Model of Disability**  
(infrastructure and attitudes are the primary problem)



Goering, Sara. *Current reviews in musculoskeletal medicine* (2015)



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**What might a “city” that minimizes  
disability look like?**



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