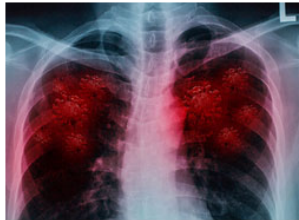# Promoting **Social Justice** through Human-Centered Computing

DR. PAMELA WISNIEWSKI

ASSOCIATE PROFESSOR, PAMWIS@UCF.EDU
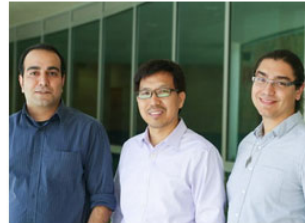
DEPARTMENT OF COMPUTER SCIENCE, COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

HTTPS://STIRLAB.ORG

AI Can Detect COVID-19 in the Lungs Like a Virtual Physician, New Study Shows

September 30, 2020 — A University of Central Florida researcher is part of a new study showing that artificial intelligence can be nearly as accurate as a physician in diagnosing COVID-19 in the lungs. The study, recently published in Nature Communications, shows the new technique…
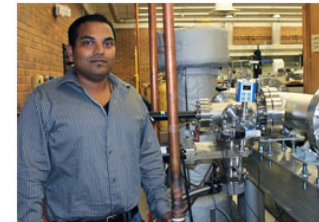

New Tool to Quickly Cull Biobank Data, Accelerate Research of Genetic Diseases

June 20, 2018 — A couple of computer scientists are getting ready to take the DNA testing technique that made Ancestry.com family trees possible to a whole new level, which may give doctors a powerful new tool against hereditary diseases such as breast cancer,…

UCF Wins National Competition to Make Driving Safer

November 21, 2019 — UCF has won a national competition to make driving safer, beating out more than 50 other teams, the U.S. Department of Transportation announced today. "UCF's Smart and Safe Transportation Team and I are honored to be selected by the U.S….

UCF Researcher Earns 2nd Department of Defense Grant to Detect Opioids, Toxins

July 6, 2020 — Subith Vasu, UCF associate professor of mechanical and aerospace engineering, was recently awarded the prestigious Director's Fellowship from the U.S. Defense Advanced Research Projects Agency, one of just 12 researchers nationally to earn the 2020 research grant. Vasu, an expert…

https://www.cecs.ucf.edu/news

Changing the World through STEM

College of Engineering & Computer Science
Opportunity Starts Here
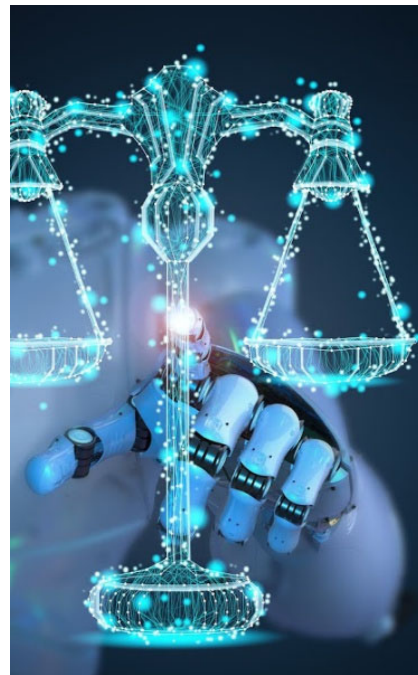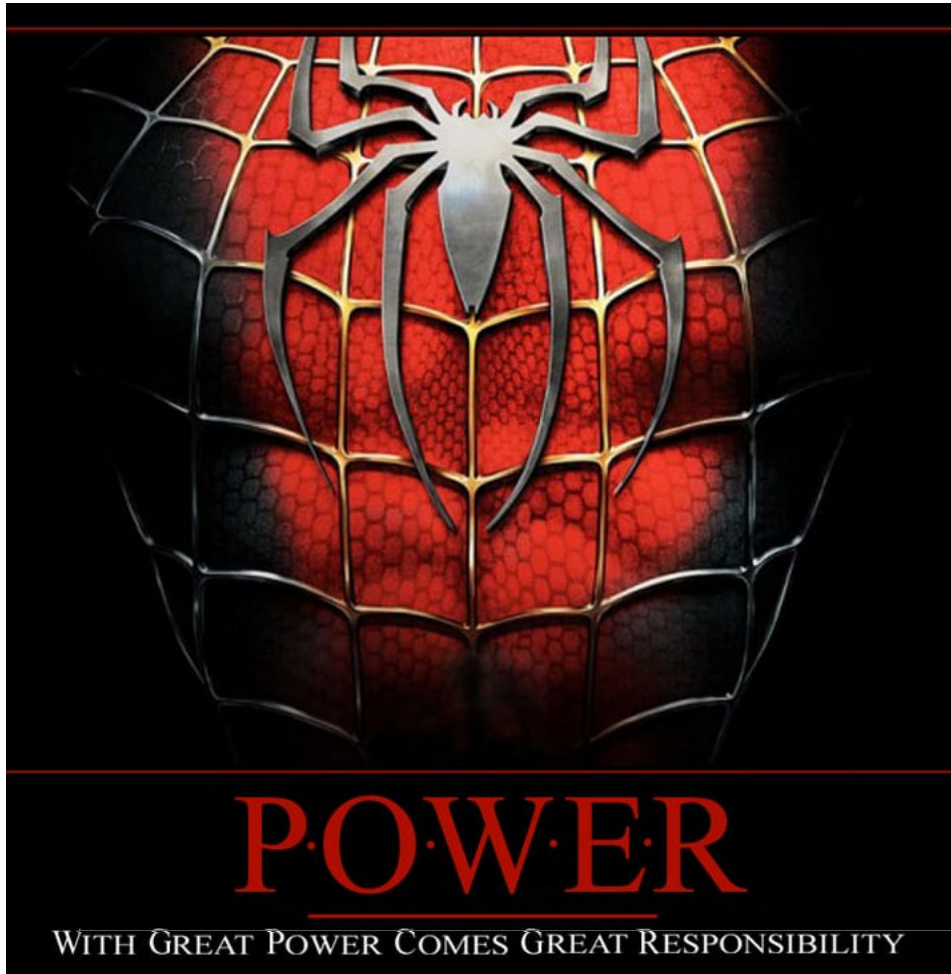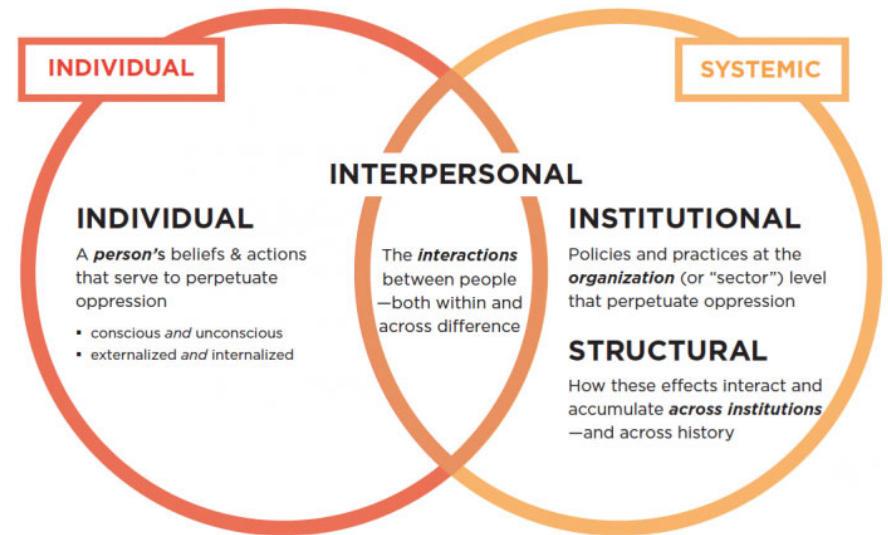
Technology as the Great Equalizer

§ **Artificial Intelligence (AI) Systems are . . .**

- Determining criminal sentences
- Teaching our children
- Determining foster case placements
- Deciding patient treatment
- Replacing humans in our daily activities

- **The systems we build have real life and death consequences.**

Systemic Oppression Exists

INDIVIDUAL

SYSTEMIC

INTERPERSONAL

INDIVIDUAL
A *person's* beliefs & actions that serve to perpetuate oppression

- conscious *and* unconscious
- externalized *and* internalized

The *interactions* between people —both within and across difference

INSTITUTIONAL
Policies and practices at the *organization* (or "sector") level that perpetuate oppression

STRUCTURAL
How these effects interact and accumulate *across institutions* —and across history
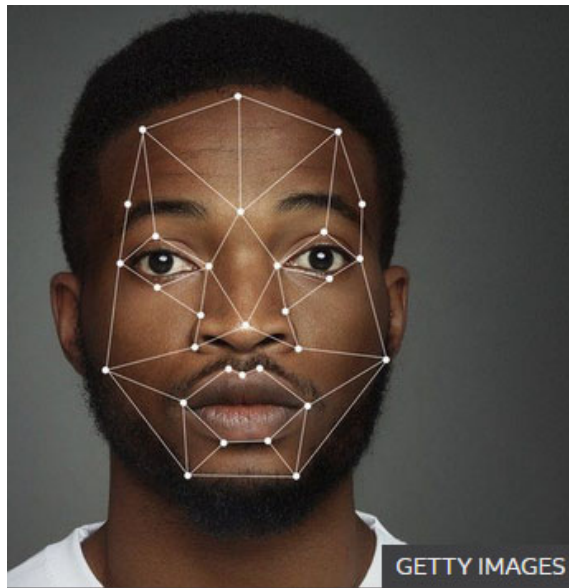
And technology can be used to perpetuate systemic oppression or to eradicate it.

Building Systems of
Oppression or Social Justice?

GETTY IMAGES

Tech giant IBM is to stop offering facial recognition software for "mass surveillance or racial profiling".

A US government study suggested facial recognition algorithms were less accurate at identifying African-American faces

MIT Technology Review

Deepfake porn is ruining women's lives. Now the law may finally ban it.

Mort, a poet and broadcaster in Sheffield, UK, was the victim of a fake ...
Sensity AI, a research company that has tracked online deepfake ...

2 days ago

ScienceAlert

AI Can Now Learn to Manipulate Human Behavior

The first experiment involved participants clicking on red or blue coloured boxes to win a fake currency, with the AI learning the participant's ...

2 days ago

TNW

New AI tool detects hiring discrimination against ethnic minorities and women

New AI tool detects hiring discrimination against ethnic minorities and women. The system uses supervised machine learning to analyze search ...

3 weeks ago

STIR

Myths

§ *"It's not my problem."*

§ *"It's not the problem I am trained to solve."*

A Case for Human-Centered Computing

- **Make Humans the Center of STEM Innovation:**
  - ☐ Engage with users to understand their <u>diverse</u> needs **BEFORE** a system is developed
  - ☐ Leverage real-world <u>data</u> sets that do **NOT** perpetuate existing biases
  - ☐ Use participatory approaches to <u>engage</u> users **DURING** the systems design phase
  - ☐ Continuously collect feedback from users to **EVALUATE** how system use impacts their <u>lives</u>
  - ☐ Realize that more <u>technology</u> may **NOT** always be the best solution

" **Know** the **user,**
you are not the user

"Success is not delivering a feature; success is learning how to solve the customer's problem." –Mark Cook

Forging a
Path Forward

§ **Hold Us Accountable for the Systems We Build**
  □ Mitigate the negative impacts of computing research: https://acm-fca.org/2018/03/29/negativeimpacts/

§ **Infuse Ethics throughout the Curriculum**
  □ Teach STEM students that it is their job to care for and protect marginalized and vulnerable populations.

§ **Celebrate Interdisciplinarity**
  □ STEM is great. . . but Humanity is greater.

§ **Broaden Participation**
  □ Include the voices of minorities and women in computing.

Thank you. Charge on!

UCF Honors Computer Science Assistant Professor Who Uses Technology to Change Lives

April 3, 2019 — Pamela Wisniewski and two other UCF faculty members who use the power of technology to make the human experience better were recognized today with Reach for the Stars awards during this year's UCF Founders Day Honors Convocation. The award recognizes…

- **Pamela Wisniewski, Ph.D.,** University of Central Florida, pamwis@ucf.edu

  Associate Professor, Department of Computer Science

  Chair, CECS Equity, Inclusion, and Diversity Taskforce, https://diversity.cecs.ucf.edu/eid-taskforce/

Socio-Technical Interaction Research (STIR) Lab: http://www.stirlab.org

Industry-focused User Experience (iUX) Academy: http://www.cs.ucf.edu/ux/