

Jump ARCHES projects use emerging tech to promote healthy behaviors, disease detection and treatment

For Immediate Release

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(April 6, 2022/PEORIA/URBANA, ILLINOIS) – Eleven research projects are sharing slightly more than \$700,000 through the [Jump ARCHES research and development program](#). Among the projects are efforts to use blockchain technology to reward healthy behaviors, develop a machine learning algorithm to detect pulmonary changes, and use historical multimodal data for earlier detection of pancreatic cancer. The Jump ARCHES program is a partnership between OSF HealthCare, the University of Illinois College of Medicine, Peoria (UICOMP) and the University of Illinois Urbana-Champaign (UIUC).

Many of the awards represent new projects, while a few build on previously-funded efforts, including a project that continues efforts to develop sensors that can detect stress and anxiety among health care workers. Another supplements previous ARCHES-funded research to further advance use of virtual reality in pre-surgery planning. Proposals often include a multidisciplinary approach, involving clinicians, engineers and social scientists to rapidly create and test solutions for pressing health care needs.

“This round of Jump ARCHES funding allows us to continue building relationships and increase collaboration across our robust health care research community, enabling some of the brightest minds to tackle problems that can now be solved through advancements in use of data, machine learning and artificial intelligence.” –John Vozenilek, MD, vice president/chief medical officer, OSF Innovation and Digital Health

“We look forward to seeing how these research outcomes can ultimately better support patients and clinicians to enhance prevention and treatment efforts,” Dr. Vozenilek adds.

Elizabeth Hsiao-Weckler, PhD, interim director of the UIUC Health Care Engineering Systems Center and professor of mechanical science and engineering, emphasizes the importance of the ongoing collaboration.

“These new projects will leverage the interdisciplinary expertise at UIUC and OSF to make fundamental advancements in technology that has major impacts on our personal health. We are grateful for the support of Jump ARCHES in investing in research with real and measurable impact.”

Highlight Project-Incentivizing healthy behaviors with smart phone app on blockchain platform

It’s challenging to get people to follow medical advice such as exercising more and taking medication as prescribed. Research shows 50% of people don’t take medication properly. OSF Innovation Engineer Tate Ralph says the project he is working on explores using a new application built to integrate with blockchain technology that could allow for de-identified data to be matched with rewards for healthy behavior, while still meeting the spirit of consumer protection and privacy laws. [Read the full story here](#).

Here are summaries of [the complete list of Jump ARCHES award projects](#) for spring 2022.

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OSF HealthCare is an integrated health system owned and operated by The Sisters of the Third Order of St. Francis, headquartered in Peoria, Illinois. OSF HealthCare employs nearly 24,000 Mission Partners in 150 locations, including 15 hospitals – 10 acute care, five critical access – with 2,089 licensed beds, and two colleges of nursing throughout Illinois and Michigan. The OSF HealthCare physician network employs more than 1,500 primary care, specialist and advanced practice providers. OSF HealthCare, through OSF Home Care Services, operates an extensive network of home health and hospice services. It also owns Pointcore, Inc., comprised of health care-related businesses; OSF HealthCare Foundation, the philanthropic arm for the organization; and OSF Ventures, which provides investment capital for promising health care innovation startups. More at [osfhealthcare.org](#).

Jump Trading Simulation and Education Center, a part of [OSF Innovation](#), is a collaboration between University of Illinois College of Medicine at Peoria and OSF HealthCare. Jump replicates a variety of patient care settings to ensure novice and seasoned clinicians can practice handling medical situations in a real-world environment. Boasting six floors and 168,000 square feet, the center is one of the largest of its kind and provides space for conferences, anatomic training, virtual reality and innovation. For more information, visit [www.jumpsimulation.org](#).

Partners in Jump ARCHES:

University of Illinois College of Medicine Peoria (UICOMP) educates 244 medical students and nearly 300 physician residents annually. The College of Medicine is home to the Cancer Research Center, the Center for Outcomes Research and is a collaborator in Jump Simulation. Learn more about UICOMP at [peoria.medicine.uic.edu](#).

Health Care Engineering Systems Center (HCESC) provides clinical immersion and fosters collaboration between engineers and physicians. HCESC designs collaborative solutions to improve health care outcomes utilizing their expertise in simulation technologies, smart health systems, data analytics, human factors and medical robotics. HCESC partners with Jump in this innovative relationship of Applied Research for Community Health through Engineering and Simulation (ARCHES). HCESC is a research center in The Grainger College of Engineering at the University of Illinois. Learn more about

HCESC at healtheng.illinois.edu/.

University of Illinois Grainger College of Engineering is one of the world's top-ranked engineering programs with students, faculty and alumni that set the standard for excellence. The college is focused on driving the economy, reimagining engineering education and bringing revolutionary ideas to the world. They work to solve the world's greatest challenges and look toward the future to find ways to make the solutions reality. Learn more about the College of Engineering at grainger.illinois.edu.

The Center for Social and Behavioral Science (CSBS) at the University of Illinois was created to help address some of the grand challenges facing society that can be answered using the deep social and behavioral science expertise housed at U of I. In particular, the CSBS focuses on three distinct areas: 1) solving poverty, 2) understanding the effect of technology on society and 3) the role of social and behavioral factors in health. More information can be found at csbs.research.illinois.edu/.