



2017 CITRIS SEED FUNDING AWARDS

45 highly competitive teams from the four CITRIS campuses at UC Berkeley, Davis, Merced and Santa Cruz submitted proposals for collaborative research projects within the University of California system. Eleven teams will receive a one-time award, averaging about \$56,000 each, for interdisciplinary work that can lead to larger research programs and extramural grant proposals.

CITRIS People and Robots



Million Hands: prosthetic hands for children through an open source platform, 3D printers and sensors

Researchers will build a low-cost modular prosthetic platform for children with upper limb deficiency, ectrodactyly, and other conditions that affect the structure and utility of the hand at a young age.

Principal investigators: Grace O'Connell and Alice Agogino (UC Berkeley), Sanjay Joshi (UC Davis)



Bioinspired burrowing robot for natural and human-made geologic hazard assessment

This project aims to improve subsurface exploration technologies and geologic hazard assessment by developing a bioinspired robot with the unique capability of burrowing in any direction to reach locations at risk of failure.

Principal investigators: Alejandro Martinez (UC Davis), Robert Full (UC Berkeley), and Jason DeJong and Daniel Wilson (UC Davis)



Consequences-aware co-piloting system for human-in-the-loop drone operations

Researchers will develop a monitoring system that will endow an unmanned aerial system (UAS) with the ability to reason about its safety and the consequences of safety failures during its operation in densely populated areas.

Principal investigators: Mark Mueller (UC Berkeley) and YangQuan Chen (UC Merced)

CITRIS Connected Communities



Forest management approaches in the southern Sierra Nevada ecoregion: developing a photographic mapping survey to communicate climate change

This project uses aerial photography to document forest management methods in areas of the southern Sierra Nevada associated with resilient or vulnerable landscapes, and will communicate effects of climate change on regional public lands and watersheds.

Principal Investigators: Jeffrey Jenkins (UC Merced), Brett Milligan (UC Davis), Teenie Matlock (UC Merced), Anne Kelly (UC Merced)



Digital Refuge: Aggregating and visualizing asylum seeker and host community concerns

In the crisis-driven policy space, information sharing has become increasingly difficult. This project will aggregate, translate and organize information from a variety of sources to help refugees, NGOs, aid agencies, and the Greek authorities plan effectively during times of crises.

Principal investigators: Katerina Linos (UC Berkeley) and Anupam Chander (UC Davis)



Democratizing civic expression video games

Although 97% of teens play video games, only a small fraction are aware of the mechanics, structures, and surface expression that make them so compelling. This project will create a prototype of a game-creation system that drives these elements, thus making civic expression through video games more broadly accessible.

Principal investigators: Michael Mateas and Noah Wardrip-Fruin (UC Santa Cruz), Michael Neff (UC Davis)

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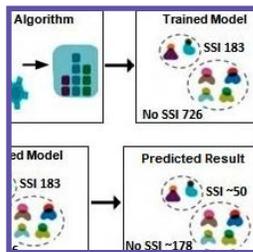
CITRIS Health



Development of community-based gait monitors for children with Duchenne Muscular Dystrophy

This project will develop methodologies based on state-of-the-art accelerometers and GPS technologies, providing important tools to allow clinicians and researchers to better monitor mobility and evaluate clinical status and therapeutic benefit for children with Duchenne muscular dystrophy.

Principal investigators: Erik Henricson (UC Davis), Craig McDonald (UC Davis Health) and Ruzena Bajcsy (UC Berkeley)



Predictive modeling of surgical site infections using electronic health record data with machine learning tools

Surgical Site Infections (SSI) are one of the most significant complications that increase mortality, morbidity, length of hospital stay, poor surgical outcomes and healthcare expenditure. This project will develop machine learning models using Electronic Health Record Data to predict patients who may develop post-operative SSIs.

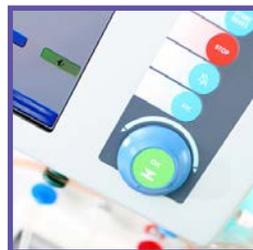
Principal investigators: Prabhu Shankar (UC Davis) and Bin Yu (UC Berkeley)



HealthHub: An in-home platform to integrate communications, health monitoring, and intervention for an aging population

This project aims to provide in-home monitoring and intervention for the healthy senior who is technology-shy. These tools can be used to identify and treat potential health challenges early-on, thus delaying major health problems and encouraging independent living.

Principal investigators: Sanjay Joshi (UC Davis) and Madan Dharmar (UC Davis Medical Center)



To cath or not to cath: timely alerts for patients with spinal cord injury

Researchers will build a non-invasive device worn by spinal cord injury patients to receive timely alerts to perform bladder catheterization. Using machine learning techniques, this device would personalize the alerts to better match individual patient's body characteristics and preferences.

Principal investigators: Eric Kurzrock (UC Davis Medical Center), Soheil Ghiasi and Omeed Momeni (UC Davis)



CITRIS Sustainable Infrastructures



A multispectral and thermal imaging sUAS system for monitoring crop water use and detecting water stress

Using emerging drone and imaging technology, researchers will develop a platform to provide California growers with observation-based guidance for site-specific and time-sensitive irrigation management, thus ensuring agricultural sustainability.

Principal investigators: Yufang Jin (UC Davis), YangQuan Chen (UC Merced), Kenneth Shackel (UC Davis)