2018 CITRIS SEED FUNDING AWARDS

Fifty highly competitive teams from the four campuses of CITRIS and the Banatao Institute at UC Berkeley, Davis, Merced and Santa Cruz submitted proposals for collaborative research projects. Ten teams will receive a one-time award of up to $60,000 each for interdisciplinary work that can lead to larger research programs and extramural grant proposals.

CONNECTED COMMUNITIES

Visualizing ancient Egyptian landscapes and material culture: Cultural contexts for immersive visualization and VR

Researchers will build 3D and 4D models of ancient Egyptian artifacts and landscapes so they can be navigated in their ancient contexts.

Principal Investigators: Rita Lucarelli (UC Berkeley), Elaine Sullivan (UC Santa Cruz)

Mapping spatial inequality: Immigrants in poverty and community services

Researchers will build a web app that shows the spatial mismatch between where immigrants live and where community immigrant organizations are.

Principal Investigators: Irene Bloemraad (UC Berkeley), Veronica Terriquez (UC Santa Cruz)

PEOPLE AND ROBOTS

Cloud-based anytime computation of reachable tubes for provably safe unmanned aerial systems traffic management

This project aims to develop a framework and associated tools for fast computation of the space-time reachable sets for multiple networked agents under uncertainty.

Principal Investigators: Abhishek Halder and Ricardo Sanfelice (UC Santa Cruz), Mark Mueller and Claire Tomlin (UC Berkeley)

A sensor system for robotic monitoring and mapping of plant root and shoot health

Researchers will build an unmanned ground robot to non-destructively monitor plant root size and density using X-ray technology.

Principal Investigators: Reza Ehsani (UC Merced), Alireza Pourreza (UC Davis)

HEALTH

WeCare: WiFi-enabled device-free activity monitoring platform for elderly healthcare and smart home automation

Researchers will develop a human-activity monitoring platform that infers users' daily activities based on how human bodies interfere with ubiquitous WiFi signals.

Principal Investigators: Han Zou and Ming Jin (UC Berkeley), Zhou Yu (UC Davis)

Automation and deep learning for diabetic retinopathy screening

This project will develop a program for automated diabetic retinopathy screening at UC Davis Health (UCDH) and deep learning algorithms for detecting diabetic retinopathy at UC Berkeley.

Principal Investigators: Glenn Yiu (UC Davis Medical Center), Stella Yu (UC Berkeley)

Predicting cancer patients who develop venous thromboembolism episodes using routine patient care data and machine learning techniques

Using data collected during routine patient care and applying machine learning techniques, researchers will develop predictive models to identify patients with cancer who are at high risk to develop venous thromboembolism (VTE).

Principal Investigators: Ted Wun (UC Davis Medical Center), Prabhu Shankar and Chen-Nee Chuah (UC Davis)

SUSTAINABLE INFRASTRUCTURES

Persistent autonomous monitoring for early detection and prediction of wildfires

Researchers will design, deploy, test, and evaluate under real-world scenarios a novel IoT system to enable accurate, timely, and scalable wildfire detection and prediction.

Principal Investigators: Katia Obraczka (UC Santa Cruz), Stefano Carpin (UC Merced), Scott Stephens (UC Berkeley)

Smart road corridors by meso-scale in-pavement distributed infrastructure sensing

This project will use a dynamic distributed fiber optic sensor technology as a novel system for vehicle detection and behavior analysis for complex road junctions and busy road corridors.

Principal Investigators: Kenichi Soga (UC Berkeley), John Harvey (UC Davis)

Using smart city and building-specific air quality data for improved indoor air quality and building energy efficiency

Sensors providing building-specific air quality data will be used to improve natural ventilation efficiency and better optimize building control systems to ensure safe indoor air quality and improve energy efficiency.

Principal Investigators: Jovan Pantelic (UC Berkeley), Mark Modera (UC Davis), Wolfgang Rogge (UC Merced)

CITRIS AND THE BANATAO INSTITUTE