2019 CITRIS SEED FUNDING AWARDS

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

SUSTAINABLE INFRASTRUCTURES

Multi-hazard risk analysis to inform distribution grid upgrades for reliability and resilience

Researchers will develop probabilistic methods for modeling regional power distribution networks exposed to different types of natural hazards.

Principal Investigators: Yu Zhang (UC Santa Cruz), Scott Moura (UC Berkeley)

Automatic building fault detection and diagnostic system using smartphones

Researchers will build a smartphone app whereby commercial-of-the-shelf (COTS) sensors are added to a mobile phone that can be used by Facilities' crews to detect and diagnose problems.

Principal Investigators: Alberto Cerpa (UC Merced), Avideh Zakhor (UC Berkeley)

PEOPLE AND ROBOTS

Soft robotic, autonomous and intelligent wireless router (ScAILeR)

This project aims to demonstrate an intelligent system that can move autonomously, interact with, learn from, and adapt to its environment for optimal and robust functionality and survivability.

Principal Investigators: Michael Wehner (UC Santa Cruz), Ruzena Bajcsy (UC Berkeley), Linda Katehi (UC Davis)

Apparatus design for coral reef sampling, a biomimetic study of corallivorous fish

The project's goal is to generate a remotely operated vehicle (ROV) apparatus for collecting hundreds, or even thousands, of coral tissue samples for large-scale genetic studies.

Principal Investigators: Hannah Stuart (UC Berkeley), Peter Wainwright (UC Davis)

HEALTH

Real-time detection of inflammatory biomarkers in exhaled breath

Researchers will design and benchmark a novel microfluidic total analysis system (uTAS) suitable for real-time detection of inflammatory and oxidative stress biomarkers present in exhaled breath condensate.

Principal Investigators: Cristina Davis (UC Davis), Nicholas Kenyon (UC Davis Health)

Active soft wearables, a novel approach to mobility and rehabilitation

Researchers will develop two test fixtures, for the upper and lower extremities, to systematically evaluate ergonomics and effectiveness of applying loads via active soft orthotic devices.

Principal Investigators: Fadi Fathallah (UC Davis), Michael Wehner (UC Santa Cruz

New patient-centered visualization methods for predictive learning algorithms: a pilot study in heart failure decision support

This project aims to develop patient-centered, uncertainty-aware visualization methods for displaying predictions in context to uncover early warning signs and communicating decision support insights for both clinicians and patients.

Principal Investigators: Kwan-Liu Ma (UC Davis), Katherine Kim (UC Davis Health)

POLICY LAB

Bots and misinformation on Facebook: prevalence, activity, and effects

This project will offer a foundational overview of the prevalence and activities of bots on Facebook, model the role of bots in the spread of misinformation on public Facebook pages over time, and identify bot influence on the hostility of user discussions.

Principal Investigators: Magdalena Wojcieszak (UC Davis), Gireeja Ranade (UC Berkeley)

Cognition to action in extreme events: policy interventions for disaster risk reduction

Researchers will use rapid prototyping to explore how to make city-scale transportations models, visualizations, and communication strategies effective and responsive to community needs when constituents must make life-altering decisions.

Principal Investigators: Thomas Maiorana (UC Davis), Kenichi Soga (UC Berkeley)

WOMEN IN TECH

Comparative analysis of interdisciplinary training for STEM scholars

This project seeks to collect comparative cross-campus data on two STEM graduate curriculums at UC Davis and UC Santa Cruz that make questions of gender and social justice fundamental to STEM training.

Principal Investigators: Kalindi Vora, Sara Giordano, and Sarah McCullough (UC Davis), Jenny Reardon and Karen Barad (UC Santa Cruz)

CITRIS AND THE BANATAO INSTITUTE