

# 2015 CITRIS SEED FUND AWARDS

In 2015, CITRIS received 24 highly competitive proposals from the four CITRIS campuses at UC Berkeley, UC Davis, UC Merced and UC Santa Cruz. **Eleven** proposals were selected for one year of seed funding, receiving an average of **\$55,000** each for a total of **\$600,000** in interdisciplinary research funds awarded. The following proposals include work that will use data analytics to optimize health care, energy and agriculture applications.



## **Ariadne's Thread: A mobile digital companion for blind indoor navigation**

Scientists will develop and test novel software applications for smartphones that will help blind travelers retrace their paths and return to where they started, which is a frequent problem in blind navigation.

Principal Investigators:  
Roberto Manduchi (UC Santa Cruz)  
Teenie Matlock (UC Merced)



## **Big Data Analytics for the Assessment of Pathologic Patient-Ventilator Interactions**

This project will develop associated dynamic multi-state, multi-modal analytics to improve patient health state prediction and directly impact acute respiratory failure.

Principal Investigators:  
Ramakrishna Akella (UC Santa Cruz)  
Jason Adams (UC Davis Medical Center)



## **Combined Remote-mobile Sensing Platform for Precision Agriculture in California's High Value Crops**

This project will develop a transformative measurement and analytical tool to empower crop managers with the data needed to make critical decisions in the areas of water conservation and resources administration.

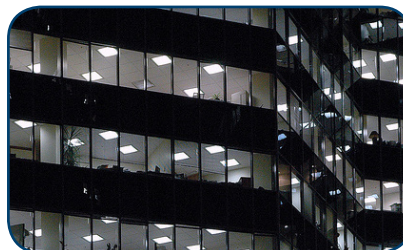
Principal Investigators:  
Stefano Carpin (UC Merced)  
David Smart (UC Davis)



## **Crowdsourcing the Evaluation of Climate Change Information Credibility**

This research will help people evaluate the trustworthiness of climate change information in online media using new developments in web annotation. Scientists will annotate influential news articles and comment on their scientific accuracy directly alongside the article using a new online database and discussion forum that are both under development.

Principal Investigators:  
Teenie Matlock (UC Merced)  
Michael Ranney (UC Berkeley)



## **Development and Prototyping of a Hardware-agnostic, Self- configurable, Integrated, Optimal Building Automation System for Commercial buildings**

This work will create a data-driven model of the thermal energy response of small and medium buildings to dynamically calculate set-points to minimize energy use and cost.

Principal Investigators:  
Mark Modera (UC Davis)  
David Auslander (UC Berkeley)



## **Development of GARD, a Genome-linked Antibiotic Resistance Database, enabling real-time decentralized pathogen data sharing**

This project will build a real-time, searchable database of certain drug-resistant genomic sequences that includes their corresponding clinical data. In the future, this genomic data platform has the potential to become an essential resource for clinical care and epidemiological surveillance.

Principal Investigators:  
Todd Lowe (UC Santa Cruz),  
Manel Camps (UC Santa Cruz)  
Miriam Barlow (UC Merced)

To receive updates about seed grant application materials and timelines, please visit:

[citris-uc.org/citris-seed-funding](http://citris-uc.org/citris-seed-funding)



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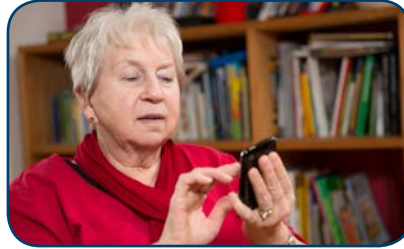
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## Improving resilience of the electricity distribution system

This research, a collaboration with the Modesto Irrigation District (MID), investigates how to leverage smart grid data to improve system resilience while taking incentives into account, expanding on prior work in designing schemes based on control and game theory tools.

Principal Investigators:  
John Musacchio (UC Santa Cruz)  
Galina Schwartz (UC Berkeley)



## Monitoring of Alzheimer patients with connected wearables

This project will create a prototype of hardware needed for in-home monitoring of patients with Alzheimer's disease, begin data collection with subjects, and test novel algorithms based on this data. The hardware ecosystem consists of Android Wear smart watches, Android phones, and Bluetooth in-home sensors.

Principal Investigators:  
Alex Bayen (UC Berkeley)  
Charles DeCarli (UC Davis)



## On-chip light sources for multiplexed molecular biosensing

This work will develop on-chip light sources for optofluidic biosensors based on quantum dots embedded in the optical waveguide layers. These on-chip sources will help advance the goal of developing self-contained optofluidic labs-on-chip, leading to more powerful devices for personalized health care.

Principal Investigators:  
Holger Schmidt (UC Santa Cruz)  
Subhash Risbud (UC Davis)



## Rapid, Portable, Structural Integrity Assessment System for Pre- and Post-Disaster Infrastructure Monitoring

The goal of this research is to empower visual inspectors with a portable sensor that could directly probe for image damage occurring within critical structural components. The data generated is intended to support decision-making, whether it is used for routine monitoring or for post-disaster assessment.

Principal Investigators:  
Kenneth Loh (UC Davis)  
Steve Glaser (UC Berkeley)



## Social-mobile Platform for Optimizing Health Services for Complex Chronic Care Management

This project will develop a working prototype of a social-mobile platform for care coordination for complex health conditions that can incorporate clinical- and patient-generated data, share data with electronic health records (EHRs), enable communication and collaboration between patients and care teams, and incorporate privacy preservation features.

Principal Investigators:  
Katherine Kim (UC Davis Medical Center)  
Bjoern Hartmann (UC Berkeley)

