

A faint, light blue network diagram is visible in the background, consisting of interconnected nodes and lines, suggesting a digital or data-related theme.

computation, cognition  
and new data economies

UC IRVINE | SCHOOL *of* SOCIAL SCIENCES



## computation, cognition and new data economies

UCI social scientists are on the cusp of unlocking how the human mind works, how the brain and behavior are intertwined, and how we understand, treat and possibly prevent brain conditions like Alzheimer's, autism and communication disorders, as well as stroke and brain injury.

The human brain is also increasingly interconnected with digital networks, linking societies and generating a new wave of data that is transforming humanity and the study of human behavior.

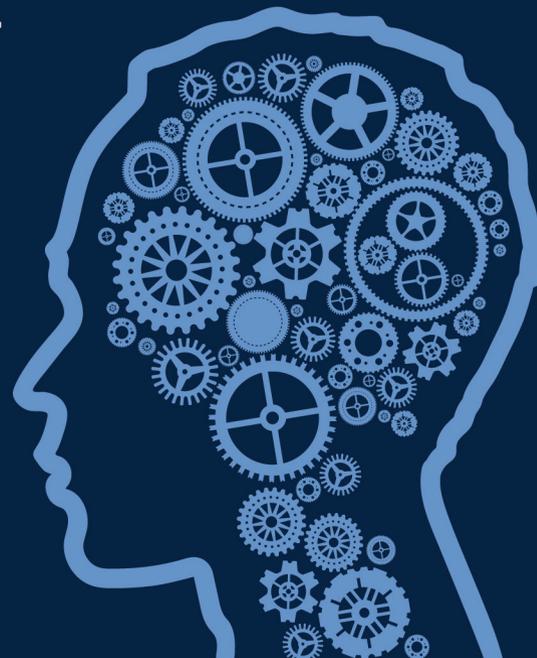
Advances in these areas demand new approaches in social scientific study, and UCI social scientists' quantitative and qualitative skills are unparalleled.

Their contemporary computational models of the brain have industrial applications from robotics to medical devices. Their ethnographic approaches to digital and mobile social life are inspiring product design and business models for social computing. And their research in behavioral and experimental economics, together with logic and philosophy of science, economic history, sociology and anthropology, is creating new fields of inquiry around financial models and markets.

# neurological and behavioral dimensions of decision, perception and product design

UC Irvine social scientists lead the field in creating robust measures and models of the brain and behavior, including development of tools for the analysis of “big data” and new data economies.

Irvine social scientists are revolutionizing the study of machine learning, perception and memory, as well as contributing to new approaches in economics.



## the need:

There is an urgent need for functional Magnetic Resonance Imaging (fMRI) equipment to support our world-class cognitive sciences faculty and the broader neuroscience community on campus, which is regarded as among the very best in the U.S.

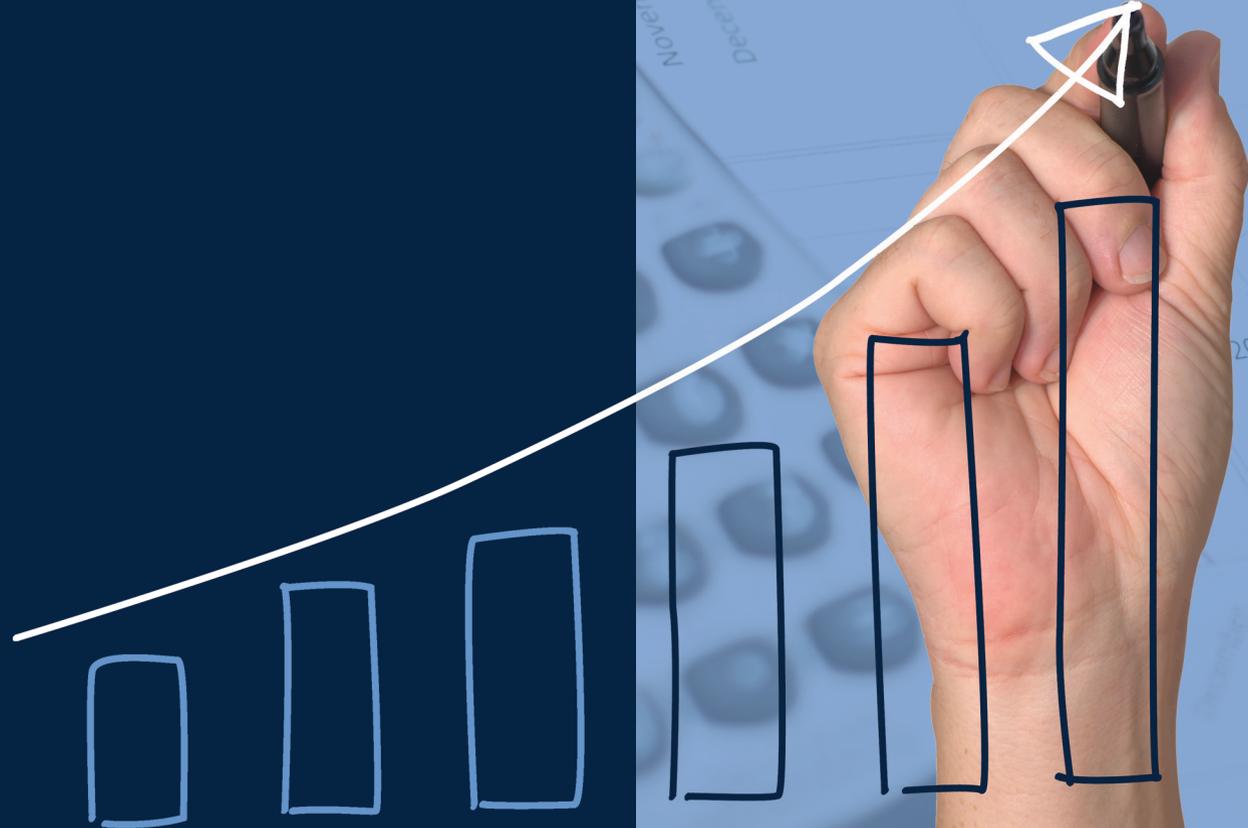
The school houses a completed, copper-shielded and secure fMRI suite with a scanner room and research subject admittance, observation and training area. It requires a \$3-4 million investment to purchase a 3 Tesla magnetic resonance imaging system. Researchers currently use an outdated facility also employed for clinical research, which poses logistical, technical and regulatory compliance issues. An investment in the school's fMRI facility will drive new research in cognitive neuroscience, support cross-campus collaborations, and make UCI synonymous with new sciences of the brain.

# “new economics”

multidisciplinary economic modeling:  
behavioral, cultural & neuroeconomics

The financial crisis and the fiscal cliff provide lessons in the need for new approaches to economic theory and political leadership. Behavioral, cultural and neuroeconomics offer such an approach, and UC Irvine is leading exploration of these exciting new areas. People are often irrational. Decisions are undertaken in circumstances of profound uncertainty; there are multiple determinants of collective and individual choice, and deep-seated dispositions that skew economic action. New fields being forged at UCI provide new insight into old economic questions as well as new circumstances of a globally interconnected and uncertain world.

The school’s Experimental Social Science Laboratory (ESSL) is a unique facility that supports computer-based experimental research related to risk, markets and decision science. The Center for Ethnography and Center for Global Peace & Conflict Studies facilitate innovative work at the intersection of anthropology, design, international relations and global networks.



## the need:

These research centers need support. They operate using funds from the school and faculty research grants. They could advance with support for workshops, conferences, research and computing infrastructure.

The departments of anthropology, cognitive sciences, logic & philosophy of science, and sociology currently compete in graduate admissions against Stanford, Harvard, Chicago and other wealthy private universities. Developing multidisciplinary research strength and retaining the best faculty will require additional support. There are opportunities for named faculty chairs and graduate fellowships in behavioral economics (economics), cultural economics (anthropology and sociology) and behavioral and neuroeconomics (economics and cognitive sciences). The minimum endowment for a named chair is \$1 million and \$300,000 for graduate fellowships.

# [ big data analysis & methods ]

In 2012–13, the School of Social Sciences and the Donald Bren School of Information and Computer Science received a multimillion dollar grant from the Intel Corporation to establish the Intel Science and Technology Center in Social Computing. UC Irvine serves as the hub of a multidisciplinary, five-campus consortium of faculty and graduate students from UCI, Cornell, NYU, Georgia Tech and Indiana University. The Social Computing Center seeks to provide models, methods and analysis of the global transformation in information and communications.

The school has launched a working group on mobile social science education. This initiative will seek to leverage mobile computing platforms like mobile phones and tablet computers in social science undergraduate research training. Mobile devices themselves produce mountains of “big data” for analysis; they also can be used as research tools in the field, and they can be the subject of qualitative cultural or sociological analysis themselves (how they are used, how design impacts use, etc.). This initiative will explore the potential of mobile computing to transform social science education.

The school is working with other units to create a major in communication with a focus on digital communication and the social analysis of the digital revolution.

## the need:

There are opportunities for named chairs in the area of social computing (anthropology or sociology) and big data (cognitive sciences). Intel came to UCI because social sciences faculty are significantly involved in social computing research. A lack of named chairs in this area poses risks for faculty retention and recruiting, particularly across the departments of anthropology and cognitive sciences. The minimum endowment for a named chair is \$1 million.

There exists the opportunity for corporate or donor sponsorship of a mobile social sciences initiative and the proposed digital communications major through the support of workshops and conferences to plan and launch these new programs as well as equipment, infrastructure and student scholarships.



## uc irvine | school of social sciences

The School of Social Sciences at UC Irvine has achieved national prominence and top rankings for its outside-the-box methodological and theoretical advances. The school maintains a tradition of excellence in building robust measures, innovative models and powerful methodologies for understanding the human condition in a diverse and digital age.

Almost 50 years ago, the school's founders had a vision to bring together scholars whose different approaches—from quantitative to qualitative, formal to interpretative—tackled fundamental research questions and pressing social problems.

Today, UC Irvine social sciences is forging connections to computer science, engineering, the arts and the humanities. Interdisciplinary connections to law, medicine and environmental science help researchers and policy makers understand the social, cultural and psychological factors impacting regulation and policy adoption, health and human behavior. Social scientists at UC Irvine explore how human and environmental interaction impact climate, energy and ecology.

The School of Social Sciences is big—the largest academic unit on campus, it has over 5,000 students and awards 40% of all UCI degrees each year. It houses some of the most popular majors on campus, including psychology, business economics and international studies. It enhances undergraduate education with hands-on experience in labs, seminars and award-winning programs like Mock Trial, Global Connect and the Summer Academic Enrichment Program.

The school is intellectually diverse, with six doctoral programs ranging from logic and philosophy of science, ranked number one in the field, to economics, recognized for its impactful scholarship. These departments, like the others, boast members of prestigious national academies on the faculty.

Multidisciplinary in scope and open to unexpected explorations—from cognitive robotics to social computing and behavioral economics—research in social sciences at UCI encompasses all of humanity's increasing diversity and makes a difference in our everyday lives.

[www.socsci.uci.edu](http://www.socsci.uci.edu)

To learn more about funding opportunities in the  
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