Trans-Disciplinary Hybrid Electronics in the UCLA CHIPS Ecosystem

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Medicine and Engineering, UCLA
Transformation of Patient-Centered Care

Our Vision

Inconspicuous, invisible...
Compassionate,
predictive,
preventive...

Cardiac index...
Wage pressure...
$V_E/VCO_2$...
QTc intervals...
SVT vs. VT...
Metabolic states....
Sympathetic vs.
parasympathetic
tone...
Body weight...

Inconspicuous, invisible...
Integration with UCLA Health and School of Medicine

http://people.healthsciences.ucla.edu/institution/groups-new

School of Medicine

- Basic Science
  - Biological Chemistry
  - Biomathematics
  - Human Genetics
  - Microbiology, immunology & Molecular Genetics
  - Molecular & Medical Pharmacology
  - Neurobiology
  - Physiology

- Labs, Institutes and Centers
  - Atherosclerosis Research Units
  - Cardiovascular Research Lab
  - Clinical Trials
  - Emergency Medicine
  - Human Gene Therapy Center
  - Immunity, Inflammation, Infection, & Transplant (I3T) Research Initiative
  - Integrated Substance Abuse Programs
  - Ronald S. Hirschberg Translational Pancreatic Cancer Research Laboratory
  - UCLA Donated Body Program

Clinical Departments

- Anesthesiology
- Department of Medicine
  - Cardiology, Clinical Nutrition, Dermatology, Digestive Diseases, Endocrinology, General Internal Medicine and Health Sciences Research, Geriatrics, Hematology Oncology, Nephrology, Pulmonary, Critical Care, Rheumatology, VA Greater LA, VA Sepulveda
  - Centers-CARE (AIDS) Center, Center for East-West Medicine, Clinical Immunology and Allergy, Clinical Epidemiology and Preventive Medicine
- Head and Neck Surgery
- Neurology
- Obstetrics and Gynecology
- Pathology and Laboratory Medicine
- Pediatrics
- Psychiatry and Biobehavioral Sciences
- Radiation Oncology
- Surgery
- Urology
UCLA Health and School of Medicine

UCLA Affiliated Teaching Hospitals

- Ronald Reagan Medical Center
- Greater Los Angeles VA Healthcare System
- Olive View Medical Center
- Harbor-UCLA Medical Center
- Santa Monica-UCLA Medical Center
Clinical and Translational Science Institute
http://people.ctsi.ucla.edu/institution/personnel?personnel_id=8744

• Supports Training in Multidisciplinary Research and Integrates Community Priorities
  – New investigator program
  – Junior faculty program
  – Pre-doctoral program
  – High school & Undergrad programs

• Training and Resources for Career Development to Conduct Innovative and Translational Research
  – Training program in translational science
  – Educational videos, tools & workshops
  – Course catalog
  – Commercialization & entrepreneurship
• Heart Transplant Program
  – Since 1984, 2,000 patients have undergone this life-saving procedure at UCLA. The scientific advances and clinical trials that have come from UCLA have advanced knowledge in the field and improved the clinical results for all patients.

• Cardiac Arrhythmia Center
  – The Center is dedicated to utilizing state-of-the-art medical technologies with compassionate care to address the needs of arrhythmia patients.

• Adult Congenital Heart Disease Program
  – The Center is a national and international tertiary care resource that provides services to the growing number of patients with congenital heart disease who reach adulthood.

• Ahmanson UCLA Cardiomyopathy Center
  (Congestive Heart Failure Program)

• Interventional and Structural Heart Disease
• Cardiac Surgery
A Trans-Disciplinary Approach to Assess Unstable Plaque

CHIPS
CENTER FOR HETEROGENEOUS INTEGRATION AND PERFORMANCE SCALING

UCLA ENGINEERING
Henry Samueli School of Engineering and Applied Science
Birthplace of the Internet

UCLA Health
David Geffen School of Medicine