

UC San Diego

JACOBS SCHOOL OF ENGINEERING

RESEARCH EXPO 2022

THURSDAY, APRIL 14 – 1:30 PM – 5PM – UC SAN DIEGO

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AGENDA

1:30 PM REGISTRATION

South of Bear Courtyard

2:00 PM–4:30 PM POSTER SESSION

Bear Courtyard
Graduate students present their research results

2:30 PM–3:30 PM FACULTY LIGHTNING TALKS

Atkinson Hall Auditorium

2:30 PM **Computational Modeling for Systems**

Padmini Rangamani
Professor of Mechanical and Aerospace Engineering

2:45 PM **Data-AI-Centric Future Wireless**

Sujit Dey
Professor of Electrical & Computer Engineering

3:00 PM **Ethical Sustainability; Systems and Supply Chains**

Jon Wade
Professor of Practice Mechanical and Aerospace Engineering

3:15 PM **Multiscale Materials Design**

Andrea Tao
Professor of NanoEngineering

3:30 PM–5 PM NETWORKING RECEPTION AND AWARDS CEREMONY

Awards ceremony will begin at 4 PM
Location: Main Stage, Bear Courtyard

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FACULTY TALKS



2:30 PM

COMPUTATIONAL MODELING FOR SYSTEMS

Padmini Rangamani

Professor of Mechanical and Aerospace
Engineering

Abstract

How can computational modeling be leveraged for exploring the different conditions of human health? In this talk, I will give an overview of how the integration of mechanochemical models at a single cell level can give rise to insights on physiology and pathology. To develop models that incorporate biological realism, I'll also discuss the need for new computational and mathematical tools.

Capsule Bio

Professor Rangamani leads the Laboratory for Computational Cellular Mechanobiology at UC San Diego. Her research goal is to develop a fundamental understanding of how morphology and topology regulate cellular phenomena using theoretical foundations in mechanics, mathematical representations, and coupling them to biochemical processes. Current topics of research in the lab include the biophysics of endocytosis, non-equilibrium thermodynamics of lipid vesicles, and biophysics of dendritic spines. In 2021, Rangamani was elected a Fellow of the American Institute of Medical and Biological Engineering. She is the recipient of the 2021 Chancellor's Award for Excellence in Postdoctoral Scholar Mentoring.

sites.google.com/eng.ucsd.edu/prangamani



**2:45 PM****DATA-AI-CENTRIC FUTURE WIRELESS****Sujit Dey**

Professor of Electrical and Computer Engineering

Faculty Director, Institute for the Global Entrepreneur

Director, Center for Wireless Communications

Abstract

This talk will explore major paradigm shifts that the speaker expects going towards defining the next generation of wireless networks and devices. Central to future wireless will be a new data layer and functions integrated into the stack, enabling autonomous, self-configuring AI-centric networks and devices. The wireless network will not only be a rich source of multi-modal data, it will also offer a diverse array of sensing capabilities, a massively distributed, multi-layered computing platform, with heterogeneous multi-spectrum communication capabilities. How will we utilize and program such a data-sensing-computing-communication behemoth? How will it disrupt and enable new disciplines, applications and services?

Capsule Bio

Professor Dey leads the Mobile Systems Design Laboratory at UC San Diego. His research lab develops innovative edge computing, multimedia networking, green communications, multi-modal sensor fusion, and deep learning algorithms and architectures to enable predictive personalized health, immersive multimedia, and smart transportation applications. He has created interdisciplinary programs involving multiple UC San Diego schools as well as community, city and industry partners; notably the Connected Health Program in 2016 and the Smart Transportation Innovation Program in 2018. In 2017, he was appointed as an Adjunct Professor, Rady School of Management, and the Jacobs Family Endowed Chair in Engineering Management Leadership.

esdat.ucsd.edu/dey

FACULTY TALKS



3:00 PM

ETHICAL SUSTAINABILITY; SYSTEMS AND SUPPLY CHAINS

Jon Wade

Professor of Practice, Mechanical
and Aerospace Engineering

Abstract

Imagine a world in which everyone is able to easily access information that enables them to make decisions that increase their well-being and that of their social groups while positively impacting both local and global social, environmental and economic sustainability. Imagine that these capabilities are provided through cooperative intelligence provided by co-learning between human and machine, enabling groups of people to perform at levels never before believed possible. Imagine that this can be accomplished by means which protect the privacy and security of each individual through the judicious integration of cyber-physical social systems. This presentation will describe the Sustainable Convergent Systems program at UC San Diego whose mission is to provide ethical, innovative and sustainable solutions to important, complex societal problems using transdisciplinary, collaborative, team-based approaches to foster collective learning through iterative rapid integration and testing in real world scenarios.

Capsule Bio

Jon Wade, Ph.D., is a professor of practice in Mechanical and Aerospace Engineering at the Jacobs School of Engineering at the University of California San Diego where he is the director of convergent systems engineering developing research and education to provide ethical, innovative and sustainable solutions to important, complex societal problems.

jacobsschool.ucsd.edu/people/profile/jon-wade





3:15 PM

MULTISCALE MATERIALS DESIGN

Andrea Tao

Professor of NanoEngineering
Co-Director,
Institute for Materials Discovery and Design

Abstract

From cloud droplets to the stained-glass windows of Notre Dame, nanoparticles are all around us. What can we do with them? Bring in the nanoarchitects... meet Prof. Andrea Tao, who leads the Nanoscale Interfaces and Assembly Laboratory at the University of California San Diego. She uses nanoparticles like LEGOS to design and build new types of materials that don't exist in nature. Her lab comes up with ways to make, manipulate, and assemble nanoparticles using the tools of chemistry. Learn more about how she and her team are using these small materials to tackle big problems.

Capsule Bio

Professor Andrea Tao leads the Nanoscale Interfaces & Assembly Laboratory at UC San Diego. The team seeks to change the way inorganic nanomaterials are designed for applications ranging from sensors to circuits. Tao is the Co-Lead in one of the two main research areas – predictive assembly – of the prestigious NSF-funded UC San Diego Materials Research Science and Engineering Center (UC San Diego MRSEC). She is Co-Director of the UC San Diego Institute for Materials Discovery and Design, and Deputy Director of the San Diego Nanotechnology Infrastructure at UC San Diego. In the Department of NanoEngineering, she is Vice Chair of Education.

atao.ucsd.edu



BIOENGINEERING

- 100. TOWARDS AN IMPROVED METHOD FOR NEONATAL SEPSIS DIAGNOSTICS**
Presenter: April Aralar | Faculty: Stephanie Fraley
- 101. CONTEXT-AWARE DECONVOLUTION OF CELL-CELL COMMUNICATION WITH TENSOR-CELL2CELL**
Presenter: Erick Armingol | Faculty: Nathan E. Lewis
- 102. DO-SRS AND MPF IMAGING OF CANCER CELL METABOLIC ACTIVITIES REGULATED WITH AROMATIC AMINO ACIDS.**
Presenter: Pegah Bagheri, Khang Hoang | Faculty: Lingyan Shi
- 103. ADAPTIVE LABORATORY EVOLUTION FOR DEVELOPMENT OF BIOSENSORS UNDER HIGH SALINITY CONDITIONS**
Presenter: Alyssa Chiang | Faculty: Jeff Hasty
- 104. LABEL-FREE OPTICAL PROFILING OF CELLS AND TISSUES**
Presenter: Anthony Fung, Zhi Li | Faculty: Lingyan Shi
- 105. DEVELOPMENT OF A RAPID CROSS-KINGDOM MOLECULAR ASSAY FOR BROAD-BASED SCREENING AND QUANTIFICATION OF BACTERIAL, VIRAL, AND FUNGAL PATHOGENS**
Presenter: Tyler Goshia | Faculty: Stephanie Fraley
- 106. MICROVASCULAR PERFUSION AFTER EXTRACORPOREAL CIRCULATION IS IMPROVED BY THE ADDITION OF DRAG REDUCING POLYMERS.**
Presenter: Krianthan Govender | Faculty: Pedro Cabrales
- 107. TOWARD A GENETIC THERAPY FOR DUCHENNE MUSCULAR DYSTROPHY BY RNA END-JOINING**
Presenter: Ryan Hsu | Faculty: Sam Pfaff
- 108. LIGAND TARGETING AND MINIMALLY-INVASIVE MEASUREMENT OF AN ACTIVITY-BASED NANOSENSOR FOR TRAUMATIC BRAIN INJURY**
Presenter: Julia Kudryashev | Faculty: Ester Kwon
- 109. REMODELING OF RIGHT VENTRICULAR HEMODYNAMICS AND CONTRACTILITY IN AN ANIMAL MODEL OF PULMONARY ARTERIAL HYPERTENSION**
Presenter: Ethan Kwan | Faculty: Daniela Valdez-Jasso

110. IN VITRO OSTEOBLAST CELL DIFFERENTIATION BY RARE-EARTH DOPED HYDROXYAPATITE

Presenter: Fabian Martinez | Faculty: Olivia Graeve

111. APOHEMOGLOBIN-HAPTOGLOBIN COMPLEX PREVENTS MICROVASCULAR DYSFUNCTION IN SICKLE CELL MICE: POTENTIAL THERAPEUTIC APPROACH FOR VASO-OCCLUSIVE CRISIS

Presenter: Carlos Munoz | Faculty: Pedro Cabrales

112. MEASURING RESEARCH IMPACT: FIRST CONTEXTUALLY-BASED SCIENTIFIC LANGUAGE NETWORK MODELING

Presenter: Jamey O'Neill | Faculty: Parag Katira

113. A VERSATILE IN-EAR BIOSENSING SYSTEM FOR CONTINUOUS BRAIN AND HEALTH MONITORING

Presenter: Akshay Paul, Min Suk Lee | Faculty: Gert Cauwenberghs

114. GPCR SIGNALING MEASUREMENT AND DRUG PROFILING WITH AN AUTOMATED LIVE-CELL MICROSCOPY SYSTEM

Presenter: Clara Posner | Faculty: Jin Zhang

115. DEVELOPMENT OF A FLUIDIC MODEL SYSTEM FOR STUDYING CANCER VASCULOGENIC MIMICRY

Presenter: Maya Rowell | Faculty: Stephanie Fraley

116. OXIDATIVE STRESS TOLERANCE STRATEGIES FROM LABORATORY EVOLUTION AND MACHINE LEARNING

Presenter: Kevin Rychel | Faculty: Bernhard Palsson

117. CLARIFYING SINGLE-CELL BIOLOGICAL MECHANISMS USING NANO-ELECTRODE ARRAYS

Presenter: Shivani Shukla | Faculty: Zeinab Jahed

COMPUTER SCIENCE & ENGINEERING

200. GLIMPSE AT MATHEMATICAL EMBEDDING OF HARDWARE SPECIFICATION FOR FASTER NEURAL COMPILATION

Presenter: Byung Hoon Ahn, Sean Kinzer | Faculty: Hadi Esmaeilzadeh

201. EQUIVARIANT SUBGRAPH AGGREGATION NETWORKS

Presenter: Chen Cai | Faculty: Yusu Wang

202. VRCONTOUR: BRINGING CONTOUR DELINEATIONS OF MEDICAL STRUCTURES INTO VIRTUAL REALITY

Presenter: Chen Chen, Varun Singh, Matin Yarmand | Faculty: Nadir Weibel

203. SECURITY AND PRIVACY IN CONTROL OF SMART BUILDINGS

Presenter: Xiaohan Fu | Faculty: Rajesh K. Gupta

205. DATAPLANET: AN END-TO-END PLATFORM FOR RESEARCH EXPERIMENT MANAGEMENT.

Presenter: Tanay Karve | Faculty: Arun Kumar

206. [SEE POSTER FOR TITLE]

Presenter: Tanmay Laud | Faculty: Taylor Berg-Kirkpatrick

207. IC OBFUSCATION THROUGH SEQUENTIAL HISTORY TO COMBAT REVERSE ENGINEERING AND FAULT INJECTION ATTACKS

Presenter: Leon Li | Faculty: Alex Orailoglu

208. USING THE POSITION OF THE SUN TO ORIENT PAN-TILT-ZOOM CAMERAS

Presenter: Alexander Mai | Faculty: Falko Kuester

209. COVECTOR FLUIDS

Presenter: Mohammad Nabizadeh | Faculty: Albert Chern, Ravi Ramamoorthi

210. NO PRIVACY AMONG SPIES: ASSESSING THE FUNCTIONALITY AND INSECURITY OF CONSUMER ANDROID SPYWARE APPS

Presenter: Sumanth Rao | Faculty: Stefan Savage, Geoffrey M. Voelker

211. HARDWARE FINGERPRINTING-BASED ANOMALY DETECTION FOR IDENTIFICATION OF HIDDEN DEVICES IN AN ENVIRONMENT

Presenter: Pratik Rajendra Ratadiya | Faculty: Dinesh Bharadia

212. LEARNING NEURAL TRANSMITTANCE FOR EFFICIENT RENDERING

Presenter: Mohammad Shafiei | Faculty: Tzu-Mao Li, Ravi Ramamoorthi

213. LEARNING BOUNDED CONTEXT-FREE-GRAMMAR VIA LSTM AND THE TRANSFORMERS: DIFFERENCE AND EXPLANATIONS

Presenter: Hui Shi | Faculty: Jishen Zhao

214. GRF: LEARNING A GENERAL RADIANCE FIELD FOR 3D REPRESENTATION AND REPRESENTATION AND RENDERING

Presenter: Alexander Trevithick | Faculty: Ravi Ramamoorthi

215. ROBUST HUMAN IDENTITY ANONYMIZATION USING POSE ESTIMATION

Presenter: Hengyuan Zhang, David Paz, Jing-Yan Liao | Faculty: Henrik Christensen

ELECTRICAL & COMPUTER ENGINEERING

300. DEMAND RESPONSE MODEL IDENTIFICATION AND BEHAVIOR FORECAST WITH OPTNET: A GRADIENT-BASED APPROACH

Presenter: Yuexin Bian | Faculty: Yuanyuan Shi

301. FREE-STANDING HIGH POWER GAN MULTI-FIN CAMEL DIODE VARACTORS

Presenter: Po Chun Chen | Faculty: Shadi A. Dayeh

302. TROJAN SIGNATURES IN DNN WEIGHTS

Presenter: Greg Fields | Faculty: Tara Javidi

303. ON SALIENCE-SENSITIVE SIGN CLASSIFICATION FOR AUTONOMOUS VEHICLE PATH PLANNING

Presenter: Ross Greer | Faculty: Mohan Trivedi

304. A 3.75 NW ANALOG ELECTROCARDIOGRAM PROCESSOR FACILITATING STOCHASTIC RESONANCE FOR REAL-TIME R-WAVE DETECTION

Presenter: Cihan Gungor | Faculty: Patrick P. Mercier

305. WIFORCE: WIRELESS SENSING AND LOCALIZATION OF CONTACT FORCES ON A SPACE CONTINUUM

Presenter: Agrim Gupta | Faculty: Dinesh Bharadia

306. HARDWARE-SOFTWARE CO-DESIGN FOR RECONFIGURABLE LARGE-SCALE NEUROMORPHIC SYSTEMS

Presenter: Gopabandhu Hota | Faculty: Gert Cauwenberghs

307. ATOMICALLY THIN TIN MONOXIDE-BASED P-CHANNEL THIN-FILM TRANSISTOR AND A LOW-POWER COMPLEMENTARY INVERTER

Presenter: Chi-Hsin Huang | Faculty: Kenji Nomura

308. METASURFACES FOR SPIN-CONTROL OF SURFACE WAVES

Presenter: Sara Kandil | Faculty: Daniel Sievenpiper

309. ADAPTIVE COMPUTATION PARTITIONING AND OFFLOADING IN REAL-TIME SUSTAINABLE VEHICULAR EDGE COMPUTING

Presenter: Yu Jen Ku | Faculty: Sujit Dey

310. ANOMALY DETECTION: AUGMENTATION AND ENSEMBLE APPROACH

Presenter: An Le | Faculty: Truong Nguyen

311. FOCUS YOUR ATTENTION: EXPEDITING VISION TRANSFORMERS VIA TOKEN REORGANIZATIONS

Presenter: Youwei Liang | Faculty: Pengtao Xie

312. NEUCASL: FROM LOGIC DESIGN TO SYSTEM SIMULATION OF NEUROMORPHIC ENGINES

Presenter: Amitash Nanda | Faculty: Debashis Sahoo

313. DEEP LEARNING FOR WEARABLE PHYSIOLOGICAL DATA

Presenter: Varun Viswanath | Faculty: Edward Wang

314. INVERSE REINFORCEMENT LEARNING OF AUTONOMOUS BEHAVIORS ENCODED AS WEIGHTED FINITE AUTOMATA

Presenter: Tianyu Wang | Faculty: Nikolay Atanasov

315. DEMONSTRATION OF SINGLE CRYSTAL INN & GAN(ALN)/INN HETEROSTRUCTURES BY MOCVD

Presenter: Tianhai Wu | Faculty: Shadi A. Dayeh

316. A HIGHLY COMPACT AND EFFICIENT INTEGRATED POWER CONVERTER WITH NH-SCALE INDUCTORS FOR 30% SYSTEM SIZE REDUCTION

Presenter: Tianshi Xie | Faculty: Hanh-Phuc Le

317. LEARNING VISION-GUIDED QUADRUPEDAL LOCOMOTION END-TO-END WITH CROSS-MODAL TRANSFORMERS

Presenter: Ruihan Yang | Faculty: Xiaolong Wang

318. MODELING FLASH MEMORY CHANNELS USING CONDITIONAL GENERATIVE NETS

Presenter: Simeng Zheng | Faculty: Paul H. Siegel

MECHANICAL & AEROSPACE ENGINEERING

400. ELECTRIC FIELD INDUCED HIGH NONLINEARITY IN SILICON RICH CARBIDE

Presenter: Li-Yang Chang | Faculty: Paul Yu

401. DYNAMIC WEIGHTS IN COLLABORATIVE REACTIVE POWER OPTIMIZATION FOR DISTRIBUTION SYSTEM VOLTAGE REGULATION

Presenter: Cristian Cortes | Faculty: Jan Kleissl

402. SCALABLE ENFORCEMENT OF SHAPE AND COLLISION CONSTRAINTS FOR GRADIENT-BASED OPTIMIZATION

Presenter: Ryan Dunn | Faculty: John T. Hwang

403. MORPHOLOGY CONTROL OF DOPED HAFNIUM CARBIDE POWDERS

Presenter: Shari Estrada | Faculty: Olivia A. Graeve

404. COMPLIANT THORAX DESIGN FOR ROBUSTNESS AND ELASTIC ENERGY EXCHANGE IN FLAPPING-WING ROBOTS

Presenter: Hang Gao | Faculty: Nick Gravish

406. STRUCTURAL AND COMPOSITIONAL ANALYSIS OF CALCIUM AND STRONTIUM HEXABORIDES WITH LITHIUM ADDITION

Presenter: Alan Hiraes | Faculty: Olivia A. Graeve

407. LOCOMOTION VIA ACTIVE SUCTION IN A SEA STAR-INSPIRED SOFT ROBOT

Presenter: Michael Ishida | Faculty: Michael Tolley

408. IMPLEMENTATION AND VERIFICATION OF A NEW UNLIKE-PARTICLE COLLISION OPERATOR IN COGENT

Presenter: Alexey Knyazev | Faculty: S. I. Krasheninnikov

409. VELOCITY SENSING OF PIEZOELECTRIC ACTUATORS FOR ASYNCHRONOUS FLIGHT OF AN INSECT-SCALE ROBOT

Presenter: Edward Lan | Faculty: Nicholas Gravish

410. HIGHLY ROBUST AND SOFT BIOHYBRID MECHANOLUMINESCENCE FOR OPTICAL SIGNALING AND ILLUMINATION

Presenter: Chenghai Li | Faculty: Shengqiang Cai

411. SHOCK COMPRESSION OF COVALENTLY BONDED PLANETARY MATERIALS

Presenter: Boya Li | Faculty: Marc Meyers

412. AUTONOMOUS ACTUATION OF FLAPPING WING ROBOTS INSPIRED BY ASYNCHRONOUS INSECT MUSCLE

Presenter: James Lynch | Faculty: Nick Gravish

413. SCOPING STUDIES OF PLASMA DETACHMENT IN LONG-LEG DIVERTOR GEOMETRIES

Presenter: Rebecca Masline | Faculty: Sergei Krasheninnikov

414. PARTICLE FORMATION MECHANISM OF BISMUTH FERRITE: MATERIALS BY DESIGN FOR ANTIFERROMAGNETIC AND FERROELECTRIC APPLICATIONS

Presenter: Jenna Metera | Faculty: Olivia A. Graeve

415. TAILORED MORPHOLOGY OF TAC NANOPARTICLES BY INTRODUCTION OF TRANSITION METAL DOPANTS

Presenter: Stephanie Ortega | Faculty: Olivia Graeve

416. ADDITIVE MANUFACTURING UTILIZING A NOVEL IN-LINE MIXING SYSTEM FOR MULTI-SCALE DESIGN OF CERAMIC COMPOSITES

Presenter: Joshua Pelz | Faculty: Marc A. Meyers

417. HIGH ENERGY DENSITY BATTERY BASED ON CFX CATHODE MATERIAL

Presenter: Baharak Sayahpour | Faculty: Shirley Meng

418. TRANSENDOTHELIAL MIGRATION ALTERS SUBSEQUENT NEUTROPHIL INTERSTITIAL MIGRATION PHENOTYPE IN 3D MATRICES

Presenter: Amy Schwartz | Faculty: Antonio Sanchez

419. AQUATIC LOCOMOTION USING CURVATURE PROPERTIES OF TAPE SPRINGS

Presenter: Curtis Sparks | Faculty: Nick Gravish

420. IMMOBILIZATION AND CATALYTIC PROPERTIES OF LACCASE ON CUO NANOPARTICLES

Presenter: Francisco Suarez | Faculty: Olivia Graeve

421. PROCESSING OF HIGH ENTROPY METAL CARBIDES: A NEW CLASS OF ULTRAHIGH TEMPERATURE, IRRADIATION RESISTANT CERAMICS

Presenter: Ved Vakharia | Faculty: Olivia A. Graeve

422. MICROSCALE CONCERT HALL ACOUSTICS FOR SONOGENETICS

Presenter: Aditya Vasan | Faculty: James Friend

423. GROUND FRICTION LIMITATIONS FOR HIGH TRACTION LEGGED MANEUVERS IN COCKROACHES

Presenter: Ruiqi Wang, Yakun Cao | Faculty: Nick Gravish

424. ROBUST PERPENDICULAR MAGNETIC ANISOTROPY IN OFF-AXIS SPUTTERED EUROPIUM IRON GARNET (EUIG) THIN FILMS

Presenter: Chad Warren | Faculty: Javier E. Garay

425. COLLECTIVE BEHAVIOR OF CHASING VEHICLES, DECENTRALIZED CONTROL OF THE GROUP FORMATION WITH LIMITED SENSING

Presenter: Rundong Yang, Wei Zhou | Faculty: Nicholas Gravish

426. MEM3DG: MODELING MEMBRANE MECHANOCHEMICAL DYNAMICS IN 3D USING DISCRETE DIFFERENTIAL GEOMETRY

Presenter: Cuncheng Zhu | Faculty: Padmini Rangamani

NANOENGINEERING

500. PROBING THE MOLECULAR INTERACTIONS BETWEEN THE IMMOBILIZED MOLECULAR CATALYSTS AND THE MULTI-WALLED CARBON NANOTUBE SUPPORT FOR CO₂ REDUCTION IN NEAR NEUTRAL PH AQUEOUS ENVIRONMENTS

Presenter: Thomas Chan | Faculty: Clifford P. Kubiak

501. NEEDLE-FREE GLUCOSE MONITORING USING A WEARABLE PATCH

Presenter: Ernesto De la Paz Andres | Faculty: Joseph Wang

502. ENTROPIC INSIGHTS INTO THE STRUCTURING OF WATER

Presenter: Alexandria Do, Emily Infante | Faculty: Tod Pascal

503. MACHINE LEARNING IS A USEFUL TOOL TO PREDICT AND UNDERSTAND SEA-ICE DYNAMICS IN THE ARCTIC.

Presenter: Lauren Hoffman | Faculty: Matt Mazloff

504. MODELING BACKBONE RIGIDITY IN CONJUGATED POLYMERS

Presenter: Andrew Kleinschmidt | Faculty: Darren Lipomi, Tod Pascal

505. IN VITRO ASSESSMENT OF DRUG-INDUCED CARDIOTOXICITY THROUGH SIMULTANEOUS MEASUREMENT OF ACTION POTENTIALS AND CONTRACTILE FORCES OF HUMAN CARDIOMYOCYTES

Presenter: Dhivya Pushpa Meganathan | Faculty: Zeinab Jahed

506. MICROENGINES IN A PILL: IMPROVING DISTRIBUTION AND BIOAVAILABILITY OF ORALLY DELIVERED DRUGS

Presenter: Rodolfo Andres Mundaca Uribe | Faculty: Joseph Wang

507. MONITORING LIQUID SWALLOW BEHAVIOR USING EPIDERMAL STRAIN AND EMG SENSORS

Presenter: Beril Polat | Faculty: Darren Lipomi

508. FULLY TEXTURED HIGH-EFFICIENCY MONOLITHIC PEROVSKITE/SILICON TANDEM SOLAR CELLS

Presenter: Rory Runser | Faculty: Darren Lipomi

509. GREEN METAL-ORGANIC FRAMEWORKS FOR EFFICIENT CATALYTIC HYDROLYSIS OF NERVE AGENTS AND THERMALLY ROBUST BIOMIMETIC SENSING APPLICATIONS

Presenter: Samar Sandhu, Jose Morales | Faculty: Joseph Wang

510. MOISTURE INGRESS AND DISTRIBUTION IN BIFACIAL SILICON PHOTOVOLTAICS

Presenter: Tala Sidawi | Faculty: David Fenning

511. CURVATURE-SELECTIVE NANOCRYSTAL SURFACE LIGATION USING STERICALLY-ENCUMBERED METAL-COORDINATING LIGANDS

Presenter: Yufei Wang | Faculty: Andrea Tao

512. TOUCH-BASED CHEMICAL SENSING PLATFORM FOR RAPID, NON-INVASIVE BIOMARKER MONITORING

Presenter: Lu Yin | Faculty: Joseph Wang

513. ACHIEVING LOW-TEMPERATURE HYDROTHERMAL RELITHIATION BY REDOX MEDIATION FOR DIRECT RECYCLING OF SPENT LI-ION BATTERY CATHODE

Presenter: Xiaolu Yu | Faculty: Zheng Chen

514. MICROPHASE SEPARATION DRIVEN SEQUENTIAL SELF FOLDING OF SOFT ACTUATORS

Presenter: Jiayu Zhao | Faculty: Jinhye Bae

515. COAGULATION BATH-ASSISTED 3D PRINTING OF PEDOT: PSS WITH HIGH RESOLUTION AND STRONG SUBSTRATE ADHESION FOR BIOELECTRONIC DEVICES

Presenter: Yi Zheng | Faculty: Jonathan Pokorski

516. PHYSICAL DISRUPTION OF SOLID TUMORS BY IMMUNOSTIMULATORY MICROROBOTS ENHANCES ANTI-TUMOR IMMUNITY

Presenter: Jiarong Zhou | Faculty: Liangfang Zhang

STRUCTURAL ENGINEERING

600. THERMAL EFFECTS ON SOFT SOIL BEHAVIOR AND ITS APPLICATIONS

Presenter: Radhavi Abeysiridara Samarakoon | Faculty: John McCartney

601. MOAT WALL POUNDING FOR A PROTOTYPE BASE-ISOLATED BUILDING IN WELLINGTON, NEW ZEALAND

Presenter: Ricardo Bustamante | Faculty: Gilberto Mosqueda

602. HIGH-SPEED ULTRASONIC RAIL INSPECTION

Presenter: Diptojit Datta | Faculty: Francesco Lanza di Scalea

603. DEVELOPMENT OF RAIL FLAW IMAGING TECHNOLOGY BASED ON ULTRASONIC TOMOGRAPHY

Presenter: Chengyang Huang | Faculty: Francesco Lanza di Scalea

604. WATER RETENTION IN EXPANSIVE CLAY UNDER ELEVATED TEMPERATURES AND CONSTRAINED CONDITIONS

Presenter: Isaac Kreitzer | Faculty: John McCartney

605. A VARIATIONAL MULTISCALE IMMERSED RKPM FOR FLUID-STRUCTURE INTERACTION IN BLAST EVENTS

Presenter: Ryan Schlinkman | Faculty: J.S. Chen

606. HYBRID SIMULATION WITH MIXED DISPLACEMENT AND EQUIVALENT-FORCE CONTROL FOR A STEEL MOMENT FRAME WITH AXIAL SHORTENING

Presenter: Claudio Sepulveda | Faculty: Gilberto Mosqueda

607. PHYSICS INFORMED DATA DRIVEN PARAMETER IDENTIFICATION OF THE HUMAN MUSCULO-SKELETAL SYSTEM

Presenter: Karan Taneja | Faculty: J. S. Chen

608. STRUCTURAL HEALTH MONITORING OF MULTI-MODE FAILURE SCENARIOS FOR LARGE-SCALE STRUCTURES

Presenter: Zihan Wu | Faculty: Michael D. Todd

609. SEISMIC RESPONSE OF RAIL EMBANKMENTS

Presenter: Axel Yarahuaman Chamorro | Faculty: John McCartney

610. AIRBORNE SONAR FOR IN-MOTION TIE DEFLECTION MEASUREMENT

Presenter: Ali Zare Hosseinzadeh | Faculty: Francesco Lanza di Scalea

JUDGES

Brendan Ahern	AMV, Inc.
Iman Bahadoran	General Atomics
Alex Barajas	Envision Engineering, Inc
Jason Baxter	West Coast Solutions
Jeffrey Belk	Ocreati Advisors, LLC
Enrico Bernardo	American Specialty Health
Artur Borycki	Teradata
Frederic Bossu	Apple
Steve Bouchett	Cubic
Jeff Brittan	Watershed Idea Foundry
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Denise Gosnell	DataStax
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Senmao Lin	CliniComp, International
Vikram Magoon	Apple
Al Malaki	Cisco / PnP
Michael Mamaghani	MEDsmart
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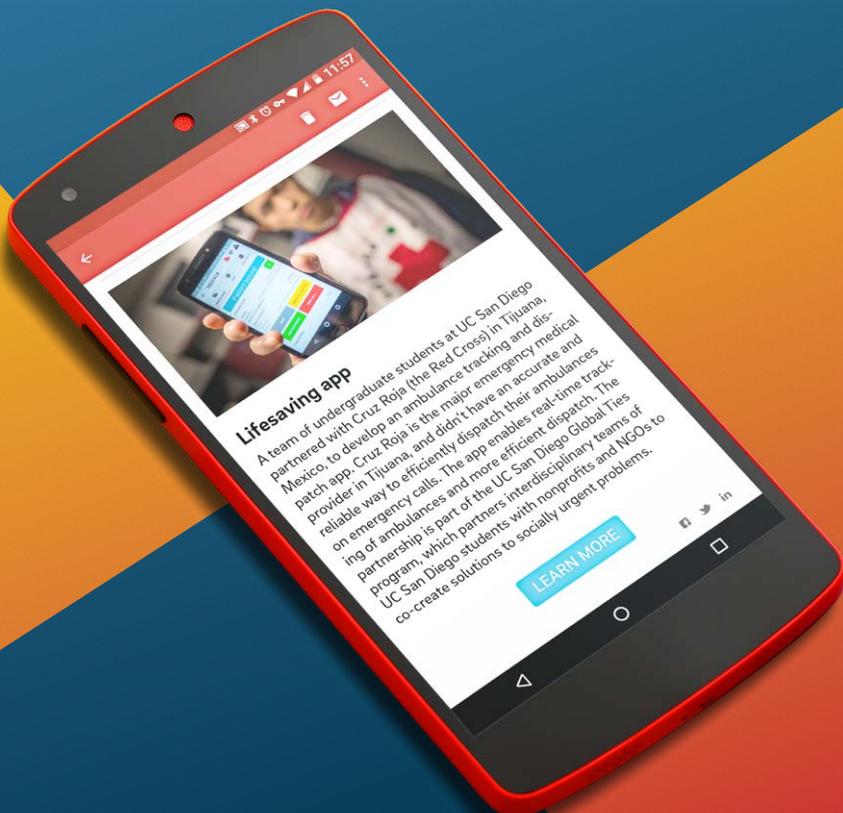
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