UC San Diego
JACOBS SCHOOL OF ENGINEERING

RESEARCH EXPO 2018

THURSDAY, APRIL 19 – 1:30-6:00PM – UC SAN DIEGO

JacobsSchool.ucsd.edu/RE

JACOBS SCHOOL CORPORATE AFFILIATES PROGRAM

Amazon.com

American Specialty Health

AppFolio

AppFormix (Acelio)

ASML

ATA Engineering

BAE Systems

BD

Bentley Systems

Bloomberg

CISCO

CliniComp

Corning

CPC Strategy

Cubic Transportation Systems

Data Torrent

Dexcom

Facebook

General Atomics

General Atomics Aeronautical Systems

GoDaddy

Google

Greenlee Communications

Honda

Hughes Network Systems

IBM

iboss

Informatica

Instrumentation Laboratory Company

Intel

Intuit

IQ Analog

Kleinfelder

Kyocera America

Lawrence Livermore National Laboratory

Leidos

Lockheed Martin

MagCanica

Microsoft

Mitchell International

Mitek Systems

Mtell

MUM Industries

NAVAIR

Nordson

Northrop Grumman

Ntrepid

One Stop Systems

Oracle

PlayStation

Qualcomm

Raytheon Integrated Defense Systems

Rincon Research

Salesforce

Samsung

Simplexity Product Development

Skyworks

Solar Turbines

Sony

SPAWAR

SRC

Stevanato Group

Teradata

Thermo Fisher Scientific

Uber

UTC Aerospace Systems

ViaSat

Webroot

Be part of this vital partnership between the Jacobs School of Engineering and its Corporate Affiliates Program
+1 (858) 534-3148 JacobsCAP@ucsd.edu
JacobsSchool.ucsd.edu/cap

RESEARCH EXPO 2018

Thank you to our generous sponsors

Viasat™

ASML

CUBIC™

leidos

Lawrence Livermore National Laboratory

UC San Diego
RESEARCH AFFAIRS
Office of Innovation and Commercialization

UC San Diego | EXTENSION

JacobsSchool.ucsd.edu/RE

AGENDA

1:30 PM	**REGISTRATION**
	Price Center East Lobby - Level 2
2:00 PM–4:30 PM	**POSTER SESSION**
	Price Center West Ballroom Over 200 graduate students display their research results
2:30 PM–3:30 PM	**FACULTY TALKS**
	Price Center East Ballroom - Level 2
2:30 PM	**TOPOLOGICAL LIGHT SOURCES FOR LIDARS AND INTEGRATED PHOTONICS** Boubacar Kante Electrical and Computer Engineering
2:50 PM	**THE GLOBAL RACE FOR BETTER BATTERIES** Shirley Meng Zable Endowed Chair in Energy Technologies NanoEngineering Director, Sustainable Power and Energy Center
3:10 PM	**EMPOWERING PEOPLE USING ROBOTICS** Henrik Christensen Qualcomm Chancellor's Endowed Chair in Robotic Systems Computer Science and Engineering Director, Contextual Robotics Institute
4:30 PM–6:00 PM	**AWARDS PROGRAM + NETWORKING RECEPTION**
	Price Center East Ballroom Network with faculty, students and industry partners

TABLE OF CONTENTS

2:30 PM
TOPOLOGICAL LIGHT SOURCES FOR LIDARS AND INTEGRATED PHOTONICS

Presenter: Boubacar Kante
Assistant Professor
Department of Electrical and Computer Engineering

From medical technology to entertainment, lasers are one of the most revolutionary inventions of the last 75 years. The quest for smaller, lighter, and more efficient optical components and sources usually comes at the price of reduced functionalities. I will discuss our inventions of novel geometrical and topological approaches to the construction of compact and functional sources with unique and enhanced functionalities enabling applications in defense, communications, and medicine.

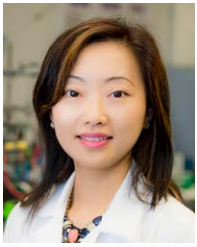
Related posters #107, #108 on page 22.

THE KANTE LAB

The Kante lab is dedicated to multidisciplinary research in the area of wave-matter interaction from microwaves to optics. Grounded on the fundamental physical principles, and the on-demand dimensionality of materials and nanomaterials, the Kante lab addresses tantalizing experimental and theoretical physical questions in the fields of nanophotonics, plasmonics, and metamaterials applicable to global energy, defense, and health challenges.

kante.ucsd.edu

SUSTAINABLE POWER AND ENERGY CENTER



2:50 PM
THE GLOBAL RACE FOR BETTER BATTERIES

Presenter: Shirley Meng
Professor, NanoEngineering
Zable Endowed Chair in Energy Technologies
Director, Sustainable Power and Energy Center

High-energy long-life rechargeable batteries are considered a key enabling technology for deep decarbonization. Energy storage in the electrochemical form is attractive because of its high efficiency and fast response time. New and improved materials for electrochemical energy storage are urgently required to make more efficient use of our finite supply of fossil fuels, and to enable the effective and economical deployment of renewable energy sources. In this talk, I will discuss new perspectives for energy storage materials as well as novel technologies from our research. I hope to demonstrate how to combine knowledge-guided synthesis, operando characterization and computational modeling to develop and optimize new higher energy/power density materials for next-generation batteries. Meng runs the Laboratory for Energy Storage and Conversion at UC San Diego: smeng.ucsd.edu

Related posters page 10.

SUSTAINABLE POWER AND ENERGY CENTER

The Sustainable Power and Energy Center at UC San Diego develops high-performance and low-cost materials and devices for energy generation, storage and conversion for electric vehicles, microgrids, photovoltaic panels, wind turbines, wearable power devices and more. UC San Diego's world-renowned microgrid serves as a real-world testbed for the Center's new materials, devices and power-management systems, which are rooted in thoughtful analysis of the economics of distributed energy. At every point along the way, the Center trains and mentors students to become tomorrow's workforce for green and advanced energy.

spec.ucsd.edu

CONTEXTUAL ROBOTICS INSTITUTE

3:10 PM
EMPOWERING PEOPLE USING ROBOTS

Presenter: Henrik Christensen
Professor, Computer Science and Engineering
Qualcomm Chancellor's Endowed Chair in Robotic Systems
Director, Contextual Robotics Institute

A critical opportunity in an emerging economy is to consider how technology can be leveraged to empower people in their daily lives. Robots allow us to reshore manufacturing, to improve quality of care for an aging population, and to secure our first responders. In this presentation, we will discuss how the research carried out by the Contextual Robotics Institute enables entirely new types of applications; and also how it facilitates the creation of new companies, which is critical for the creation of a new set of robotics companies in Southern California. Our objective is to create a Robot Valley in San Diego.

Related posters page 12.

CONTEXTUAL ROBOTICS INSTITUTE

Through the Contextual Robotics Institute, UC San Diego researchers and industry partners are working to solve today's most pressing robotics challenges in key areas including healthcare, autonomous vehicles and manufacturing. The Institute aims to advance the research required to develop useful robotic systems for the public good that sense the environment around them; learn from experience and situational awareness; and act autonomously to assist humans in a course of action. The Institute aligns world-class expertise in hardware, software, cognitive science, design, machine learning, materials, security, and more.

contextualrobotics.ucsd.edu

SUSTAINABLE POWER AND ENERGY CENTER

1. CURRENT AND CHARGE DEMAND SCHEDULING OF PARALLEL PLACED (SECOND-LIFE) BATTERIES
   Student: Yunfeng Jiang | Professor: Raymond A. De Callafon

2. SUSTAINABLE ENERGY PRODUCTION FROM STRETCHABLE, ULTRA-FLEXIBLE, AND MECHANICALLY ROBUST ORGANIC ELECTRONICS
   Student: Mohammad Ayman Alkhadra | Professor: Darren J. Lipomi

3. A COMPOSITE MEMBRANE WITH AN 'OXIDE IN AND ON POLYMER' STRUCTURE
   Student: Xiujun Yue | Professor: Ping Liu

4. PHASE CHANGE REACTION FOR ENHANCING THE SEEBECK COEFFICIENT OF ELECTROCHEMICAL THERMOCELL
   Student: Hongyao Zhou | Professor: Ping Liu

5. FORMATION AND INFLUENCES OF TBP-LITFSI COMPLEXES IN PEROVSKITE SOLAR CELLS
   Student: Sophia Pearl Valenzuela | Professor: Ying Shirley Meng

6. TRANSITION METAL LAYER ORDERING'S ROLE IN OXYGEN ACTIVITY IN NA0.8LI0.12NI0.22MNO.66O2 AS A SODIUM ION CATHODE MATERIAL
   Student: Hayley Sarah Hirsh | Professor: Ying Shirley Meng

155. LIQUEFIED GAS ELECTROLYTES FOR ELECTROCHEMICAL ENERGY STORAGE DEVICES
   Student: Yangyuchen Yang | Professor: Ying Shirley Meng

CENTER FOR WEARABLE SENSORS

7. WIRELESS GESTURE DECODING AND ACTUATION OF HAPTIC SENSATIONS WITH STRETCHABLE HYBRID ELECTRONICS
Student: Rachel Miller | Professor: Darren J. Lipomi

8. NANOCOMPOSITE FABRIC SENSORS FOR HUMAN PERFORMANCE AND HEALTH MONITORING
Student: Long Wang | Professor: Kenneth J. Loh

9. A 113 PW FULLY INTEGRATED CMOS TEMPERATURE SENSOR OPERATING AT 0.5 V
Student: Hui Wang | Professor: Patrick P. Mercier

10. A NW-LEVEL WIRELESS ION SENSING SYSTEM
Student: Xiaoyang Wang | Professors: Patrick P. Mercier, Joseph Wang

11. RE-USABLE ELECTROCHEMICAL GLUCOSE SENSORS INTEGRATED INTO A SMARTPHONE PLATFORM
Student: Somayeh Imani | Professors: Patrick P. Mercier, Joseph Wang

12. WIRELESS POWERING OF MM-SCALE FULLY-ON-CHIP NEURAL INTERFACES
Student: Jiwoong Park | Professors: Patrick P. Mercier, Gert Cauwenberghs

13. EPIDERMAL MICROFLUIDIC ELECTROCHEMICAL DETECTION SYSTEM: ENHANCED SWEAT SAMPLING AND METABOLITE DETECTION
Students: Jayoung Kim, Juliane R. Sempionatto, Jonas F. Kurniawan, Guangda Tang, | Professor: Joseph Wang

14. WEARABLE RING-BASED SENSING PLATFORM FOR DETECTING CHEMICAL THREATS
Student: Juliane R. Sempionatto | Professor: Joseph Wang

15. CENTRAL BLOOD PRESSURE WAVEFORM MONITORING BY CONFORMAL ULTRASONIC DEVICES
Student: Chonghe Wang | Professor: Sheng Xu

CONTEXTUAL ROBOTICS INSTITUTE

16. ACTION-CONDITIONED FUTURE SEMANTIC LABEL PREDICTION FOR AUTONOMOUS DRIVING
Student: Ali Mirzaei | Professor: Henrik I. Christensen

17. TRITONBOT - LESSONS LEARNED FROM EARLY DEPLOYMENT OF A LONG-TERM AUTONOMY TOUR GUIDE ROBOT
Student: Shengye Wang | Professor: Henrik I. Christensen

18. UNDERWATER SWARM ROBOTICS FOR OCEAN EXPLORATION
Student: Antonella Christine Wilby | Professor: Henrik I. Christensen

19. REVERSIBLE ACTUATION OF ORIGAMI INSPIRED COMPOSITES USING LIQUID CRYSTAL ELASTOMERS
Student: Adriane Fernandes Minori | Professors: Michael T. Tolley, Shengqiang Cai

20. SOFT ROBOTIC ACTUATOR WITH GECKO-INSPIRED ADHESIVE
Student: Paul Ezio Glick | Professor: Michael T. Tolley

21. ELASTOMERIC DIAPHRAGM PUMP DRIVEN BY FLUID ELECTRODE DIELECTRIC ELASTOMER ACTUATORS
Student: Caleb Michael Christianson | Professor: Michael T. Tolley

88. USING GAUSSIAN PROCESS FOR MAPPING
Student: Siwei Guo | Professor: Nikolay A. Atanasov

142. SLIDING-LAYER LAMINATES: A NEW ROBOTIC MATERIAL ENABLING ROBUST AND ADAPTABLE UNDULATORY LOCOMOTION
Student: Mingsong Jiang | Professor: Nicholas G. Gravish

171. TOWARDS RAPID MECHANICAL CUSTOMIZATION OF CM-SCALE SELF-FOLDING AGENTS
Student: William Peter Westondawkes | Professor: Michael T. Tolley

CENTER FOR VISUAL COMPUTING

22. LEARNING TO SEE THROUGH TURBULENT WATER
Student: Zhengqin Li | Professors: Manmohan K. Chandraker, Ravi Ramamoorthi, David Kriegman

23. ONE-SHOT LOGO DETECTION IN THE WILD
Student: Meng Song | Professor: Manmohan K. Chandraker

24. IMAGE TO IMAGE TRANSLATION FOR DOMAIN ADAPTATION
Student: Zachary Paul Murez | Professors: David Kriegman, Ravi Ramamoorthi, Manmohan Chandraker

25. ACCURATE APPEARANCE PRESERVING PREFILTERING FOR RENDERING DISPLACEMENT-MAPPED SURFACES
Student: Lifan Wu | Professor: Ravi Ramamoorthi

26. ANALYTIC SPHERICAL HARMONIC COEFFICIENTS FOR POLYGONAL AREA LIGHTS
Student: Jingwen Wang | Professor: Ravi Ramamoorthi

27. CONNECTING ANALYTICAL AND MEASURED BRDFS
Student: Tiancheng Sun | Professor: Ravi Ramamoorthi

28. DEEP ADAPTIVE SAMPLING AND RECONSTRUCTION FOR LOW SAMPLING COUNT
Students: Alexandr Kuznetsov, Nima Khademi Kalantari | Professor: Ravi Ramamoorthi

29. DEEP HYBRID REAL AND SYNTHETIC TRAINING FOR INTRINSIC DECOMPOSITION
Student: Sai Bi | Professor: Ravi Ramamoorthi

30. DEEP IMAGE-BASED RELIGHTING FROM OPTIMAL SPARSE SAMPLES
Student: Zexiang Xu | Professor: Ravi Ramamoorthi

31. SELFIE VIDEO STABILIZATION
Student: Jiyang Yu | Professor: Ravi Ramamoorthi

32. REAL-TIME PHOTO-REALISTIC AUGMENTED REALITY UNDER DYNAMIC ENVIRONMENT LIGHTING
Student: Kamran Alipour | Professors: Jurgen P. Schulze, Ravi Ramamoorthi

33. DEEP LEARNING WITH LOW PRECISION BY HALF-WAVE GAUSSIAN QUANTIZATION
Student: Zhaowei Cai | Professor: Nuno M. Vasconcelos

CENTER FOR EXTREME EVENTS RESEARCH

34. A MESHFREE FORMULATION FOR MODELING HYDRO-MECHANICAL DAMAGE PROCESSES IN POROUS GEO-MATERIALS
Student: Haoyan Wei | Professor: Jiun-Shyan Chen

35. A NEW MACHINE LEARNING BASED DATA-DRIVEN COMPUTATIONAL FRAMEWORK IN THE MECHANICS OF SOLIDS AND STRUCTURES
Student: Qizhi He | Professor: Jiun-Shyan Chen

36. COMPUTATIONAL SHOCK DYNAMICS AND ITS APPLICATION TO EXPLOSIVE WELDING
Student: Tsunghui Huang | Professor: Jiun-Shyan Chen

37. MODE-II DYNAMIC FRACTURE BEHAVIOR OF CARBON FIBER/EPOXY
Student: Rodrigo Enrique Chavez Morales | Professor: Veronica Eliasson

38. BRIDGE SCOUR MONITORING USING BURIED, PASSIVE, PIEZOELECTRIC SENSORS
Student: Morgan Leigh Funderburk | Professor: Kenneth J. Loh

CALIBAJA CENTER FOR RESILIENT MATERIALS AND SYSTEMS

39. ELECTROSPINNING LIQUID CRYSTAL ELASTOMERS FOR THE APPLICATION OF ARTIFICIAL MUSCLES
Student: Philip Farris Oweimrin | Professor: Shengqiang Cai

40. ADVANCES IN IONIC POLYMER METAL COMPOSITES (IPMCS): A LITERATURE REVIEW
Student: Robyn Elizabeth Ridley | Professor: Olivia A. Graeve

41. CUBIC HOLLOW NANOSTRUCTURES: A NEW TREND TO DESIGN FUNCTIONAL MATERIALS
Student: Carlos Ingram Vargas Consuelos | Professor: Olivia A. Graeve

42. DIFFUSION STUDIES OF STRUCTURALLY AMORPHOUS METAL FOILS USING MOLECULAR DYNAMICS SIMULATION: INITIAL SIMULATION FRAMEWORK VALIDATION
Student: Jordan Alexander Campbell | Professor: Olivia A. Graeve

43. ELECTRICAL CONDUCTIVITY OF STABILIZED MESOPOROUS CERAMIC FLUID SUSPENSIONS WITH VARYING PH VALUES
Student: Shuang Qiao | Professor: Olivia A. Graeve

44. EXPLORING THE FUNDAMENTAL BEHAVIOR OF TAILORED NANOSCALE CARBIDE MORPHOLOGIES: MATERIALS BY DESIGN FOR ULTRA-HIGH TEMPERATURE APPLICATIONS
Student: Tianqi Ren | Professor: Olivia A. Graeve

45. FABRICATION OF UNIFORM-SIZED MESOPORES ON GOLD-COATED POLYSTYRENE PARTICLES
Student: Seongcheol Choi | Professors: Olivia A. Graeve, Rafael Vazques-Duhalt

46. IN VITRO EVALUATION OF LUMINESCENT RARE-EARTH DOPED HYDROXYAPATITE SCAFFOLDS
Student: Fabian Martin Martinez Pallares | Professor: Olivia A. Graeve

47. SAM2X5: STRONGER THAN THE STRONGEST STEEL
Student: Arash Yazdani | Professor: Olivia A. Graeve

48. SUPER-ELASTIC RESPONSE AND SHAPE MEMORY BEHAVIOR IN CERAMIC MATERIALS
Student: Hamed Hosseini Toudeshki | Professor: Olivia A. Graeve

49. SYNTHESIS AND INTERFACE BOUNDARY CHARACTERISTICS OF GOLD/COBALT JANUS NANOPARTICLES
Student: Kyungah Seo | Professor: Olivia A. Graeve

50. SYNTHESIS OF CUBIC MICROSTRUCTURES OF PEROVSKITE MATERIALS
Student: Maritza Sanchez | Professor: Olivia A. Graeve

51. BONE AS AN INTERPENETRATING COMPOSITE
Student: Frances Yenan Su | Professor: Joanna M. McKittrick

52. CHARACTERIZING THE COLLAGEN STRUCTURE OF ARMORED CARAPACE OF THE BOXFISH
Student: Sean Nolan Garner | Professor: Joanna M. McKittrick

53. DEVELOPMENT OF EU2+ OR CE3+ ACTIVATED PHOSPHORS WITH HIGH PURITIES AND IMPROVED QUANTUM EFFICIENCIES FOR SOLID-STATE LIGHTING APPLICATION
Student: Jungmin Ha | Professor: Joanna M. McKittrick

54. ENERGY ABSORBENT NATURAL KERATIN MATERIALS AND BIOINSPIRED DESIGNS
Student: Wei Huang | Professor: Joanna M. McKittrick

BIOENGINEERING

55. CHARACTERIZING FORCES IMPARTED ON CELLS USING LASER-INDUCED SHOCKWAVES
Student: Christopher Carmona | Professor: Michael Berns

56. IMPLICATIONS-ENZYMATIC DEGRADATION OF THE ENDOTHELIAL GLYCOCALYX ON THE MICROVASCULAR HEMODYNAMICS AND THE ARTERIOLAR RED CELL FREE LAYER OF THE RAT CREMASTER MUSCLE
Students: Vivek Pinakin Jani, Alfredo Lucas | Professor: Pedro J. Cabrales Arevalo

57. RESUSCITATION FROM HEMORRHAGIC SHOCK WITH HIGH MOLECULAR WEIGHT POLYMERIZED HEMOGLOBIN
Student: Alexander Thomas Williams | Professor: Pedro J. Cabrales Arevalo

58. ELECTRODE-SKIN IMPEDANCE MODEL FOR IN-EAR ELECTROPHYSIOLOGY ACCOUNTING FOR CERUMEN (EARWAX) AND ELECTRODERMAL RESPONSE
Student: Akshay Paul | Professor: Gert Cauwenberghs

59. NEUROMORPHIC SYNAPSES WITH RECONFIGURABLE VOLTAGE-GATED DYNAMICS FOR BIOHYBRID NEURAL CIRCUITS
Student: Jun Wang | Professors: Gert Cauwenberghs, Frederic Broccard

60. SPARSELY ACTIVE SPIKING NEURAL NETWORKS FOR LOW-POWER KEYWORD SPOTTING
Student: Bruno Umbria Pedroni | Professor: Gert Cauwenberghs

61. RAPID 3D BIOPRINTING OF LIVER TISSUE MODELS FOR CANCER INVASION STUDY
Student: Xuanyi Ma | Professor: Shaochen Chen

62. MICROFLUIDIC DEVELOPMENT FOR THE SIMULTANEOUS CULTURING OF 2,048 UNIQUE E. COLI AND S. CEREVISIAE STRAINS
Student: Nicholas Sigmund Csicsery, Elizabeth Stasiowski, Garrett Graham, Gregoire Thouvenin, | Professor: Jeff M. Hasty

63. IMPROVING CHINESE HAMSTER GENOME ANNOTATION BY INTEGRATED PROTEOGENOMICS AND RIBOSOME PROFILING ANALYSIS
Student: Shangzhong Li | Professors: Nathan E. Lewis, Vineet Bafna

64. MULTIPLEX GENOME EDITING ELIMINATES THE WARBURG EFFECT WITHOUT AFFECTING OXIDATIVE METABOLISM OR GROWTH RATE
Student: Hooman Hefzi | Professor: Nathan E. Lewis

65. A MARKOV STATE MODEL OF THE SARCOMERE TO EXPLAIN THE EFFECTS OF DATP ON CARDIAC CONTRACTION
Student: Kimberly Joan McCabe | Professors: Andrew D. Mc Culloch, Jeffrey H. Omens

66. COMBINATORIAL CRISPR-CAS9 METABOLIC SCREENS REVEAL CRITICAL REDOX CONTROL POINTS DEPENDENT ON THE KEAP1-NRF2 REGULATORY AXIS
Student: Mehmet Gultekin Badur | Professor: Christian M. Metallo

67. SYNOVIAL FLUID: SERUM RATIO OF PROTEIN CONCENTRATION IS INCREASED IN EXPERIMENTAL OSTEOARTHRITIS AND INVERSELY CORRELATED WITH SYNOVIAL FLUID HYALURONAN CONCENTRATION
Student: Aimee Rose Raleigh | Professor: Robert L. Sah

68. DIRECTED EVOLUTION TO ENGINEER MONOBODY FOR FRET BIOSENSOR ASSEMBLY AND IMAGING AT LIVE-CELL SURFACE
Students: Praopim Limsakul, Helen Masson | Professor: Yingxiao Wang

69. SPECIFIC HUMAN MILK OLIGOSACCHARIDES DEFERENTIALLY ALTER THE INFANT GUT MICROBIOME
Student: Nafeesa Tabassum Khan | Professor: Karsten B. Zengler

70. OBSERVING SIGNALING DYNAMICS AT ENDOGENOUS LEVELS USING A NEW CLASS OF BIOSENSORS FLUOSTEP
Student: Jason Zhaoxing Zhang | Professor: Jin Zhang

71. A SYSTEM FOR GLOBAL ANALYSIS OF CORRELATION BETWEEN PROTEIN EXPRESSION AND MRNA
Student: Kara Lynn Johnson | Professor: Sheng Zhong

COMPUTER SCIENCE & ENGINEERING

72. HOLOCPR: DESIGNING AND EVALUATING A MIXED REALITY INTERFACE FOR TIME-CRITICAL EMERGENCIES
Student: Janet George Johnson | Professor: Nadir Weibel

73. MINING RELATIONS BETWEEN HETEROGENEOUS TEXT DATASETS
Student: Siddharth Sankaran Dinesh | Professor: Amarnath Gupta

74. BLAST-RELATED MILD TRAUMATIC BRAIN INJURY IN CHRONIC PHASE: A DIFFUSION TENSOR IMAGING STUDY WITH MACHINE LEARNING
Student: Poya Hsu | Professor: Chung K. Cheng

75. BIT FUSION: BIT-LEVEL DYNAMICALLY COMPOSABLE ARCHITECTURE FOR ACCELERATING DEEP NEURAL NETWORKS
Students: Behnam Khaleghi, Jongsea Park | Professor: Hadi Esmaeilzadeh

76. IDENTIFY AND HELP AT-RISK STUDENTS BEFORE IT IS TOO LATE
Students: Soohyun Nam Liao, Sander Valster | Professors: William G. Griswold, Leonard E. Porter

77. LEARNING-BASED OPTIMIZATION IN APPROXIMATE COMPUTING
Student: Vahideh Akhlaghi | Professor: Rajesh Gupta

78. TOWARDS SMARTER SENSORS: DEEP REINFORCEMENT LEARNING FOR BUILDING AUTOMATION
Student: Francesco Fraternali | Professor: Rajesh Gupta

79. DESIGNING FPGA APPLICATIONS THROUGH INTELLIGENT DESIGN SPACE EXPLORATION
Students: Quentin Kevin Gautier, Alric Althoff | Professor: Ryan Kastner

80. MODELING INFORMATION FLOWS IN HARDWARE DESIGNS
Student: Armaiti Ardeshiricham | Professor: Ryan Kastner

81. THE SURGICAL IMAGE REGISTRATION GENERATOR (SIRGN) BASELINE
Student: Michael Joseph Barrow | Professor: Ryan Kastner

82. GALILEO: TRANSFORMING INTUITIONS INTO EXPERIMENTS
Student: Vineet Pandey | Professor: Scott R. Klemmer

83. MATERIALIZATION TRADE-OFFS FOR FEATURE TRANSFER FROM DEEP CNNS FOR MULTIMODAL DATA ANALYTICS
Student: Supun Chathuranga Nakandala | Professor: Arun K. Kumar

84. VISUALLY-AWARE FASHION RECOMMENDATION AND DESIGN WITH GENERATIVE IMAGE MODELS
Student: Wangcheng Kang | Professor: Julian J. McAuley

85. BRAIN-INSPIRED HYPERDIMENSIONAL COMPUTING: ROBUST, SCALABLE AND ENERGY EFFICIENT CLASSIFIER
Student: Mohsen Imani | Professor: Tajana S. Rosing

86. RESISTIVE CAM ACCELERATION FOR TUNABLE APPROXIMATE COMPUTING
Student: Daniel Nikolai Peroni | Professor: Tajana S. Rosing

87. BINARY STAR: ENABLING EFFICIENT RESILIENT MEMORY SYSTEM DESIGN
Student: Xiao Liu | Professor: Jishen Zhao

ELECTRICAL & COMPUTER ENGINEERING

88. USING GAUSSIAN PROCESS FOR MAPPING
Student: Siwei Guo | Professor: Nikolay A. Atanasov

89. ATOMIC SCALE DYNAMICS OF CONTACT FORMATION IN THE CROSS-SECTION AND ALONG THE CHANNEL OF INGAAS NANOWIRES
Student: Renjie Chen | Professor: Shadi A. Dayeh

90. HIGH DENSITY INDIVIDUALLY ADDRESSABLE NANOWIRE ARRAYS RECORD INTRACELLULAR ACTIVITY FROM PRIMARY RODENT AND HUMAN STEM CELL DERIVED NEURONS
Student: Ren Liu | Professor: Shadi A. Dayeh

91. MICRONEEDLE ARRAYS (MNA) ON FLEXIBLE SUBSTRATE FOR NEURAL RECORDING AND STIMULATION
Student: Sang Heon Lee | Professor: Shadi A. Dayeh

92. MONOLITHIC HETEROGENEOUSLY INTEGRATED HIGH-POWER VERTICAL-CHANNEL GAN DEVICES WITH SI CMOS ELECTRONICS
Student: Woojin Choi | Professor: Shadi A. Dayeh

93. NANOPOROUS AU IMPROVES METAL-PEDOT:PSS ADHESION IN NEURAL ELECTRODES
Student: Mehran Ganji | Professor: Shadi A. Dayeh

94. PASSIVATION AND COLLECTION IN {100}, {110}, AND CYLINDRICIAL MICROWIRE SOLAR CELLS
Student: Yun Goo Ro | Professor: Shadi A. Dayeh

95. REAL-TIME FORCE IMAGING TECHNOLOGY USING ZNO THIN-FILM TRANSISTOR ARRAY
Student: Hongseok Oh | Professor: Shadi A. Dayeh

96. STRUCTURAL AND ELECTRICAL CHARACTERIZATION OF DEFECT ANNIHILATION IN THICK GAN LAYERS ON SI, GAN, AND CTE MATCHED SUBSTRATES
Student: Atsunori Tanaka | Professor: Shadi A. Dayeh

97. ENHANCING SILICON NITRIDE PHOTONICS FOR ON-CHIP NONLINEAR APPLICATIONS
Students: Rajat Sharma, Alex Friedman | Professor: Y. Shaya Fainman

98. INTEGRATED PHOTONICS EDUCATION KIT
Student: Jordan Austin Davis | Professor: Y. Shaya Fainman

99. METAL-CLAD SEMICONDUCTOR NANOLASERS FOR DENSE ON-CHIP INTEGRATION
Student: Suruj Sambhav Deka | Professor: Y. Shaya Fainman

100. A 16X20 ELECTROCHEMICAL CMOS BIOSENSOR ARRAY WITH IN-PIXEL AVERAGING USING POLAR MODULATION
Student: Alexander Chuan Sun | Professor: Drew A. Hall

101. A SUB-1 UW MULTIPARAMETER INJECTABLE BIOMOTE FOR CONTINUOUS ALCOHOL MONITORING
Students: Haowei Jiang, Xiahan Zhou | Professor: Drew A. Hall

102. AN ULTRA-LOW POWER ECG CHOPPER AMPLIFIER WITH INVERTER STACKING FOR NOISE EFFICIENCY ENHANCEMENT
Student: Somok Mondal | Professor: Drew A. Hall

103. FAST AND ACCURATE TARGET SEARCH WITH DRONES
Student: Yongxi Lu | Professor: Tara Javidi

104. COMBINED DETAILED PLACEMENT AND POWER REDUCTION FOR 7NM AND BEYOND IC TECHNOLOGIES
Students: Minsoo Kim, Lutong Wang | Professor: Andrew B. Kahng

105. MACHINE LEARNING-BASED ELEMENTS OF DIE-PACKAGE P/G DISTRIBUTION CO-DESIGN
Student: Bangqi Xu | Professor: Andrew B. Kahng

106. MACHINE LEARNING-BASED PREDICTION OF TIMING ANALYSIS RESULTS IN ADVANCED-NODE IC DESIGNS
Student: Uday Bhanu Sharma Mallappa | Professor: Andrew B. Kahng

107. EXCEPTIONAL POINTS IN PASSIVE PLASMONIC NANOSTRUCTURE FOR SENSING
Student: Junhee Park | Professor: Boubacar Kante

108. NON-RECIPROCAL LASING IN TOPOLOGICAL CAVITIES OF ARBITRARY GEOMETRIES
Student: Babak Bahari | Professor: Boubacar Kante

109. CONDITIONAL DISTRIBUTION LEARNING WITH NEURAL NETWORKS AND ITS APPLICATION TO UNIVERSAL DENOISING
Student: Jongha Ryu | Professor: Young-Han Kim

110. CONSISTENT DENSITY FUNCTIONAL ESTIMATORS USING K NEAREST NEIGHBORS
Students: Shouvik Ganguly, Jongha Ryu | Professor: Young-Han Kim

111. MONTE-CARLO DECODING OF ERROR-CORRECTING CODES
Student: Alankrita Bhatt | Professor: Young-Han Kim

112. OPTIMAL ACHIEVABLE RATES FOR COMPUTATION WITH RANDOM HOMOLOGOUS CODES
Student: Pinar Sen | Professor: Young-Han Kim

113. ESTIMATION OF PHASE-AMPLITUDE COUPLING TEMPORAL DYNAMICS IN ELECTROPHYSIOLOGICAL SIGNALS
Student: Ramon Martinez Cancino | Professor: Kenneth Kreutz-Delgado

114. A 400 MHZ 4.5 NW -63.8 DBM SENSITIVITY WAKE-UP RECEIVER EMPLOYING AN ACTIVE PSEUDO-BALUN ENVELOPE DETECTOR
Students: Po-Han Wang, Haowei Jiang, Li Gao, Pinar Sen | Professors: Patrick P. Mercier, Drew A. Hall, Gabriel M. Rebeiz, Young-Han Kim

115. USING HITTING-TIME CHARACTERISTICS TO DETECT SENSORY PATHWAYS DURING RESTING-STATE
Student: Paria Rezaeinia | Professor: Piya Pal

116. L0 MAGIC
Student: Jing Liu | Professors: Bhaskar D. Rao, Pamela C. Cosman

117. HIGH PERFORMANCE PROCESSING-IN-MEMORY SYSTEM BY ENABLING SINGLE CYCLE ADDITION AND EFFICIENT MULTIPLICATION
Student: Joonseop Sim | Professor: Tajana S. Rosing

118. MULTIVIEW RADIAL BASIS FUNCTION: A NEW APPROACH ON NONLINEAR FORECASTING OF CHAOTIC DYNAMIC SYSTEMS
Student: Maryam Masnadi-Shirazi | Professors: Shankar Subramaniam, Pamela Cosman

119. 3D BOUNDING BOX PARAMETERIZATION USING VISION BASED CUES FOR AUTONOMOUS DRIVING
Student: Ishan Gupta | Professor: Mohan M. Trivedi

120. ARM LOCALIZATION OF DRIVER & PASSENGER USING CONVOLUTIONAL NEURAL NETWORKS
Student: Kevan Chun Yiu Yuen | Professor: Mohan M. Trivedi

121. NO BLIND SPOTS: FULL-SURROUND MULTI-OBJECT TRACKING FOR AUTONOMOUS VEHICLES USING CAMERAS & LIDARS
Student: Akshay Rangesh | Professor: Mohan M. Trivedi

122. SURROUNDING VEHICLE MOTION PREDICTION FOR AUTONOMOUS DRIVING

Student: Nachiket Prashant Deo | Professor: Mohan M. Trivedi

123. DEMONSTRATION OF A NOVEL TURN-LESS MOTOR ARRAY IN LINEAR ACTUATOR AND ROTARY MOTOR TOPOLOGIES

Student: Christopher Kirby Liu | Professor: Paul Yu, Oved Zucker

MECHANICAL & AEROSPACE ENGINEERING

124. CONTROL DESIGN FOR GAS TURBINE ENGINES
Student: Amit Prakash Pandey | Professor: Mauricio De Oliveira

125. RESPONSE OF COMPOSITE MULTIFERROIC RING WITHIN MULTIDIRECTIONAL BIAS MAGNETIC FIELD
Student: Scott William Newacheck | Professor: George Youssef, Prabhakar Bandaru

126. EFFECTS OF LASER PARAMETERS ON A LASER FOCAL SPOT AFTER A PLASMA MIRROR
Student: Brandon Christian Edghill | Professor: Farhat N. Beg

127. INTENSE HOT ELECTRON BEAM FOR SHOCK IGNITION
Student: Shu Zhang | Professor: Farhat N. Beg

128. ISOLATING THE DRIVING MECHANISMS OF LASER-ION ACCELERATION
Student: Joseph Robert Strehlow | Professor: Farhat N. Beg

129. HIGH HEAT FLUX BOILING HEAT TRANSFER THROUGH NANOPOROUS MEMBRANES
Student: Qingyang Wang | Professor: Renkun Chen

130. HIGH-PERFORMANCE AND ENERGY-EFFICIENT PERSONAL THERMO-REGULATION BASED ON FLEXIBLE THERMOELECTRIC DEVICES
Student: Sahngki Hong | Professor: Renkun Chen

131. HIGH-TEMPERATURE SOLAR ABSORBING NANOSTRUCTURES
Student: Elizabeth Branman Caldwell | Professor: Renkun Chen

132. UNDERSTANDING SELECTIVE RECRUITMENT IN BRAIN NETWORKS VIA SYSTEMS THEORY
Student: Erfan Nozari | Professor: Jorge Cortes

133. TRANSLATION OF PEDOT/PARYLENE C ECOG MICROELECTRODE ARRAYS FOR RECORDING AUDITORY COGNITIVE ACTIVITY IN BIRDS
Student: Lorraine Amena Hossain | Professor: Shadi A. Dayeh

134. NEW TRENDS IN MICROGRIDS: DEMAND RESPONSE, OPTIMAL SCHEDULING, AND UNCERTAINTY HANDLING
Student: Amir Valibeygi | Professor: Raymond A. De Callafon

135. COLLECTIVE CELL MIGRATION AND INTERCELLULAR FORCES IN DEVELOPING TISSUES
Student: Ernesto Criado Hidalgo | Professors: Juan Carlos Del Alamo, Juan Lasheras

136. SURFACE ACOUSTIC WAVE (SAW) GUIDING AND STEERING ON LITHIUM NIOBATE
Student: Jiyang Mei | Professor: James R. Friend

137. ULTRAFAST FLUID SPINNING AND PARTICLES CENTRIFUGATION IN A SESSILE DROP USING SURFACE ACOUSTIC WAVES ACTUATION BY NOVEL SPIRAL INTERDIGITAL TRANSDUCERS
Student: Naiqing Zhang | Professor: James R. Friend

138. UNDERSTANDING AND CONTROLLING MICRON-SCALE, ORIFICE-FREE DROPLET PRODUCTION
Student: William James Mcdo Connacher | Professor: James R. Friend

139. SOLAR THERMAL ENERGY STORAGE
Student: Andrew Zigang Zhao | Professor: Javier E. Garay

140. SYNTHESIS, PROCESSING AND OPTICAL CHARACTERIZATION OF FUNCTIONALLY ERBIUM DOPED ALUMINA
Student: Matthew Adalberto Duarte | Professor: Javier E. Garay

141. THE PREPARATION OF NANO-CRYSTALLINE ZIRCONIA WITH TUNABLE OPTICAL & MECHANICAL PROPERTIES
Student: Gottlieb Hangula Uahengo | Professor: Javier E. Garay

142. SLIDING-LAYER LAMINATES: A NEW ROBOTIC MATERIAL ENABLING ROBUST AND ADAPTABLE UNDULATORY LOCOMOTION
Student: Mingsong Jiang | Professor: Nicholas G. Gravish

143. POWER SHARING
Student: Abdulelah Habib | Professors: Jan P. Kleissl, Raymond A. De Callafon

144. AMBIENT EXCITATION BASED MODEL UPDATING FOR STRUCTURAL HEALTH MONITORING VIA DYNAMIC STRAIN MEASUREMENTS
Student: Benjamin Levi Martins | Professor: John B. Kosmatka

145. CONTROL SURFACE OPTIMIZATION FOR LOW-DRAG AIRCRAFT DESIGN
Student: Jeffrey David Mankey | Professor: John B. Kosmatka

146. EXPERIMENTAL DEMONSTRATION OF AN OPEN-CENTERED HYDROKINETIC TURBINE
Student: Spencer Ellis | Professor: John B. Kosmatka

147. BLOBS AND DRIFT WAVE DYNAMICS
Student: Yanzeng Zhang | Professor: Sergei Krasheninnikov

148. NUMERICAL INTEGRATION OF HAMILTONIAN SYSTEMS WITH STOCHASTIC REGIMES OF ELECTRON DYNAMICS IN LASER-PLASMA INTERACTIONS
Student: Alexey Knyazev | Professor: Sergei Krasheninnikov

149. BILATERAL BOUNDARY CONTROL FOR AN UNSTABLE PARABOLIC PDE WITH DISTINCT INPUT DELAYS
Student: Stephen Chen | Professor: Miroslav Krstic

150. BOUNDARY ESTIMATION OF PDES WITH APPLICATIONS TO LITHIUM-ION BATTERIES
Student: Leobardo Camacho Solorio | Professor: Miroslav Krstic

151. MATERIALS PHASE CHANGE CONTROL AND ESTIMATION
Student: Shumon Koga | Professor: Miroslav Krstic

152. PREDICTION-BASED CONTROL OF 7-DOF BAXTER WITH INPUT DELAY
Student: Mostafa Bagheri | Professor: Miroslav Krstic

153. TRAFFIC CONGESTION CONTROL
Student: Huan Yu | Professor: Miroslav Krstic

154. MICROFLUIDIC PLATFORM FOR NEUTROPHIL-LIKE HL60 TRANSENDOTHELIAL MIGRATION IN STATIC CONDITIONS
Student: Amy Beth Schwartz | Professor: Juan C. Lasheras

155. LIQUEFIED GAS ELECTROLYTES FOR ELECTROCHEMICAL ENERGY STORAGE DEVICES
Student: Yangyuchen Yang | Professor: Ying Shirley Meng

156. CHARACTERIZATION OF GULAR SAC TISSUE FOR THE BROWN PELICAN
Student: Seth Conlan Dike | Professor: Marc A. Meyers

157. EXPLORATION OF FRACTURE AND IMPACT RESISTANCE OF BIOLOGICAL MATERIALS
Student: Audrey Josephina Velasco-Hogan | Professor: Marc A. Meyers

158. IMPACT RESISTANCE OF HIGH-ENTRPOY ALLOYS
Student: Zezhou Li | Professor: Marc A. Meyers

159. NON-EQUILIBRIUM SIMULATIONS OF 4H SILICON CARBIDE
Student: Rachel Marie Flanagan | Professor: Marc A. Meyers

160. PROBING THE STRENGH OF IRON AT ULTRA-HIGH PRESSURES AND STRAIN RATES
Student: Joshua Stephan Pelz | Professor: Marc A. Meyers

161. SIMULINK-BASED MULTISCALE MODEL OF THE VISCOELASTIC PROPERTIES OF SKIN
Student: Andrei Pissarenko | Professor: Marc A. Meyers

162. STRUCTURE AND MECHANICAL BEHAVIOR OF ELASMOID FISH SCALES
Student: Haocheng Quan | Professor: Marc A. Meyers

163. PHYSIOCHEMICAL PRINCIPLES OF AMPAR INSERTION IN DENDRITIC SPINES
Student: Miriam Kathleen Bell | Professor: Padmini Rangamani

164. THE ROLE OF TRACTION IN MEMBRANE CURVATURE GENERATION
Student: Haleh Alimohamadi | Professor: Padmini Rangamani

165. TUMBLING, BUCKLING, SNAKING: DYNAMIC TRANSITIONS OF SEMIFLEXIBLE FILAMENTS IN SHEAR FLOW
Student: Brato Chakrabarti | Professor: David Saintillan

166. FLAMES "ON EDGE": WHAT MAKES THEM DANGEROUS
Student: Luca Carmignani | Professor: Kalyanasundaram Seshadri

167. DEVELOPMENT OF AN ARTIFICIAL CORNEA FOR MONITORING INTRAOCULAR PRESSURE IN CORNEAL TRANSPLANT PATIENTS
Students: Phuong Thi Ngoc Truong, Alex Phan, Kerrianne Stewart, Ella Stimson, Buu Truong | Professor: Frank E. Talke

168. HEAD-DISK INTERFACE WEAR REDUCTION ANALYSIS USING HELIUM ENVIRONMENT AND TIP-ENHANCED RAMAN SPECTROSCOPY
Students: Tan Duy Trinh, Benjamin Suen, Andreas Rosenkranz | Professor: Frank E. Talke

169. IN-VIVO INVESTIGATION OF AN INTERFEROMETRIC PRESSURE MEASUREMENT SYSTEM FOR GLAUCOMA MANAGEMENT
Student: Alex Minh Giang Phan | Professor: Frank E. Talke

170. THE ESOPHAGEAL DEFLECTION DEVICE
Students: Karcher William Morris, Scott Garner | Professor: Frank E. Talke

171. TOWARDS RAPID MECHANICAL CUSTOMIZATION OF CM-SCALE SELF-FOLDING AGENTS
Student: William Peter Westondawkes | Professor: Michael T. Tolley

172. OBSERVATIONS ON {332}<113> TWINNING-INDUCED SOFTENING IN TI-NB GUM METAL
Student: Sumin Shin | Professor: Kenneth S. Vecchio

173. STRETCHABLE ULTRASONIC TRANSDUCER ARRAYS FOR THREE-DIMENSIONAL IMAGING ON COMPLEX SURFACES
Student: Hongjie Hu | Professor: Sheng Xu

NANOENGINEERING

174. LIQUID PHASE EPITAXY DOPING FOR HIGH-PERFORMANCE EMITTERS IN SILICON SOLAR CELLS
Student: Tulika Rastogi | Professor: David Fenning

175. THE DEVELOPMENT OF CONTRAST AGENTS FOR IMMUNE CELL TRAFFICKING
Student: Jeanne Elizabeth Lemaster | Professor: Jesse V. Jokerst

176. INTERFACIAL DRAWING OF ULTRA-THIN POLYMER FILMS FOR LARGE-AREA SOLAR TARPS
Student: Rory Runser | Professor: Darren J. Lipomi

177. CONVERSION REACTION SYNTHESIS: A VERSATILE ROUTE TO NANOPOROUS METAL STRUCTURES
Student: Christopher Michael Coaty | Professor: Ping Liu

178. ROLE OF ZR IN STRENGTHENING MOSI2 GRAIN BOUNDARIES FROM DFT CALCULATIONS
Student: Hui Zheng | Professor: Shyue Ping Ong

179. ELECTRO-OPTICAL MECHANICALLY FLEXIBLE (EO-FLEX) NEURALPROBES
Student: Spencer Patrick Ward | Professors: Donald J. Sirbuly, Sadik C. Esener

180. ULTRASENSITIVE NANOFIBER OPTIC FORCE TRANSDUCERS FOR DETECTING NANOMECHANICAL EVENTS
Students: Beril Polat, Yuesong Shi | Professor: Donald J. Sirbuly

181. PLASMON ENHANCED NONLINEAR OPTICAL NANO DEVICE AND MATERIALS
Student: Yuan Zeng | Professor: Andrea R. Tao

182. ADVANCED NON-EQUIATOMIC FENICOALCRB HIGH ENTROPY ALLOY WITH HETEROGENEOUS LAMELLA STRUCTURE SHOWING HIGH STRENGTH AND GOOD DUCTILITY
Students: Cheng Zhang, Chaoyi Zhu | Professor: Kenneth S. Vecchio

183. BULK METALLIC GLASS COMPOSITES WITH CHEMICALLY TUNABLE PHASE FRACTIONS
Student: Kevin Richard Kaufmann | Professor: Kenneth S. Vecchio

184. DISLOCATION-TYPE EVOLUTION IN QUASI-STATICALLY COMPRESSED POLYCRYSTALLINE NICKEL
Student: Chaoyi Zhu | Professor: Kenneth S. Vecchio

185. EVIDENCE OF ELEVATED MELTING TEMPERATURE IN A HIGH-ENTROPY CERAMIC MATERIAL
Student: Olivia Faye Dippo | Professor: Kenneth S. Vecchio

186. INVESTIGATION OF PLASMA-ARC MECHANISM IN HIGH-THROUGH SPARK EROSION
Student: Cameron Chisholm McElfresh | Professor: Kenneth S. Vecchio

187. IRON-ALUMINUM METALLIC-INTERMETALLIC LAMINATE (MIL) COMPOSITES
Student: Haoren Wang | Professor: Kenneth S. Vecchio

188. CONTROLLED HOMO-EPITAXIAL GROWTH OF HYBRID PEROVSKITES
Student: Yusheng Lei | Professor: Sheng Xu

189. ENHANCING FERROELECTRIC DIPOLE ORDERING IN THE ORGANIC-INORGANIC HYBRID PEROVSKITE CH3NH3PBI3: STRAIN AND DOPING ENGINEERING
Student: Yuheng Li | Professor: Kesong Yang

190. FIRST-PRINCIPLES PREDICTION OF TWO-DIMENSIONAL ELECTRON GAS DRIVEN BY POLARIZATION DISCONTINUITY IN NONPOLAR/NONPOLAR AHFO3/SRTIO3 (A = CA, SR, AND BA) HETEROSTRUCTURES
Student: Jianli Cheng | Professor: Kesong Yang

191. POLARIZATION EFFECTS ON THE INTERFACIAL CONDUCTIVITY IN THE LAALO3/SRTIO3 HETEROSTRUCTURE: FIRST-PRINCIPLES STUDY
Student: Maziar Alexander Behtash | Professor: Kesong Yang

192. CANCER CELL MEMBRANE-COATED FOR ANTICANCER VACCINATION
Student: Ashley Victoria Kroll | Professor: Liangfang Zhang

193. MACROPHAGE-LIKE NANOPARTICLES CONCURRENTLY ABSORBING ENDOTOXINS AND PROINFLAMMATORY CYTOKINES FOR SEPSIS MANAGEMENT
Student: Pavimol Angsantikul | Professor: Liangfang Zhang

STRUCTURAL ENGINEERING

194. UNMANNED AERIAL SYSTEMS: NONLINEAR HIGH-FIDELITY AEROELASTIC ANALYSIS
Student: Enrico Santarpia | Professor: Luciano Demasi, Jiun-Shyan Chen

195. PILE RESPONSE TO LIQUEFACTION INDUCED LATERAL SPREADING IN LARGE SCALE SHAKE-TABLE EXPERIMENT
Student: Ahmed Amr Ebeido | Professor: Ahmed-Waeil Elgamal

196. FINITE ELEMENT MODELING AND VALIDATION OF STEEL SHEATHED COLD-FORMED STEEL FRAMED SHEAR WALLS
Student: Amanpreet Singh | Professor: Tara C. Hutchinson

197. AUTOMATIC SEGMENTATION OF X-RAY COMPUTED TOMOGRAPHY FOR COMPOSITE DAMAGE STATE INTERPRETATION
Student: Andrew Cannon Ellison | Professor: Hyonny Kim

198. OPENLSTO: AN OPEN SOURCE LEVEL SET TOPOLOGY OPTIMIZATION CODE
Student: Carolina Miranda Jauregui | Professor: Hyunsun Kim

199. AN INNOVATIVE, INDUSTRY-FOCUSED APPROACH TO UCSD'S STRUCTURAL ENGINEERING CAPSTONE EDUCATION: DESIGN, BUILD, AND TEST COMPOSITE AIRCRAFT WINGS
Students: Tung Nguyen, Mimi Ngo | Professor: John B. Kosmatka

200. COMPARISON OF SCANNING LASER VIBROMETER AND ACCELEROMETERS FOR MODAL TESTING OF LARGE FLEXIBLE STRUCTURES
Student: Andrew Ming Fann | Professor: John B. Kosmatka

201. NON DESTRUCTIVE EVALUATION METHODS FOR DETECTING MAJOR DAMAGE IN INTERNAL COMPOSITE STRUCTURAL COMPONENTS
Students: Margherita Capriotti, Erik Hyungsuk Kim | Professors: Francesco Lanza Di Scalea, Hyonny Kim

202. PUSHING THE LIMITS OF ULTRASONIC IMAGING OF SOLIDS BY WAVE MODE BEAMFORMING AND GPU PROCESSING
Student: Albert Yi-Ling Liang | Professor: Francesco Lanza Di Scalea

203. SOFT MATERIAL ACTUATION THROUGH ULTRASONIC ATOMIZATION
Students: Hanjoo Lee, Morgan Funderburk | Professor: Kenneth J. Loh

204. EVALUATION OF THE THERMAL CONDUCTIVITY OF MUNICIPAL SOLID WASTE USING HEAT EXTRACTION TESTS
Student: Leticia Maria Nocko | Professor: John S. McCartney

205. FINITE ELEMENT ANALYSIS OF MOAT WALL POUNDING IN BASE-ISOLATED BUILDINGS
Student: Patrick Joseph Hughes | Professor: Gilberto Mosqueda

206. PARALLEL PROGRAMMING OF FINITE ELEMENT NUMERICAL SUBSTRUCTURE IN REAL-TIME HYBRID SIMULATIONS
Student: Liqiao Lu | Professor: Gilberto Mosqueda

207. FINITE ELEMENT MODELING OF THE NONLINEAR SEISMIC RESPONSE OF REINFORCED MASONRY STRUCTURES
Student: Andreas Koutras | Professor: Pui-Shum Shing

208. NONLINEAR MODELING OF REINFORCED MASONRY STRUCTURES WITH BEAM-COLUMN ELEMENT
Student: Jianyu Cheng | Professor: Pui-Shum Shing

209. HOW FAR CAN WE GO ABOUT GENERALIZING BEAM THEORY?
Student: Mayank Chadha | Professor: Michael D. Todd

Newton Armstrong	WSP USA
Julio Baez	Cipla BioTec (CBT)
Alejandro Barajas	Envision Engineering
Justin Boggs	Oracle
Jerome Bonhomme	American Specialty Health
Aarash Bordbar	Sinopia Biosciences
Shane Bowen	Illumina
Dick Brehm	AIRSIS
Gregory Chauncey	
Jaime Chen	Kaiser Permanente
Ted Clowes	Cubic
Patrick Coffey	IVD Vision
Patrick Convery	Raytheon
Silvia De Dea	ASML
Nik Devereaux	Viasat
Raheleh Dilmaghani	SSC Pacific
Travis Downing	Southern California Design Co.
Paul Draxler	Qualcomm Technolgies
Robert Ferencz	Lawrence Livermore National Laboratory
Karl Francis	Illumina
Alex Garrigan	NAVAIR
Maryam Gholami	Public Health
Jeff Glasson	Cloudera
Matthew Graham	ASML
Ken Guan	Flowserve
Jason Halsey	Agena Bioscience
Kathy Hayashi	IEEE Women in Engineering / Qualcomm
Matthew Hedayat	STG
Lazaro Herrera	County of San Diego
Leo Holland	General Atomics
David Hutches	UC San Diego
Robin Ihnfeldt	General Engineering & Research
Hwan Jo	Flowserve
Nathan Johnson	WSP USA
Dan Kagan	Scientist.com
Rahul Kapadia	ASML
Ryan Kari	MagCanica

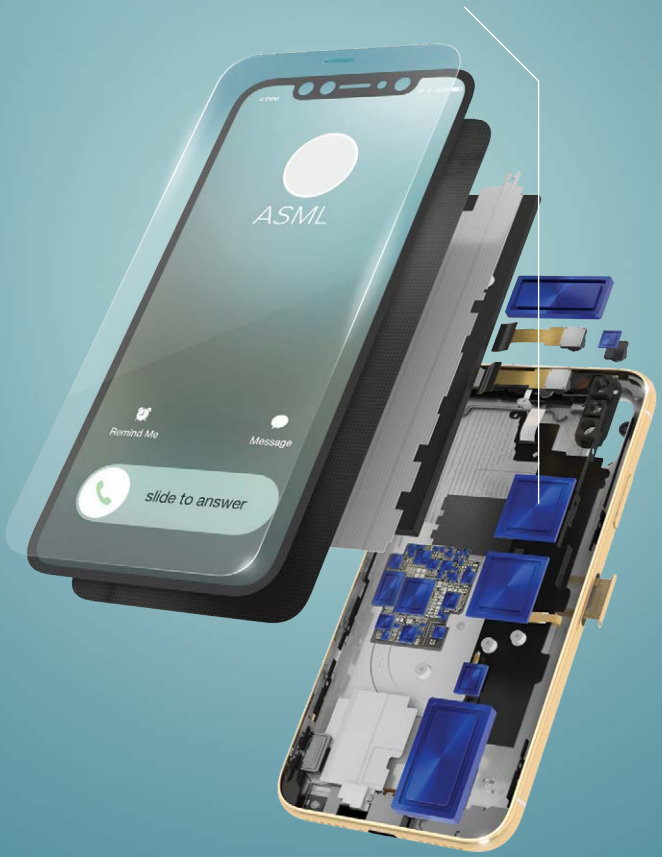
ASML

asml.jobs

Your favorite tech company's favorite tech company.

Be Part of Progress

Enabling chips of the future at nanometer scale.*



*ASML and its products, services, and jobs are not affiliated with or sponsored by any manufacturers of the smart device shown above.

facebook.com/asml twitter.com/asmlcompany linkedin.com/company/asml youtube.com/asmlcompany

Stephan Kemper	Viasat
Sam Knight	UC San Diego Alumni Board of Directors
Kosal Krishnan	Jacobs Engineering Group
Teresa Kruckenberg	UTC Aerospace Systems
Michael Krupp	Neurgain Technologies
Steve Kummerfeldt	Amec Foster Wheeler
Mike Lafferty	Thermo Fisher Scientific
Yan Wei Lim	Helix
Senmao Lin	CliniComp, Intl'
Alen Malaki	Cisco/PnP
Michael Mamaghani	Media Pouch
Brett Marymee	Raytheon Space & Airborne Systems
Janarbek Matai	Cognex
David McElfresh	Oracle
Sami Megally	Kleinfelder
Omez Mesina	ASML
Daniel Nelson	Flowserve
G. G. Padmabandu	ASML
Michael Paquette	Qualcomm
Rob Peabody	Cubic Mission Solutions
Vincent Phillips	Phillips Developments
Luis Pineda	
Gustavo Prado	Xenco Medical
William Proffer	Leidos
Venkat Rangan	Qualcomm Technoligies
Adrian Rocha	Qualcomm Technologies
Enrico Ros	Qualcomm Technologies
Tim Rueth	
Maurice Sabado	Leidos
Aaron Sathrum	General Atomics
Edward Savarese	ImageTech Corporation
Gail Slemon	Northrop Grumman
Tarun Soni	
Jeff Spiegelman	RASIRC
Adriane Stebbins	Raytheon

Viasat is a global communications company that believes everything and everyone can be connected. We need your fearless determination and passionate commitment to develop the ultimate worldwide communications network to power fast, reliable, secure, and affordable connections.

Join us and be the future of Viasat. Career opportunities are available for smart, creative, and resourceful candidates at intern, new graduate, and professional levels.

viasat.com/careers

Viasat

Robert Stone	Northrop Grumman
Eric Takeuchi	DRS Daylight Solutions
Mayank Tiwari	Qualcomm Technologies
Chiang Tom	SPAWAR Systems Center Pacific, SSC Pacific
William Townsend	General Atomics
Jerry Tustaniwskyj	Cohu Inc.
David Voss	Solar Turbines
Steven Wang	JubiAudio
Jiwu Wang	Allele
Jim Wilk	Northrop Grumman
Joshua Windmiller	Biolinq
True Xiong	Sony PlayStation
John Yamauchi	ChemoTactics

JACOBS SCHOOL ACADEMIC DEPARTMENTS

Bioengineering	be.ucsd.edu
Computer Science and Engineering	cse.ucsd.edu
Electrical and Computer Engineering	ece.ucsd.edu
Mechanical and Aerospace Engineering	maeweb.ucsd.edu
NanoEngineering	ne.ucsd.edu
Structural Engineering	structures.ucsd.edu

AGILE RESEARCH CENTERS

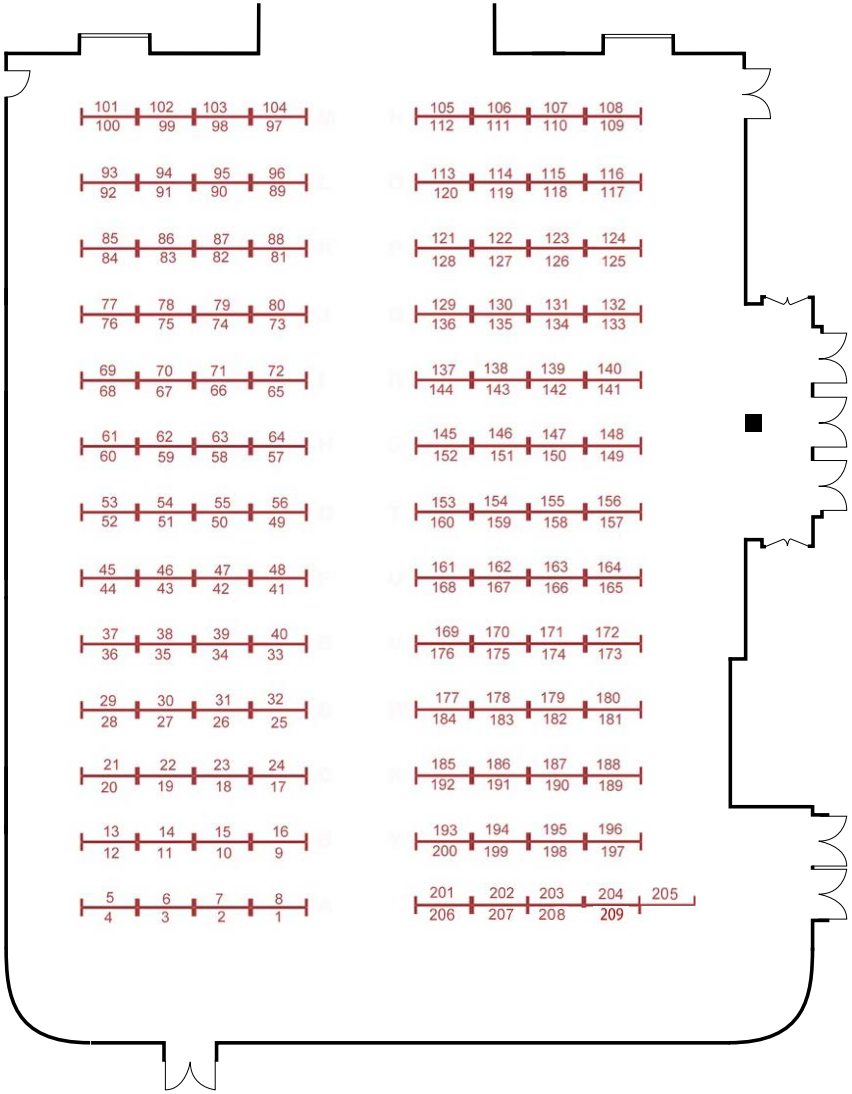
CaliBaja Center for Resilient Materials and Systems	resilientmaterials.ucsd.edu
Center for Engineered Natural Intelligence	CENI.ucsd.edu
Center for Extreme Events Research	CEER.ucsd.edu
Center for Machine-Integrated Computing and Security	MICS.ucsd.edu/
Center for Microbiome Innovation	Microbiome.ucsd.edu
Center for Visual Computing	VisComp.ucsd.edu
Center for Wearable Sensors	WearableSensors.ucsd.edu
CHO Systems Biology Center	CHO.ucsd.edu
Sustainable Power and Energy Center	SPEC.ucsd.edu

AFFILIATED RESEARCH INSTITUTES

Center for Energy Research	CER.ucsd.edu
Center for Memory & Recording Research	CMRR.ucsd.edu
Center for Networked Systems	CNS.ucsd.edu
Center for Wireless Communications	CWC.ucsd.edu
Contextual Robotics Institute	ContextualRobotics.ucsd.edu
Center for Control Systems and Dynamics	CCSD.ucsd.edu
Deep Decarbonization Initiative	DeepDecarbon.ucsd.edu
Information Theory & Applications Center	ITA.ucsd.edu
Institute for the Global Entrepreneur	IGE.ucsd.edu
Institute of Engineering in Medicine	IEM.ucsd.edu
Powell Structural Research Labs	Structures.ucsd.edu
Qualcomm Institute (Calit2 at UC San Diego)	qi.ucsd.edu
San Diego Supercomputer Center	www.sdsc.edu

POSTER SESSION MAP

WEST BALLROOM



ENTRANCE

POSTER NUMBERS

AGILE RESEARCH CENTERS AND INSTITUTES

Sustainable Power and Energy Center	1 – 6, 155
Center for Wearable Sensors	7 – 15
Contextual Robotics Institute	16 – 21 88, 142, 171
Center for Visual Computing	22 – 33
Center for Extreme Events Research	34 – 38
CaliBaja Center for Resilient Materials and Systems	39 – 54

ACADEMIC DEPARTMENTS

Bioengineering	55 – 71
Computer Science and Engineering	72 – 87
Electrical and Computer Engineering	88 – 123
Mechanical and Aerospace Engineering	124 – 173
NanoEngineering	174 – 193
Structural Engineering	194 – 209

PRICE CENTER MAP

Poster Session: Level 2 (West Ballroom)
Faculty Lightning Talks: Level 2 (East Ballroom)
Networking Reception: Level 2 (East Ballroom)
Parking Shuttle: 11 AM – 7 PM