

ELLIS F. MENG

University of Southern California
USC Viterbi School of Engineering
Department of Biomedical Engineering
Denney Research Building 159 (DRB-159)

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1042 Downey Way, 140 DRB
Los Angeles, CA 90089-1111
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ellis.meng@usc.edu

EDUCATION

Doctor of Philosophy, Electrical Engineering January 2003
California Institute of Technology, Pasadena, CA
Thesis Advisor: Yu-Chong Tai, Ph.D.
Thesis Title: MEMS Technology and Devices for a Micro Fluid Dosing System

Master of Science, Electrical Engineering June 1998
California Institute of Technology, Pasadena, CA

Bachelor of Science with Honors, Engineering and Applied Science June 1997
California Institute of Technology, Pasadena, CA

HONORS AND AWARDS

2015 Orange County Engineering Council Distinguished Engineering Merit Award
2014 Fellow, American Institute for Medical and Biological Engineering (AIMBE)
2014 American Society for Engineering Education, Engineering Research Council – Curtis W. McGraw Research Award

2013 2nd Place Student Paper Award, IEEE EMBS Neural Engineering Conference
2013 California Dreamin' Business Plan Competition, 3rd place award
2013 Member, Phi Tau Phi Scholastic Honor Society of America
2013 Maseeh Entrepreneurship Prize Competition 1st place Alumni Choice Award
2013 Best Poster Award, 7th International Conference of Microtechnologies in Medicine and Biology
2013 USC Mellon Mentoring Culture of Mentoring Award
2012 Medical Device and Diagnostic Industry's MedTech 40 under 40
2011 Viterbi School of Engineering Use-Inspired Research Award
2011 NSF I-Corps (Innovation Corps) Award (first class)
2011 TATRC/Qualcomm Wireless Health Innovation Challenge Winner
2011 Invited Participant in Women's International Research Engineering Summit
2010 Innovative Young Engineering Educator selected for participation in National Academies Frontiers of Engineering Education Symposium

2010 Participant in President's Innovation and Technology Advisory Committee (PITAC)/President's Council of Advisors on Science and Technology (PCAST) Workshop on Nano, Bio, and Info Technology Infrastructure

2010 USC Stevens Center for Innovation Ideas Empowered Program Winner (first class)
2009 Technology Review Young Innovators Under 35
2009 IEEE Senior Member
2009 Best Paper Award, 15th International Conference on Solid-State Sensors, Actuators & Microsystems (Transducers 2009)

2009 Nomination for Denice Denton Emerging Leader Award
2008 Wallace H. Coulter Foundation Early Career Award
2008 Nomination for AAAS Mentor Award
2008 Nomination for NSF A.T. Waterman Award
2008 Nomination for Denice Denton Emerging Leader Award
2007-2009 Viterbi Early Career Chair
2006 Best Student Poster Award, 10th Micro Total Analysis System Conference
2006 NSF CAREER Award
2005 Nomination for Packard Foundation Fellowship
2004 3rd Place Student Paper Award, IEEE EMBS Conference
2004 Charles Lee Powell Foundation Award
2004 University of Southern California Women in Science and Engineering Award
1997 Caltech Special Institute Fellowship
1997 Caltech Alumni Association Donald S. Clark Award
1996 College Women's Club of Pasadena Scholarship
1996 Intel Women in Science and Engineering (WISE) Scholar

1996 Member, Tau Beta Pi

WORK EXPERIENCE

7/15-present University of Southern California Los Angeles, CA
Dwight C. and Hildagarde E. Baum Chair, Department of Biomedical Engineering

11/13-present University of Southern California Los Angeles, CA
Director, Biomedical Microsystems Laboratory
Professor, Department of Biomedical and Electrical Engineering

07/10-07/15 University of Southern California Los Angeles, CA
Chair, Women in Science and Engineering Program, Viterbi School of Engineering

04/10-11/13 University of Southern California Los Angeles, CA
Director, Biomedical Microsystems Laboratory
Associate Professor, Department of Biomedical and Electrical Engineering

07/04-04/10 University of Southern California Los Angeles, CA
Director, Biomedical Microsystems Laboratory
Assistant Professor, Department of Biomedical and Electrical Engineering
Viterbi Early Career Chair

01/04-06/04 Berkeley Sensor and Actuator Center, University of California Davis, CA
Assistant Director

10/03-06/04 University of California Davis, CA
Assistant Professor, Department of Mechanical and Aeronautical Engineering
Assistant Professor, Electrical and Computer Engineering Graduate Group

10/03-04/08 California Institute of Technology Pasadena, CA
Visiting Associate

02/03-10/03 California Institute of Technology Pasadena, CA
Postdoctoral Scholar
Advisors: Yu-Chong Tai, Ph.D. and Jerome Pine, Ph.D.

07/98-02/03 California Institute of Technology Pasadena, CA
Graduate Research Assistant
Advisor: Yu-Chong Tai, Ph.D.

04/97-07/97 California Institute of Technology Pasadena, CA
Undergraduate Research Assistant
Advisor: Yu-Chong Tai, Ph.D.

07/96-09/96 NIPPONDENSO Co., Ltd. Kariya-shi, Aichi-ken, Japan
Caltech-Japan Summer Intern

01/95-10/95 California Institute of Technology Pasadena, CA
Undergraduate Research Assistant
Advisors: Harry A. Atwater, Ph.D.

06/94-12/94 California Institute of Technology Pasadena, CA
Caltech Summer Undergraduate Research Fellow

OTHER WORK EXPERIENCE

01/10-present Co-Founder and Chief Scientific Officer Los Angeles, CA
Fluid Synchrony LLC

08/03-07/06 California Institute of Technology Pasadena, CA
Resident Associate in Off-Campus Housing

08/99-08/03 California Institute of Technology Pasadena, CA
Resident Associate in Lloyd House

11/00-03/02 California Institute of Technology Pasadena, CA
Assistant Coach (for Caltech NCAA Division III Womens' Basketball Team)

07/95-09/95 California Institute of Technology Pasadena, CA
Caltech Young Engineers and Science Scholars (YESS) Program Counselor

TEACHING EXPERIENCE

10/95-03/02 California Institute of Technology Pasadena, CA
Teaching Assistant
APh 9 Solid-State Electronics for Integrated Circuits; Instructor: Axel Scherer, Ph.D.

08/01-10/01 California Institute of Technology Pasadena, CA
Research Mentor (for Caltech Freshman Summer Institute Program)

01/98-03/98 California Institute of Technology Pasadena, CA
Teaching Assistant
APh 77 Laboratory in Applied Physics; Instructor: Stephen Quake, Ph.D.

04/98-06/98 California Institute of Technology Pasadena, CA
Teaching Assistant
EE 90 Analog Electronics Project Laboratory; Instructor: Barry Megdal, Ph.D.

07/98-09/98 California Institute of Technology Pasadena, CA
Young Engineers and Science Scholars (YESS) Program Instructor

COURSES TAUGHT

- Fall 2013, ENGR 101: Introduction to Engineering, USC
- Fall 2013-14, BME 551: Introduction to Bio-MEMS and Nanotechnology, USC
- Fall 2006-08, 2011-12, ENGR 102: Engineering Freshman Academy, USC
- Fall 2005-09, 2012-13, 2015; Spring 2011-12, 2015, BME 451: Fundamentals of Biomedical Microdevices, USC
- Spring 2005-11, BME 650: Biomedical Measurement and Instrumentation, USC
- Winter 2004, EME 165: Fundamentals of Heat Transfer, UC Davis
- Spring 2003, EE 40: Introduction to Solid-State Sensors and Actuators (co-taught with Y.C. Tai), Caltech

COURSES DEVELOPED

- Fall 2006, ENGR 102: Engineering Freshman Academy, USC
- Fall 2005, BME 451: Fundamentals of Biomedical Microdevices, USC
- Spring, 2005, BME 650 Biomedical Measurement and Instrumentation, USC

INVITED LECTURES

- Fall 2004, BME 551: Introduction to Bio-MEMS and Nanotechnology, 1 lecture
- Fall 2007, 2009-10 BME 452: Introduction to Biomimetic Neural Engineering, 1 lecture
- Fall 2007-8, ENGR 150L: Engineering Science and Systems: From Humans to Robots, 4 lectures
- Fall 2009, ENGR 101: Introduction to Engineering, 1 lecture
- Fall 2009, ENGR 102: Engineering Freshman Academy, 2 lectures
- Fall 2009, (Keck School of Medicine) Medicine at the Benchtop and Bedside, 1 lecture
- Spring 2010, EE 454 (Cal State Los Angeles) Biomedical Signal Processing, 1 lecture
- Spring 2012, BAEP 557: Technology Commercialization, 1 lecture
- Spring 2015, BME 201: Biomedical Engineering Practice, 1 lecture
- Fall 2015, ENGR 101: Introduction to Engineering, 1 lecture

GRADUATE STUDENT SUPERVISION

Member of Thesis Committee

1. Benny Chen, "Selective Deposition of Polymer Coatings onto Structured Surfaces," Ph.D. in Chemical Engineering, University of Southern California, 2015, thesis advisor: Malancha Gupta.
2. Adriana Nicholson Vest, "Electronics Design and In Vivo Evaluation of a Wirelessly Rechargeable Fetal Micropacemaker," Ph.D. in Biomedical Engineering, University of Southern California, 2015, thesis advisor: Gerald Loeb.
3. Philip Kwong, "The Patterning of Polymer Thin Films on Porous Substrates via Initiated Chemical Vapor Deposition," Ph.D. in Chemical Engineering, University of Southern California, 2014, thesis advisor: Malancha Gupta.

4. Anna Rissanen, "Microsystems for Biological Cell Characterization," Ph.D. in Electrical Engineering, Aalto University, Finland, 2012
5. David Hyung Ham Kim, "Array Transducers for High Frequency Ultrasound Imaging," Ph.D. in Biomedical Engineering, University of Southern California, 2010, thesis advisor: Kirk Shung.
6. Jong Seob Jeong, "Transducers and Signal Processing Techniques for Simultaneous Ultrasonic Imaging and Therapy," Ph.D. in Biomedical Engineering, University of Southern California, 2010, thesis advisor: Kirk Shung.
7. Lisong Ai, "Spatial Mapping of Real-time Quantitative Shear Stress with Vascular Oxidative Stress," Ph.D. in Biomedical Engineering, University of Southern California, 2009, thesis advisor: Tzung Hsiai.
8. Brooke Basinger, "Modeling Retinal Prosthesis Mechanics," Ph.D. in Biomedical Engineering, University of Southern California, 2009, thesis advisor: Jim Weiland.
9. Nick Lo, "Thin Film Silicon for Implantable Electronics," Ph.D. in Electrical Engineering, California Institute of Technology, 2008, thesis advisor: Yu-Chong Tai.
10. Po-Jui Chen, "Implantable Wireless Intraocular Pressure Sensors," Ph.D. in Electrical Engineering, California Institute of Technology, 2008, thesis advisor: Yu-Chong Tai.
11. Kinon Chen, "Soft Tissue Characterization for Improving Surgical Procedures," Ph.D. in Biomedical Engineering, University of Southern California, 2008, thesis advisor: Jim Weiland.
12. Shivaram Selvam, "An *in vitro* Evaluation of Various Biomaterials for the Development of a Tissue-engineered Lacrimal Gland," Ph.D. in Chemical Engineering, University of Southern California, 2008, thesis advisor: Sam Yiu.
13. Mahsa Rouhanizadeh, "Interfacing Fluid Shear Stress with Vascular Oxidative Stress: Application of Nano and Micro Sensors," Ph.D. in Biomedical Engineering, University of Southern California, 2007, thesis advisor: Tzung K. Hsiai.
14. Jin Ho Chang, "Development of a Back-End Processing System for High Frequency Ultrasound B-Mode Imaging," Ph.D. in Biomedical Engineering, University of Southern California, 2007, thesis advisor: Kirk K. Shung.
15. Rachel Bitton, "A High Frequency Array-Based Photoacoustic Microscopy Imaging System," Ph.D. in Biomedical Engineering, University of Southern California, 2007, thesis advisor: Kirk K. Shung.
16. Damien Rodger, "Development of Flexible Parylene-based Microtechnologies for Retinal and Spinal Cord Stimulation and Recording," Ph.D. in Bioengineering, California Institute of Technology, 2007, thesis advisor: Yu-Chong Tai.
17. Tina Givrad, "Induction Power Microbolus Infusion Pump Used for Functional Neuroimaging Applications in Rodents," Ph.D. in Biomedical Engineering, University of Southern California, 2007, thesis advisor: David D'Argenio, Jean-Michel Maarek.
18. Chuang-Yuan Lee, "Acoustic Ejector Employing Lens with Air-Reflectors and Piezoelectrically Actuated Tunable Capacitor," Ph.D. in Electrical Engineering, University of Southern California, 2007, thesis advisor: Eun Sok Kim.
19. Angela Tooker, "Development of Biocompatible Parylene Neurocages for Action Potential Stimulation and Recording," Ph.D. in Electrical Engineering, California Institute of Technology, 2007, thesis advisor: Yu-Chong Tai.
20. Scott Miserendino, "A Modular Microfluidic Approach to Nano High-Performance Liquid Chromatography with Electrochemical Detection," Ph.D. in Electrical Engineering, California Institute of Technology, 2007, thesis advisor: Yu-Chong Tai.
21. Ashmita Gaur, "Intensity Discrimination in Single and Multi-Electrode Patterns in Cochlear Implants," M.S. in Biomedical Engineering, University of Southern California, 2007, thesis advisor: Robert Shannon.
22. Jungwoo Lee, "Theoretical Analysis of Single Beam Acoustic Tweezer using High Frequency Focused Ultrasound," Ph.D. in Biomedical Engineering, University of Southern California, 2006, thesis advisor: Kirk K. Shung.
23. Jongrit Lerdworatawee, "Low Noise Amplifier and Mixer Design Techniques for the Ultra Wideband Radio," Ph.D. in Electrical Engineering, University of Southern California, 2005, thesis advisor: Won Namgoong.
24. Matt Liger, "Uncooled Carbon Microbolometer Imager," Ph.D. in Electrical Engineering, California Institute of Technology, 2005, thesis advisor: Yu-Chong Tai.

Postdoctoral Fellows Advised

Jonathan Kuo, 2014 – now at Cepheid
 Kee Scholten, 2015-present

Thesis Advisor

Po-Ying Brian Li, "Implantable BioMEMS Drug Delivery Systems," Ph.D. in Electrical Engineering – Electrophysics, 2009. – now at Alcon
Ronalee Lo[^], "Reusable BioMEMS: An Intraocular Drug Delivery Device and Microfluidic Interconnects," Ph.D. in Biomedical Engineering, 2009. – now at Tesla Motors
Christian Gutierrez*, "Development of Flexible Polymer-Bsed MEMS Technologies for Integrated Mechanical Sensing in Neuroprosthetic Systems," Ph.D. in Biomedical Engineering, 2011. – now at Google Life Sciences
Jonathan Kuo, "Development of Micromachined Technologies for Neural Interfaces," Ph.D. in Biomedical Engineering, 2013. – now at Cepheid
Heidi Gensler[^], "A Wireless Implantable MEMS Micropump System for Site-Specific Anti-cancer Drug Delivery," Ph.D. in Biomedical Engineering, 2013. – now at Theranos
Roya Sheybani[^], "Wireless Electrochemical Drug Delivery Micropump with Fully Integrated Electrochemical Dose Tracking Feedback System," Ph.D. in Biomedical Engineering, 2015. – now at Brown University
Curtis Lee, "Strategies for Improving Mechanical and Biochemical Interfaces Between Medical Implants and Tissue," Ph.D. in Biomedical Engineering, 2015. – now at USC Keck School of Medicine
Seth Hara, "Electrochemical Evaluation of Parylene-based Electrodes for Neural Applications," Ph.D. in Biomedical Engineering, 2015. – now at Mayo Clinic
Brian Kim, "Development of Implantable Parylene-based MEMS Technologies for Cortical Applications," Ph.D. in Biomedical Engineering, 2015. – now at Google Life Sciences

Alexander Baldwin, Department of Biomedical Engineering
Angelica Cobo^{^*}, Department of Biomedical Engineering
Jessica-Lizbeth Ortigoza-Diaz[^], Department of Biomedical Engineering
Ahuva Weltman[^], Department of Biomedical Engineering
Lawrence Yu, Department of Biomedical Engineering

Rotation Advisor

Alice Cho[^], 2007-2008, Department of Biomedical Engineering
Gabriela Mallén-Ornelas^{^*}, 2007-2008, Department of Biomedical Engineering
Heidi Gensler, 2008-2009[^], Department of Biomedical Engineering
Nadav Izvan, 2008-2009, Department of Biomedical Engineering
Jonathan Kuo, 2008-2009, Department of Biomedical Engineering
Man Nguyen, 2008-2009, Department of Biomedical Engineering
Sadaf Soleymani, 2008-2009[^], Department of Biomedical Engineering
Guru Sundar, 2008-2009, Department of Biomedical Engineering
Vijay Srinivasan, 2009, Department of Biomedical Engineering
Jinhyoung Park, 2009, Department of Biomedical Engineering
Sirish Nandyala, 2009-2010, Department of Biomedical Engineering
Seth Hara, 2009-2010, Department of Biomedical Engineering
Curtis Lee, 2009-2010, Department of Biomedical Engineering
Jun Seob Shin, 2009-2010, Department of Biomedical Engineering
Brian Kim, 2010-2011, Department of Biomedical Engineering
Roya Sheybani, 2010-2011[^], Department of Biomedical Engineering
Lawrence Yu, 2011-2012, Department of Biomedical Engineering
Nestor Cabrera Munoz, 2011*, Department of Biomedical Engineering
Adriana Nicholson, 2012[^], Department of Biomedical Engineering
Yu Chen, 2012, Department of Biomedical Engineering
Chris Ramos, 2012, Department of Biomedical Engineering
Angelica Cobo^{^*}, 2013, Department of Biomedical Engineering
Li Zhou, 2013, Department of Biomedical Engineering
Alex Baldwin, 2013, Department of Biomedical Engineering
Alejandra Gonzalez Calle[^], 2013, Department of Biomedical Engineering
Xuecheng Huang, 2014, Department of Biomedical Engineering
Ahuva Weltman[^], 2014, MD/PhD Program
Jessica Ortigoza-Diaz[^], 2014 Department of Biomedical Engineering
Christopher Girard, 2015, Department of Biomedical Engineering
Eugene Yoon, 2015, Department of Biomedical Engineering
James Yoo, 2015, Department of Biomedical Engineering
Trevor Hudson, 2015, Department of Biomedical Engineering

Visiting Students

Christoffer Abrahamsson, Chalmers University of Technology, Gothenburg, Sweden
Aziliz Lecomte[^], University of Toulouse, Toulouse, France

MASTERS STUDENT SUPERVISION (5 STUDENTS)

Kartikeya Gupta (USC)
Mei Nickles (USC^{^*})
Roya Sheybani (USC[^])
Michael Wang (USC)
Lawrence Yu (USC)

UNDERGRADUATE STUDENT SUPERVISION (115 STUDENTS)

Tim Abram (Cal Poly SLO)	Longpeng Jiao (USC)	Saachi Pole (USC [^])
Bonnie Adams (USC [^])	Aduragbemi Jibodu (USC)	Madelina Pratt (USC [^])
Erik Aguillon (USC [*])	Willa Jin (USC [^])	“Ewina” Tsam Kiu Pun (USC [^])
Alex Alvarado (USC [*])	David Johnson (USC)	Francisco Rebolledo (U Veracruzana)
Asha Anderson (USC ^{^*})	Christopher Jones (USC)	Anugraha Rajendra (USC [^])
Brock Andrews (USC)	Louis Jug (USC)	Daniela Saldana (USC ^{^*})
Nethika Ariyashinghe (USC [^])	Brian Kim (Duke)	Artin Sarraf (USC)
Tim Auran (USC)	Jason Kim (Northwestern)	Sundeeep Sampath (UC Berkeley)
Kevin Barr (USC)	David King (USC)	Tania Sanchez (UNAM ^{^*})
Jennifer Benbow (USC [^])	Chris Koo (Harvey Mudd)	Briana Savage (USC ^{^*})
James Chan (USC)	Nithya Kubendran (USC [^])	Roya Sheybani (USC [^])
Neiloy Chaudhuri (USC)	Swarun Kulasekaran (USC)	Bryan Sheu (U. Texas)
Christina Chen (USC [^])	Wunna Kyaw (USC)	Kim Swertfager (USC [^])
Heather Chen (USC [^])	Christopher Larson (USC)	Jordan Talia (U. Michigan)
Jason Chen (USC)	Kalan Leaks (USC [*])	Alexander Tarashansky (USC)
Erica Chiu (USC [^])	Benjamin Lee (UC Berkeley)	Velin Tchalakov (USC)
Diana Ciontea (USC [^])	Connie Li (USC [^])	Margo Tomka (USC [^])
Jonathan Cohan (Cornell)	Ryan Loomba (USC)	Luis Torres (USC [*])
Jay Creech (USC)	Matthew Louie (USC)	Eng Tran (USC [^])
Travis Dang (USC)	Ryan Louie (USC)	Jayburt Tsang (USC)
Jon Dawson (USC)	Fanglu Lu (Tsinghua U.)	Aye Thu (USC [^])
Jia Han Deng (USC [^])	Kristi Lu (USC [^])	Jorge Vázquez-Alvarez (UNAM [*])
Iwari DeWees (USC [*])	Paul Luna (USC [*])	Michael Wang (USC)
Yakshita Desai (USC [^])	Connor McCarty (USC)	Zhihui Wang (Tsinghua U. [^])
Catherine Desmond (USC [^])	Kara Malhotra (Cornell [^])	Lilian Ware (USC [^])
Jordan Domanico (USC)	Danielle Meder (U Mass Amherst [^])	Peter Washabaugh (U Michigan)
Diya Dwarakanath (USC [^])	Jeff Meng (U. Michigan)	Eric Welder (Stanford)
Sahar Elyahoodayan (USC [^])	Jeremy Middleton (USC)	Joy Wong (USC [^])
Jared Fleitman (USC [*])	Dibya Deepta Mishra (IIT)	Brian Wu (USC)
Stephanie Fong (USC [^])	Jacqueline Molina (USC ^{^*})	William Wu (USC)
Jason Geathers (U. Michigan [*])	Mei Nickles (USC ^{^*})	Arwen Wyatt-Mair (USC [^])
Daniela Gergley (USC [^])	Jeffrey Nishida (USC)	Andy Xie (U. Connecticut)
Amreeta Gill (MIT [^])	Tina Nguyen (Texas A&M)	Hsiu Michael Yang (USC)
SriVaishnavi Gomatham (IIT Madras [^])	Scott Nomura (USC)	Lawrence Yu (USC)
Maneesh Gujrati (U Miami)	Sarah Norgaard (USC [^])	Yuanxi Zhang (Tsinghua U.)
Dewi Harjanto (Olin College [^])	Nehi Ogbevoen (USC [*])	Lingyun Zhao (Tsinghua U.)
Audrey Harker (USC [^])	Jessica Ortigoza Díaz (UNAM ^{^*})	Evan Zhou (USC)
Lynn Jane Ho (USC [^])	Janice Park (USC [^])	
Van Hoang (U Maryland [^])	Mrinal Pawha (U. Minnesota)	
Jason Hoffman (USC)	Kelly Phillips (USC [^])	
Brandon Hui (USC)		

* Designates underrepresented minority

[^] Designates female

HIGH SCHOOL STUDENT SUPERVISION (10 STUDENTS)

Shirley Duong (UCLA [^])	Alexia Sabogal ([^])	Alex Tang (Henry M. Gunn HS)
Erin Lee (Polytechnic High School [^])	Lauren Schurmeier (UC Santa Cruz [^])	Kevin Thompson (UC Berkeley)
Sally Mouakkad (UC Irvine [^])	Leo Siow (Wilson HS)	Lilian Tran (Stanford [^])
		Wilma Wong (UC Irvine [^])

HIGH SCHOOL TEACHER SUPERVISION (6 TEACHERS)

Allison Mitchell (Francisco Bravo Medical Magnet HS[^])
Ralph Gomez (APEX Academy HS*)
Brendan Gonzales (Manual Arts HS*)
Craig Gross (Foshay Learning Center HS*)
Isabel Baeza (Diego Rivera Learning Complex[^]*)
Duke Alloh (Inglewood High School*)

RESEARCH GRANTS & PROJECTS**Current Funding**

6/15/15 – 6/14/16 Non-invasive Validation of an Integrated Multi-Sensor Platform for Quantitative Monitoring of Intracranial Pressure, Cerebrospinal Fluid Flow, and Ventricular Catheter Patency
Rudi Schulte Research Institute
Total Costs: \$41,535.75
Contributions: Co-PI (0% effort)

3/31/15-3/30/18 Lyse-and-Attract Cuff Electrodes (LACE)
DARPA
Total Costs: \$350,181
Contributions: PI (8% effort)

5/15 Supplemental Research Award
Women in Science and Engineering Program
Total Costs: \$3,500
Contributions: PI (0% effort)

4/1/12-3/31/16 The USC-Coulter Translational Research Partners Program in Biomedical Engineering
Wallace Coulter Foundation
Total Costs: \$2,668,000
Contributions: PI (0%) starting 1/1/15

8/15/14-7/31/18 INSPIRE: Bioelectronic Systems for Investigating Neural Plasticity
NSF CBET-1343193
Total Costs: \$2,999,995
Contributions: Co-I (8%)

5/1/14-4/30/16 Therapy for leptomeningeal medulloblastoma by a novel implantable pump
NIH/NINDS R21NS088965
Total Costs: \$462,166
Contributions: Co-I (3%)

10/1/13-9/30/17 EFRI-BioFlex: Hybrid polymer-paper based multi-sensor implants for continuous remote monitoring
NSF EFRI-1332394
Total Costs: \$2,000,000
Contributions: PI (8% effort)

9/1/13-2/28/16 PFI: AIR Technology Translation – Wireless control of distributed and implanted micro infusion pumps
NSF IIP-1343467
Total Costs: \$150,000
Contributions: PI (8% effort)

7/1/13-12/30/15 Self-Aware Hydrocephalus Shunts
USC Coulter

Total Costs: \$30,000
Contributions: Co-PI (0% effort)

8/20/12-6/30/2016 Wirelessly-Operated Implantable MEMS Micropumps for Drug Infusion in Mice
NIH/NIGMS R21GM104583
Total Costs: \$562,028
Contributions: PI (8% effort)

7/1/12-12/30/15 Novel drug infusion pump enabling sustained intrathecal delivery of topotecan for
leptomeningeal metastasis in pediatric patients
USC Coulter
Total Costs: \$193,626
Contributions: Co-PI (0% effort)

8/15/12-7/31/16 Trapped Microbubbles in Polymer MEMS Microcapsules as a Novel Pressure Sensing
Principle Based on Electrochemical Impedance Transduction
NSF ECCS-1231994
Total Costs: \$323,451
Contributions: PI (8% effort)

10/1/10-9/30/15 Center for Dark Energy Biosphere Investigations (C-DEBI)
NSF STC
Total Costs: \$0
Contributions: Investigator (K. Edwards, PI)

Pending Funding

Sensory Plasticity and Neurotechnology (SPAN) Science and Technology Center
NSF
Contributions: Co-Investigator

Past Funding

4/01/05-4/01/07 Implantable Glaucoma Devices and Ocular Drug Delivery System
Bausch and Lomb
Total Costs: \$285,000
Contributions: Investigator (8% effort) (M. Humayun, PI; Y.C. Tai, R. Agrawal, W. Fink, Co-Is)

7/01/05-6/30/09 R01NS050171: Microinfusion Pump for Animal Functional Brain Mapping
NIH/NINDS
Total Costs: \$28,447
Contributions: Investigator (4% effort) (D. Holschneider, PI)

1/06 Geobiological Interface Imaging and Microfluidics (GIIM)
USC College Initiative
Total Costs: \$20,000
Contributions: Investigator (0% effort) (W. Berelson, PI; K. Edwards, F. Corsetti, T. Pottebaum, K. Neilson, Co-PIs)

5/1/07-4/30/09 R21EB005202: Development of Acoustic Tweezers
NIH/NIBIB
Total Costs: \$23,700
Contributions: Investigator (5% effort) (K.K. Shung, PI)

9/1/07-8/30/10 R21EY018490: Implantable MEMS Drug Delivery Device for Glaucoma Management
NIH/NEI
Total Costs: \$451,637
Contributions: PI (4% effort) (M. Humayun & R. Varma, Co-PIs)

2008-2009 Center for Deep Energy Biosphere Investigations
James H. Zumberge Faculty Research & Innovation Fund, Multi-School Interdisciplinary Research Grants
Total Costs: \$50,000
Contributions: Co-PI (0% effort) (with K. Edwards)

11/08 Junior Faculty Development Fund
Viterbi School of Engineering

Total Costs: \$1,875

Contributions: PI (0% effort)

12/08 Supplemental Research Award
Women in Science and Engineering Program

Total Costs: \$2,500

Contributions: PI (0% effort)

2009 Radiation Dose Reduction: A Novel Approach

L.K. Whittier Foundation

Total Costs: \$50,000

Contributions: Investigator (U. Sinha, PI)

11/09 Junior Faculty Development Fund

Viterbi School of Engineering

Total Costs: \$2,425.35

Contributions: PI (0% effort)

12/09 Supplemental Research Award
Women in Science and Engineering Program

Total Costs: \$2,500

Contributions: PI (0% effort)

2009-2010 Development of C-DEBI: an NSF-sponsored Center for Dark Energy Biosphere Investigations

James H. Zumberge Faculty Research & Innovation Fund, Multi-School Interdisciplinary Research Grants

Total Costs: \$50,000

Contributions: Co-PI (0% effort) (with K. Edwards)

12/10 Supplemental Research Award
Women in Science and Engineering Program

Total Costs: \$2,500

Contributions: PI (0% effort)

8/15/09-8/14/11 R21DA026970: Implantable Minipump for Tetherless Drug Self-Administration in Mice
NIH/NIDA

Direct Costs: \$100,000/year

Contributions: Investigator (4% effort) (D. Holschneider, PI)

11/20/09-11/19/11 New Biomimetic Technology for "Just-In-Time" Delivery of Anti-Convulsants Following
Traumatic Brain Injury

CURE Foundation

Total Costs: \$244,846

Contributions: Co-Investigator (S. Lee, PI)

4/1/06-3/31/12 ECS-0547544: CAREER: Biologically-Inspired Polymer MEMS for Bi-Directional Neural
Interfaces

NSF Early Career Award

Total Costs: \$400,000

Contributions: PI (4% effort)

8/15/09-8/14/12 R21HD065287: An Ex-Vivo Placental Perfusion System to Study Materno-fetal Biology
NIH/NIMH

Total Costs: \$487,250

Contributions: Investigator (4% effort) (A. Bonnin, PI)

8/1/08-7/31/12 Implantable MEMS Drug Delivery Device for Sustained Administration of Neurotrophic Factors
to Treat Retinitis Pigmentosa

Wallace H. Coulter Foundation Early Career Translational Research Award;

Total Costs: \$290,000

Contributions: PI (4% effort) (R. Agrawal, Co-PI)

10/7/11-10/6/12 Wireless Drug Delivery System for Remote Chronic Pain Management

TATRC/Qualcomm Wireless Health Innovation Challenge

Total Costs: \$92,000

Contributions: PI (0% effort)

2011-2012 Electrical Signaling in Microbial Communities

James H. Zumberge Faculty Research & Innovation Fund, Multi-School Interdisciplinary Research Grants

Total Costs: \$0

Contributions: Co-Investigator (M. El-Naggar & U. Mitra, PIs)

1/12 Supplemental Research Award

Women in Science and Engineering Program

Total Costs: \$2,500

Contributions: PI (0% effort)

10/1/11-3/31/13 IIP-1157852: Establishing an innovation ecosystem for technology transition of MEMS-based drug infusion pumps

NSF

Total Costs: \$50,000

Contributions: PI (0% effort)

5/15/12-6/30/13 An Undergraduate Research Experience in Biomedical Microdevices for Treating Hydrocephalus

Undergraduate Research Associates Program

Total Costs: \$6,600

Contributions: PIP (0% effort)

5/15/12-6/30/13 Enhancing Student Learning in BME 451: Fundamentals of Biomedical Microdevices Fund for Innovative Undergraduate Teaching

Total Costs: \$7,500

Contributions: PI (0% effort)

1/1/13-12/31/13 Wirelessly Operated Implantable Infusion Micropump for On-demand Drug Administration in Laboratory Animals

NSF SBIR IIP-1248956

Total Costs: \$150,000

Contributions: Senior Personnel (4% effort)

9/29/11-3/29/14 N66001-11-1-4207: Polymer MEMS Hybrid Fascicle Microelectrode Array for Reliable Cortical Interface

DARPA/RCI

Total Costs: \$1,665,708

Contributions: PI (25% effort)

1/13 Supplemental Research Award

Women in Science and Engineering Program

Total Costs: \$2,500

Contributions: PI (0% effort)

4/1/13-3/31/14 2013 Microtechnologies in Medicine and Biology Conference

NSF CBET-1314901

Total Costs: \$5,000

Contributions: PI (0% effort)

8/15/12-9/15/13 Engineering the on-demand generation of chemical gradients for biological studies

USC Zumberge Interdisciplinary Grant

Total Costs: \$30,000 (including \$5,000 Viterbi School of Engineering cost share)

Contributions: Co-PI (0% effort)

5/22/12-5/21/14 Major Faculty Support

Women in Science and Engineering Program

Total Costs: \$21,000

Contributions: PI (0% effort)

5/29/12-6/1/14 Novel Paper-Polymer Composites for 3D Low-Cost Biomedical Sensors

USC Viterbi Research Innovation Fund

Total Costs: \$10,000

Contributions: Co-PI (0% effort)

9/01/03-8/31/14 EEC-0310723: An Engineering Research Center for Biomimetic Microelectronic Systems
NSF

Total Costs: \$562,489

Contributions: Investigator (8% effort) (M. Humayun, PI)

Leadership Roles: Team Member (Implantable Retinal Prosthesis Testbed), Thrust Leader (Interface
Technology Thrust), Associate Director of Education and Student Diversity

1/1/11-12/31/14 High Performance Fluid Synchrony Drug Micropumps: Delivery of the Right Dose at the Right
Time

USC Ideas Empowered Program

Total Costs: \$60,000

Contributions: PI (0% effort)

6/13/13-2/1/15 Development of Sample Concentration and Preparation Module, an Integral part of a future
MEMS device

JPL #1483834

Total Costs: \$10,000

Contributions: PI (% effort)

2/14 Supplemental Research Award

Women in Science and Engineering Program

Total Costs: \$3,500

Contributions: PI (0% effort)

PROFESSIONAL MEMBERSHIP

Current

- American Institute for Medical and Biological Engineering (AIMBE)
- American Society of Engineering Education (ASEE)
- American Society of Mechanical Engineers (ASME)
- Biomedical Engineering Society (BMES)
- Chinese International Nanotechnology Network (CINN)
- Institute of Electrical and Electronics Engineers (IEEE) – Senior Member
 - Electron Devices Society
 - Engineering in Medicine and Biology
- Society for Neuroscience (SfN)
- Phi Tau Phi
- Tau Beta Pi

Past

- American Chemical Society (ACS)
- Association for Research in Vision and Ophthalmology (ARVO)
- Materials Research Society (MRS)
- Society of Women Engineers (SWE)

PROFESSIONAL ACTIVITIES

Proposal Reviewer

Army Research Office (ARO), National Science Foundation (NSF) (International Research Fellowships Program, Micro and Nano Systems, Graduate Research Fellowship Program, Research Initiation Awards for Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)), Sigma Delta Epsilon/Graduate Women in Science (SDE/GWIS), Zumberge Interdisciplinary Program (USC), National Institutes of Health (NIH) (Challenge Grant; Special Emphasis Panel ZRG1 DKUS-G(12); Special Emphasis Panel ZRG1 CB-G(90); Special Emphasis Panel ZRG ETTN-E(12); Bioengineering of Neuroscience, Vision and Low Vision Technologies Study Section BNVT; Special Emphasis Panel ZRG1 ETTN-B(51); Instrumentation and Systems Development Study Section ISD; Special Emphasis Panel ANS1 SRB G(02); Southern California – Clinical and Translational Science Institute Pilot Funding, City University of Hong Kong, International Contest of Applications of Nano-Micro Technology (iCAN), Department of Defense (DOD) (Peer Reviewed Medical Research Program Discovery Awards), National Defense Science and Engineering Graduate Fellowship Program

Study Section Membership

Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT) (2015-2019)

Journal Editor

- Guest editor for Lab on a Chip and Integrative Biology combined online web collection of papers from the 7th International Conference on Microtechnologies in Medicine and Biology (MMB 2013)
- Guest editor for Journal of Micromechanics and Microengineering special issue on “the 7th International Conference on Microtechnologies in Medicine and Biology (MMB 2013)”
- Guest editor for Advanced Drug Delivery Reviews special issue on “Emerging Micro and Nanotechnologies for the Development of Novel Drug Delivery Devices and Systems”
- Journal of Micromechanics and Microengineering
- Frontiers in Mechanical Engineering, Micro- and Nano-mechanical Systems

Journal Reviewer

- ACS Chemical Neuroscience
- Analytical Chemistry
- Annals of Biomedical Engineering
- Applied Physics Letters
- Biomedical Microdevices
- Current Drug Delivery
- Frontiers in Neuroprosthetics
- IEEE/ASME Journal of Microelectromechanical Systems
- IEEE Reviews in Biomedical Engineering
- IEEE Sensors Journal
- IEEE Transactions on Biomedical Circuits and Systems
- IEEE Transactions on Biomedical Engineering
- IEEE Transactions on Device and Materials Reliability
- IEEE Transactions on Neural Systems & Rehabilitation Engineering
- Journal of Microfluidics and Nanofluidics
- Journal of Micromechanics and Microengineering
- Journal of Neuroscience Methods
- Lab-on-a-Chip
- Langmuir
- Materials Science and Engineering C
- Measurement Science and Technology
- Micro & Nano Letters
- Nanomedicine
- Neuroscience Letters
- Sensors
- Sensors and Actuators A: Physical
- Sensors and Actuators B: Chemical
- Therapeutic Delivery

Book Reviewer

- 2007 iNEER Special Volume: INNOVATIONS 2007 - WORLD INNOVATIONS IN ENGINEERING EDUCATION AND RESEARCH, International Network for Engineering Education and Research
- Prentice Hall
- Springer
- John Wiley & Sons, Inc.

Conference Organization

- Discussion Leader, Session on Implantable MEMS Devices, 2006 Gordon Research Conference on MEMS Technology and Biomedical Applications (June 25-30, New London, Connecticut, USA)
- Technical Program Committee, 2006 IEEE Sensors Conference (October 22-25, Daegu, Korea)
- Technical Program Committee, 2007 IEEE Sensors Conference (October 28-31, Atlanta, Georgia, USA)
- Technical Program Committee, 2008 IEEE Sensors Conference (October 26-29, Lecce, Italy)

- Session Chair, 2008 Nano/Micro Engineered and Molecular Systems (NEMS) Conference (January 6-9, Sanya, Hainan Island, China)
- Breakout Moderator, 2008 MEMS Educational Workshop (January 13, Tucson, Arizona, USA)
- Technical Program Committee, 2008 American Vacuum Society Topical Conference on BioMEMS: from Science Discovery to Technology to Clinic (October 19-24, Boston, Massachusetts, USA)
- Session Chair, 2008 American Vacuum Society Topical Conference on BioMEMS: from Science Discovery to Technology to Clinic (October 19-24, Boston, Massachusetts, USA)
- International Steering Committee, 2009 Microtechnologies in Medicine and Biology Conference (April 1-3, Quebec City, Canada)
- Technical Program Committee & Session Chair, 2009 Transducers Conference (June 21-25, Denver, Colorado, USA)
- Reviewer, 2009 BMES Annual Fall Meeting (October 1-4, Pittsburgh, Pennsylvania, USA)
- Session Chair, 2009 BMES Annual Fall Meeting (October 1-4, Pittsburgh, Pennsylvania, USA)
- Technical Program Committee & Session Chair, 2010 IEEE Microelectromechanical Systems Conference (January 24-28, Hong Kong, China)
- Reviewer, 2010 BMES Annual Fall Meeting (October 6-9, Austin, Texas, USA)
- Technical Program Committee, 2010 IEEE Sensors Conference (November 1-4, Waikoloa, Hawaii, USA)
- Technical Program Committee & Session Chair, 2011 IEEE Microelectromechanical Systems Conference (January 23-27, Cancun, Mexico)
- Executive Technical Program Committee, 2011 Transducers Conference (June 5-9, 2011, Beijing, China)
- International Steering Committee, 2011 Microtechnologies in Medicine and Biology Conference (April, Lucerne, Switzerland)
- Conference Co-Chair, 2011 Microtechnologies in Medicine and Biology Conference (April, Lucerne, Switzerland)
- Track Chair, 2011 Engineering in Medicine and Biology Conference (August 30-September 3, Boston, Massachusetts, USA)
- Technical Program Committee, 2012 IEEE Sensors Conference (October 28-31, Taipei, Taiwan)
- Theme Chair and Associate Editor, 2012 Engineering in Medicine and Biology Conference (August 28-September 1, San Diego, California, USA)
- Reviewer, 2012 Engineering in Medicine and Biology Conference (August 28-September 1, San Diego, California, USA)
- Reviewer, 2012 Microfluidics Conference (December 3-4, Heidelberg, Germany)
- Conference Chair, 2013 Microtechnologies in Medicine and Biology Conference (April 10-12, Marina del Rey, California, USA)
- Reviewer, 2013 Engineering in Medicine and Biology Conference (July 3-7, Osaka, Japan)
- Associate Editor, Theme 3: Bioinstrumentation, Biosensors, and Bio-micro/nano Technologies; 2013 Engineering in Medicine and Biology Conference (July 3-7, Osaka, Japan)
- Reviewer, 2013 IEEE EMBS Neural Engineering Conference (November 6-8, San Diego, California, USA)
- Associate Editor and Reviewer, Theme 3: Bioinstrumentation, Biosensors, and Bio-micro/nano Technologies; 2014 Engineering in Medicine and Biology Conference (Aug 26-30, Chicago, USA)
- Review Committee Member, 2014 IEEE Biomedical Circuits and Systems (BioCAS) Conference (Oct 22-24, Lausanne, Switzerland)
- Technical Program Committee, 2015 IEEE MEMS (January 18-22, 2015, Estoril Portugal)
- Executive Technical Program Committee, 2015 Transducers Conference (June 21-25, 2015, Anchorage, Alaska)
- Conference Organizer, 2015 Napa Institute Workshop: Enabling Future Health Care: the Role of Micro and Nano Technologies (August 23-26, 2015, Napa, California, USA)
- Conference Co-Chair, 2017 IEEE Microelectromechanical Systems Conference (TBD)

UNIVERSITY SERVICE

University of Southern California, Los Angeles, CA

2015-present	Faculty Advisory, Associated Students of Biomedical Engineering (ASBME)
2015	Panelist, Ph.D. Welcome Reception
2015-present	Chair, Department of Biomedical Engineering

2015	Member, Biomedical Engineering Curriculum Committee
2015	Member, Biomedical Engineering Faculty Promotion Review Committee
2015	Panelist, Keck Medicine of USC Retreat
2014-2015	Member, Provost Search Committee
2014-2015	Member, UCAPT Natural Sciences and Engineering Panel
2013-2015	Member, Biomedical Engineering Faculty Search Committee
2013	Panelist, Early Connect Conference
2013-14	Reviewer, Discovery Scholar Prize
2013-14	Member, Viterbi Transformative Faculty Committee
2013	Member, Biomedical Engineering Faculty Search Committee
2013	Panelist, Engineering and Computer Science Career Panel for "Beyond the PhD"
2013	Panelist, "What is Innovation" for Women in Engineering
2012	Panelist, "Work Family Balance for Engineers" for Women in Science and Engineering
2012-present	Member, Nanofabrication Facility Planning Committee for Convergence of Molecular Science Building
2012-2014	Member, Faculty Advisory Committee to USC Stevens Institute for Innovation
2012-2013	Member, Research Space Committee, Viterbi School of Engineering
2012	Panelist, Mentoring Panel on "Managing a Scientific Laboratory"
2012	Reviewer, Southern California – Clinical and Translational Science Institute (SC-CTSI) Spring Pilot Funding
2011-present	Faculty Advisor, USC Questbridge Chapter
2011-2015	Member, USC Mellon Mentoring Forum
2011-present	Member, Advisory Committee for Transformational and Interdisciplinary Faculty Hiring, Viterbi School of Engineering
2011-2015	Chair, Women in Science and Engineering Program, Viterbi School of Engineering
2011	Member, Conflict of Interest Review Committee
2011-present	Member, Ad-hoc Planning Committee for Nanofabrication Facility
2011-present	Member, Ad-hoc Planning Committee for Convergence of Molecular Science Building
2011	Panelist, Academic Mentoring Panel on "Academic Career Work-Life Balance"
2010	Reviewer, Core Instrumentation Fund
2010	Member, University Strategic Planning Committee
2010	Member, Viterbi School of Engineering, Committee to on MS program in Wireless Health
2009	Member, Pharmacy Faculty Search Committee
2008	Chair, Department of Biomedical Engineering Graduate Admissions Committee
2008	Chair, Department of Biomedical Engineering Machine Shop Oversight Committee
2008	Diversity Panelist, USC Center for Women and Men
2007-present	Microbiology Program Executive Committee
2007-2009	University Research Committee
2007-2008	Faculty Advisor, Engineering Honors Program
2007	Ad-hoc Committee on Research Ethics, Viterbi School of Engineering
2007	Viterbi Spring Spotlight
2007	Center for Engineering Diversity Summer Research Panel
2007	Viterbi Merit Research Program Seminars
2006-2010	Department of Biomedical Engineering Graduate Admissions Committee
2006-2010	Viterbi School of Engineering Women in Science and Engineering Committee
2005-present	Biomedical Nanoscience Initiative Committee
	Chair, Microfluidics Subcommittee
2005-present	USC Explore
2004-present	Science and Technology Research (STAR) Program Mentor
2004-present	Viterbi School of Engineering Presidential and Trustee Scholarship Finalist Interviewer
2004-present	Women in Science and Engineering Networking Group
University of California, Davis, CA	
2003	Department of Mechanical and Aeronautical Engineering Program Planning and Assessment Committee

OTHER ACTIVITIES

2012 Mentor and USC Faculty Liaison for Women in Tech Share Online (WitsOn)

2011	Invited Participant, Women's International Research Engineering Summit (WIRES)
2010	Co-Founder: Fluid Synchrony, LLC. (medical micropumps developer and manufacturer)
2009-present	AIChE Speaker's Corner Featured Speaker
2004-present	Alumni Recruiter for Caltech Undergraduate Admissions (specifically female students)
2001	Caltech Womens Center Director Search Committee Member
1998-2000	Caltech Y Excomm Member
1998-2000	Caltech Y Board Member
1997-2003	Student Member of NSF Center for Neuromorphic Systems Engineering at Caltech
1998	Caltech Womens' Basketball Team MVP
1997	University of Redlands Women's Basketball Tournament All-Tournament Team
1997-1998	Caltech Chapter Society of Women Engineers President
1996-1997	Caltech Chapter Society of Women Engineers Treasurer

INVITED TALKS

1. *Implantable Microdevices*, Department of Bioengineering, University of California, Los Angeles, CA, October 22, 2015.
2. *Implantable Micro Devices: from Neural Interfaces to Drug Infusion Pumps*, Huntington Medical Research Institute, Pasadena, CA, September 15, 2015.
3. *Microtechnology-Enabled Implants*, The Saban Research Institute Seminar Series, Children's Hospital of Los Angeles, Los Angeles, CA, June 19, 2015.
4. *Implantable MEMS: from Neural Interfaces to Drug Infusion Pumps*, Department of Mechanical Engineering, University of California, Santa Barbara, CA, April 6, 2015.
5. *Implantable Microdevices*, Achievement Rewards for College Scientists (ARCS) Foundation Dinner, Wilshire Country Club, Los Angeles, CA, March 19, 2015.
6. *Making a Difference: Biomedical Engineering*, Women in Science, Technology, Engineering, Arts, and Mathematics, Mirman School, Los Angeles, CA, March 18, 2015.
7. *Implantable Micro Infusion Pumps for Chronic Localized Delivery of Nanomedicines*, 3rd Nanomedicine for Imaging and Treatment Conference, Los Angeles, CA, March 13-14, 2015.
8. *Implantable Neural Interfaces and Drug Infusion Pumps*, Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, October 21, 2014.
9. *Chronic Reliability Challenges of Parylene Sheath Electrodes*, IEEE Engineering in Medicine and Biology Conference, Minisymposium on Chronic Neural Prosthetics, Chicago, Illinois, August 26-30, 2014.
10. *Encapsulation of Smart Polymers in Chronic Neural Interfaces*, Neural Interfaces Conference, Dallas, Texas, June 23-25, 2014.
11. *Scalable Drug Infusion Technologies*, AAAS Pacific Division 95th Annual Meeting, Riverside, California, June 17-20, 2014.
12. *Implantable Microsystems*, Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at USC, Los Angeles, California, December 17, 2013.
13. *Implantable Cortical Electrodes*, USC Brain Mapping Retreat, La Canada Flintridge, CA, September 13, 2013.
14. *Implantable Micro Infusion Pumps*, 2013 CMOS Research Symposium, Whistler, Canada, July 18, 2013.
15. *Microdevices for the Eye*, CooperVision, Pleasanton, California, July 12, 2013.
16. *3D Parylene Sheath Neural Probes*, Ritsumeikan University, Kyoto, Japan, July 9, 2013.
17. *Wireless Implantable MEMS Drug Infusion Pumps*. IEEE Engineering in Medicine and Biology Conference, Osaka, Japan, July 5, 2013.
18. *Implantable Drug Infusion Micropumps*, City of Hope, Duarte, California, May 13, 2013.
19. *MEMS and Microfluidics for Drug Delivery*, Biomedical MEMS and Sensors 2013, April 18, 2013.

20. *Polymer and Electrochemical MEMS for Biomedical Applications*, Jet Propulsion Laboratory, Pasadena, California, April 2, 2013.
21. *Microtechnologies Advancing Medicine*, WiSE Research Horizons: A Day Honoring Professor Hanna Reisler, University of Southern California, Los Angeles, California, March 27, 2013.
22. *Electrochemical Medical MEMS*, National Tsing Hua University, Taipei, Taiwan, January 25, 2013.
23. *Implantable Drug Infusion Micropumps*, IEEE Engineering in Medicine and Biology Buenaventura Chapter Event, California Lutheran University, Thousand Oaks, California, September 26, 2012.
24. *Implantable Drug Infusion Micropumps in Pediatrics*, Center for Diabetes, Endocrinology and Metabolism, Children's Hospital Los Angeles, Los Angeles, California, July 5, 2012.
25. *Electrochemical Drug Infusion Pumps and Sensors*, USC/Scripps Research Institute Research Retreat, San Diego, California, May 22, 2012.
26. *Gene Delivery Using Implantable MEMS Drug Infusion Pumps for Radiosensitization of Head and Neck Cancer*. European Materials Research Society Spring Meeting, Strasbourg, France, May 15, 2012.
27. *Smart Implantable Microtechnology-Enabled Drug Pumps*, Engineer's Council Technical Conference, Northridge, California, April 20, 2012.
28. *Medical MEMS Electrochemical Actuators and Sensors for Drug Delivery Applications*, Design of Medical Devices Conference, Minneapolis, Minnesota, April 10, 2012.
29. *Implantable MEMS Drug Infusion Pumps*, Biomedical MEMS and Sensors Conference, Cleveland, Ohio March 22, 2012.
30. *Tomorrow's Wireless Medical Devices: Overcoming Privacy Hurdles to Build a New Wireless Medical Infrastructure – A Research & Development Perspective*, Mini-Plenary Session on Wireless Medical Devices, Licensing Executives Winter Meeting, Anaheim, California, March 13, 2012.
31. *Smart Implantable Microtechnology-Enabled Drug Pumps*, IEEE San Fernando Valley Chapter Event, Sylmar, California, March 6, 2012.
32. *Implantable Drug Infusion Micropumps in Pediatrics*, Center for Technology and Innovation in Pediatrics (CTIP) Pediatric Medical Device Rounds, Children's Hospital of Los Angeles, Los Angeles, CA, February 8, 2012.
33. *Drug Delivery – Enabling Technology for Discovery and Development*, Drug Discovery Today Webinar, December 7, 2011.
34. *Wireless Feedback-Controlled Drug Delivery Pumps for Small Animal Research*, Materials Research Society Fall Meeting, Boston, Massachusetts, November, 30, 2011.
35. *Miniature Implantable Drug Delivery Pumps*, SoCal AIChE Dinner Meeting, Montebello, California, June 21, 2011.
36. *Electrochemical MEMS Actuators and Sensors for Biomedical Applications*, University of California, Los Angeles, Mechanical and Aeronautical Engineering, February 25, 2011.
37. *Electrochemical MEMS Actuators and Sensors for Biomedical Applications*, Hughes Research Laboratories, February 24, 2011.
38. *A MEMS Approach to Implantable Drug Delivery Systems*, Pennsylvania State University, Bioengineering, April 7, 2010.
39. *Miniature Implantable Drug Delivery Pumps*, Neurosurgery Grand Rounds, Keck School of Medicine, University of Southern California, March 24, 2010.
40. *Miniature Implantable Drug Delivery Pumps*, Keck School of Medicine Research Seminar Series, University of Southern California, March 8 2010.
41. *A MEMS Approach to Drug Delivery*, Stanford University, Mechanical Engineering, February 18, 2010.
42. *Implantable Drug Delivery Devices Enabled by Polymer BioMEMS*, University of Riverside, Biomedical Engineering, November 4, 2009.

43. *Microfluidic Integration into Neural Implants*, BMES Annual Fall Meeting, Pittsburg, Pennsylvania, October 7-10, 2009.
44. *Wireless Chronic Drug Delivery Platforms*, USC Body Computing Slam, Los Angeles, California, October 8, 2009.
45. *Implantable MEMS Drug Delivery Pumps for Small Animal Research*, "BioMEMS" Session of the IEEE Engineering in Medicine and Biology Conference, Minneapolis, Minnesota, September 2-6, 2009.
46. *Parylene-Based Encapsulated Fluid MEMS Sensors*, "Bioelectric Sensors" Session of the IEEE Engineering in Medicine and Biology Conference, Minneapolis, Minnesota, September 2-6, 2009.
47. *Small Animal Drug Delivery Platform for Cancer Therapy*, 5th Annual International Head & Neck Symposium - Beyond Survivorship: Emerging Technology and Surgical Techniques in the Management and Rehabilitation of Head and Neck Cancer, Los Angeles, California, July 11, 2009.
48. *Microfluidics for Microbial Systems*, Microbial Systems Institute Retreat, USC, Los Angeles, California, May 30, 2009.
49. *Polymer BioMEMS for Hybrid Neural Interfaces and Implantable Drug Delivery Systems*, Peking University, Beijing, China, May 25, 2009.
50. *Biologically-Inspired Smart Microfabricated Sensor and Actuator Networks*, 3rd THU-USC Joint Faculty Forum on Green and Smart IT for a Sustainable Future, Beijing, China, May 20-22, 2009.
51. *Polymer BioMEMS for Hybrid Neural Interfaces and Implantable Drug Delivery Systems*, University of Southern California Engineering, Neuroscience, and Health Seminar Series, Los Angeles, California, March 2, 2009.
52. *The Women in Science and Engineering Program at the University of Southern California*, American Association of University Women Women in Technology Program: Technology is a Girl's Best Friend, Torrance, California, USA, January 20, 2009.
53. *Polymer BioMEMS for Implantable Drug Delivery Systems*, NEMS 2009, Shenzhen, China, January 7, 2009.
54. *Hybrid Neural Interfaces and Implantable Drug Delivery Systems*. Nanotechnology as an Enabler for Neuroscience, Neuroengineering and Neural Prostheses Workshop, Stanford University, Palo Alto, California, USA, December 11, 2008.
55. *Polymer BioMEMS for Hybrid Neural Interfaces and Implantable Drug Delivery Systems*. Booz Allen Hamilton Distinguished Colloquium Series, University of Maryland, College Park, Maryland, USA, December 5, 2008.
56. *Polymer-Based MEMS for Biomedical Applications*, Tsinghua University-USC Workshop on Emerging Information Technologies, Los Angeles, California, USA, April 30, 2008.
57. *Polymer Microfluidics and BioMEMS*, Hong Kong University of Science and Technology, Mechanical Engineering, Hong Kong, China, January 3, 2008.
58. *Polymer Microfluidics and BioMEMS*, Tsinghua University Workshop on Emerging Technologies, Beijing, China, May 24, 2007.
59. *BioMEMS Approaches to Ocular Drug Delivery*, University of Tokyo, Mechanical Engineering, Tokyo, Japan, November 10, 2006.
60. *Development of Integrated Parylene Microfluidics for Biological Applications*, Harvey Mudd College, Claremont, California, USA, February 1, 2006.
61. *Biomimetic Microelectronic Systems Research*, National Society of Black Engineers Fall Regional Conference, Los Angeles, California, USA, November 12, 2005.
62. *Strategies and Tips on Getting into Graduate School*, USC-Caltech-UC Santa Cruz Biomimetic MicroElectronic Systems Student Association/REU Seminar, Los Angeles, California, USA, August 3, 2005.
63. *Is academia right for me? Making career path decisions after graduate school*, USC-Caltech-UC Santa Cruz Biomimetic MicroElectronic Systems Student Association Seminar, Los Angeles, California, USA, November 10, 2004.

64. *From Neuromorphic to Biomimetic MEMS*, Caltech Center for Neuromorphic Systems Engineering Anniversary Symposium, Pasadena, California, USA, November 8, 2004.
65. *Parylene Technology in Microfluidics and BioMEMS Applications*, University of Southern California, Biomedical Engineering, Los Angeles, California, USA, March 23, 2004.
66. *Parylene MEMS: Material, Technology and Applications*, ACS Polymer MEMS Symposia, New York, New York, USA, September 2003.
67. *Caltech MEMS Pumps*, Quallion LLC, Sylmar, California, USA, July 30, 2003.
68. *Development of Integrated Parylene Microfluidics for Biological Application*, University of Michigan, Electrical Engineering and Computer Science, Ann Arbor, Michigan, USA, April 17, 2003.
69. *Development of Integrated Parylene Microfluidics for Biological Application*, University of California, Davis, Mechanical and Aeronautical Engineering, Davis, California, USA, April 15, 2003.
70. *Development of Integrated Parylene Microfluidics for Biological Application*, University of California, Davis, Electrical and Computer Engineering, Davis, California, USA, April 14, 2003.
71. *Development of Integrated Parylene Microfluidics for Biological Applications*, University of California, Berkeley, Mechanical Engineering, Berkeley, California, USA, April 2, 2003.

PATENTS: INVENTION DISCLOSURES

1. Ellis Meng, Brian J. Kim, and Lawrence Yu. *Multi-Sensor Platform for Diagnosing Catheter Status*, USC 2015-0114, January 8, 2015.
2. Ellis Meng and Brian J. Kim. *An Electrochemical Impedance-Based Sensor For Use In Detecting Progressive Obstruction Or Complete Blockage Of Implanted Drainage Catheters*, USC 2014-210, April 4, 2014.
3. Curtis Lee, Brian Kim, and Ellis Meng. *Real-time Position Detection Method for Implantation of Sheath-based Neural Probes*, USC 12-587, April 19, 2012.
4. Ellis Meng, *Three dimensional hollow electrodes and method to manufacture three dimensional structures*, USC 12-277, November 21, 2011.
5. Ellis Meng and Christian Gutierrez. *Method for Tracking Fluid Delivery in Reservoir-based Pumps*, USC 11-511, March, 2011.
6. Christian A. Gutierrez and Ellis Meng. *Polymer MEMS Microbubble Pressure Transducer*, USC 10-410, March 25, 2010.
7. Ellis Meng. *Electrochemical Bellows Fluid Dosing Device*, USC 10-176, December 4, 2009.
8. Christian Gutierrez and Ellis Meng. *MEMS Force/Tactile Sensor Based on Transduction of Encapsulated Liquid within Parylene Microstructures*, USC 10-061, September 1, 2009.
9. Christian Gutierrez and Ellis Meng. *Automatic Liquid Encapsulation in Parylene Microchambers by Integrated Stiction Valves*, USC 10-060, September 1, 2009.
10. Uttam K. Sinha, Ellis Meng, and Rizwan Masood. *Radiation-dose Reduction using siRNA Nanoparticle Delivery via MEMS-based Pumps*, USC 10-059, September 1, 2009.
11. Christian A. Gutierrez and Ellis Meng. *Polymer MEMS Microbubble Pressure Transducer*, USC 10-410, March 11, 2010.
12. Ellis Meng and Ronalee Lo Mann. *In-Plane Bandpass Regulation Check Valve in Heat-Shrink Packaging for Drug Delivery*, USC 09-050, September 9, 2008.
13. Christian A. Gutierrez and Ellis Meng. *A Flexible Parylene-Based Electro-mechanical Interface Technology for Neural Prostheses*, USC 09-052, September 8, 2008.
14. Ellis Meng and Po-Ying Li. *MEMS Electrochemical Bellows Actuator*, USC 09-051, September 8, 2008.
15. Ellis Meng, Po-Ying Li, Daniel P. Holschneider, Jean-Michel I. Maarek. *Electrothermal MEMS Valve*, USC 4112, December 21, 2007.

PATENTS: PROVISIONAL

1. Ellis Meng, Brian J. Kim, and Lawrence Yu. *Multi-Sensor Platform for Diagnosing Catheter Status*, Serial No. 62/103,369, January 14, 2015.
2. Ellis Meng and Brian J. Kim. *Method and Sensor for Detecting Catheter Obstruction*, Serial No. 62/046,424, September 5, 2014.
3. Kasthuri J. Venkateswaran, Myron T. La Duc, James A. Spry, Andreas Frick, David Smith, Ellis Meng. *Description of a Novel Microfluidic Device for Sterilizing Spacecraft Hardware with In-Situ Flight Technologies (SHIFT)*, March 10, 2014.
4. Ellis Meng. *Three dimensional hollow electrodes and method to manufacture three dimensional structures*, Serial No. 61/566,906, December 5, 2011.
5. Ellis Meng and Christian Gutierrez. *Method For Tracking Fluid Delivery in Reservoir-based Pumps*, Serial No. 61/492,678, June 2, 2011.
6. Ellis Meng, Po-Ying Li, Daniel P. Holschneider, Jean-Michel I. Maarek. *Electrothermal MEMS Valve*, Serial No. 61/318,505, March 29, 2010.
7. Christian A. Gutierrez and Ellis Meng. *Polymer MEMS Microbubble Pressure Transducer*, Serial No. 61/317,609, March 25, 2010.
8. Uttam K. Sinha, Ellis Meng, Rizwan Masood. *Radiation-dose Reduction using siRNA Nanoparticle Delivery via MEMS-based Pumps*, Serial No. 61/266,977, December 4, 2009.
9. Ellis Meng. *Electrochemical Bellows Fluid Dosing Device*, Serial No. 61/266,978, December 4, 2009.
10. Christian A. Gutierrez and Ellis Meng. *MEMS Force/Tactile Sensor Based on Transduction of Encapsulated Liquid within Parylene Microstructures*, Serial No. 61/246,892, September 29, 2009.
11. Christian A. Gutierrez and Ellis Meng. *Automatic Liquid Encapsulation in Parylene Microchambers by Integrated Stiction Valves*, Serial No. 61/246,891, September 29, 2009.
12. Christian A. Gutierrez and Ellis Meng. *Flexible Parylene-based Electro-mechanical Interface Technology*, Serial No. 61/154,959, February 24, 2009.
13. Ellis Meng and Po-Ying Li. *MEMS Electrochemical Bellows Actuator*, Serial No. 61/154,327, February 20, 2009.
14. Ellis Meng and Ronalee Lo Mann. *In-Plane Bandpass Regulation Check Valve in Heat-Shrink Packaging for Drug Delivery*, Serial No. 61/154,314, February 20, 2009.

PATENTS: APPLICATIONS

1. Ellis Meng and Brian J. Kim. *Method and Sensor for Detecting Catheter Obstruction*, US Patent Application No. 14/822,662, August 10, 2015.
2. Ellis Meng, Po-Jui Chen, Damien C. Rodger, Yu-Chong Tai, Mark S. Humayun. *Implantable Intraocular Pressure Drain*, US Patent Application No. 13/921,765, June 19, 2013.
3. Ellis Meng. *Implantable Neural Reporting Probe and Methods of Manufacturing and Implanting Same*, US Patent Application No. 13/693,838, December 4, 2012.
4. Ellis Meng, Po-Jui Chen, Damien C. Rodger, Yu-Chong Tai, Mark S. Humayun. *Implantable Intraocular Pressure Drain*, US Patent Application No. 13/555,329, July 22, 2012.
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