

SHELLY GULATI

Mechanical Engineering Department and Bioengineering Program
University of the Pacific
3601 Pacific Avenue, Stockton, CA 95211
E-mail: sgulati@pacific.edu
Phone: 209-946-3178

EDUCATION

- UNIVERSITY OF CALIFORNIA, BERKELEY AND SAN FRANCISCO** **BERKELEY, CA**
2006, Ph.D. Bioengineering
Dissertation Title: Effects of Abrupt Changes in Microfluidic Geometry on Complex Biological Fluid Flows
Research Advisors: Professors Susan J. Muller and Dorian Liepmann
- JOHNS HOPKINS UNIVERSITY** **BALTIMORE, MD**
2000, B.S. Chemical Engineering with Honors
Minor Mathematical Sciences; Minor Management and Entrepreneurship

ACADEMIC EXPERIENCE

- UNIVERSITY OF THE PACIFIC** **STOCKTON, CA**
Assistant Professor, School of Engineering and Computer Science Jan 2013 – present
Adjunct/Visiting Assistant Professor, School of Engineering and Computer Science Aug 2010 – Dec 2012
- Instruct courses bioengineering, general engineering, and independent studies in microfluidics research.
 - Conduct experimental and numerical simulation-based microfluidics research projects.
 - Study water quality and the influence of agricultural impacts on watersheds.
- LAWRENCE BERKELEY NATIONAL LABORATORY** **BERKELEY, CA**
Visiting Faculty, Earth Sciences Division Jan 2013 – present
- Conducted a mass balance of nutrients and pollutants using statistics-based methods in the upper portion of the San Joaquin River in order to identify target sites for impact improvement as a part of the San Joaquin River Dissolved Oxygen Total Maximum Daily Load Project.
- UNIVERSITY OF CALIFORNIA, MERCED** **MERCED, CA**
Mathematics Lecturer, School of Natural Sciences Aug 2009 – Aug 2010
- Instructed courses in Statistics for Scientific Data Analysis, Probability and Statistics, and Pre-Calculus.
- Faculty Mentor, Teaching Guidebook project* Jan 2010 – June 2010
- Mentored two graduate students who designed novel teaching activities in foundational science courses and tested their effectiveness on improving key skills (i.e. critical thinking, problem solving, technical writing, etc.) among undergraduates, particularly in first-generation college students.
- IMPERIAL COLLEGE LONDON** **LONDON, UK**
Postdoctoral Researcher, Institute of Bioengineering, Department of Chemistry Oct 2007 – July 2009
PIs: Professors Andrew deMello and Joshua Edel
- Designed optical systems for experimental testing and characterization of micro-droplet lab on a chip systems.
 - Conceived and realized novel water in water in oil (w/w/o) double droplet systems for passive cell separation.
 - Modeled multiphase fluid systems for manipulation of micro-droplets using computational fluid dynamics simulation tool (Comsol Multiphysics).
 - Developed multi-institutional and multi-disciplinary collaborative projects and led the project teams.

SHELLY GULATI

Instructor, Graduate Schools Research Skills Development Course

Oct 2008 – July 2009

- Facilitated and guided groups of first year doctoral students over three days in experiential learning exercises to build their understanding, skills and confidence in team and project development in order to enhance their overall effectiveness in their PhD.

Co-PI, Student-led podcasting for engineering education

Oct 2008 – July 2009

- Co-developed project for team of engineering undergraduates to produce educational and student-centered podcasts. Mentored and guided students to produce podcasts as a sustainable resource for enhancing and engaging in learning and communication across engineering.

UNIVERSITY OF CALIFORNIA, BERKELEY

BERKELEY, CA

Postdoctoral Researcher, Department of Chemical Engineering

Jan 2007 – Aug 2007

PIs: Professors Susan J. Muller and Dorian Liepmann

- Conducted direct measurements using video microscopy of microfluidic polymer solution flows to characterize the fundamental viscoelastic fluid physics in micro-environments.
- Performed extensive characterization and analysis of the rheological properties of DNA solutions.

Graduate Student Researcher, Berkeley Sensor and Actuator Center

July 2001 – Dec 2006

- Conducted direct measurements by flow visualization of the viscoelastic behavior of flows of DNA solutions in microfluidic devices.
- Modeled Newtonian and power law fluid flow in canonical microfluidic geometries using computational fluid dynamics simulation tool (Comsol Multiphysics).
- Liaised with collaborators at Lawrence Livermore National Laboratory regarding experimental validation for their numerical design tool modeling viscoelastic microfluidic flows.

Research Mentor

Sept 2001 – Aug 2006

- Guided senior students through project development process, including forming hypotheses, designing appropriate experiments, analyzing and interpreting the results, and finally presenting their findings.

Graduate Student Instructor, Aspects of Bioengineering

Sept 2003 – Dec 2003

INDUSTRY EXPERIENCE

PALO ALTO RESEARCH CENTER (FORMERLY XEROX PARC)

PALO ALTO, CA

Graduate Intern, Hardware Systems Laboratory, Microfluidics Group

Summer 2005

- Investigated novel microfluidic platform for separating, manipulating and concentrating small charged particles using modified field flow fractionation coupled with electrostatic traveling wave technology.
- Conduct experiments and numerical simulations of fluid flow in order to optimize device design and operation.

ARADIGM CORPORATION

HAYWARD, CA

Engineer, Operations Group

Oct 2000 – June 2001

Intern, various groups

Summer 1998, 1999, 2000

APPLIED BIOSYSTEMS

FOSTER CITY, CA

Intern, Engineering Group

Summer 1997

ADDITIONAL TRAINING

- Course Redesign Retreat, Center for Teaching and Learning, University of the Pacific, 2015
- Human Subjects Training for Social/Behavioral Research, Collaborative Institutional Training Initiative, 2010
- Tutor Development and Training for Research Skills Development Course, Imperial College London, 2008
- Science Communication and Interviewing Skills Workshop, Imperial College London, 2008
- Teaching Conference for Graduate Student Instructors, University of California, Berkeley, 2003

PROFESSIONAL AFFILIATIONS

Biomedical Engineering Society (BMES)
 Engineering in Medicine and Biology Society (EMBS)
 Society of Women Engineers (SWE)

HONORS AND AWARDS

- SEFI Annual Conference in Engineering Education, Honorable Mention Best Paper Award, 2009
- Imperial College Postdoc Development Centre Conference Funding, 2009
- Outstanding Scientific and Engineering Innovation Poster Award, Biomedical Engineering Society (BMES) Annual Meeting, 2005
- UC Berkeley Graduate Division Summer Institute for Preparing Future Faculty, Institute Fellow, 2005
- UC Berkeley Graduate Division Conference Travel Grant, 2005
- Biomedical Engineering Society Travel Grant, 2004
- Biomedical Engineering Symposium Conference Travel Grant, 2004
- National Institute of Health Doctoral Trainee, 2000-2002
- Johns Hopkins University Chemical Engineering Excellence in Research Award, 2000
- Johns Hopkins University Dean's List, 1996-2000
- American Institute of Chemical Engineers Scholarship, 1996

TEACHING

COURSES TAUGHT AT UNIVERSITY OF THE PACIFIC

AS ASSISTANT PROFESSOR:

BENG 53	Biology for Engineers I	F12*, 13*
BENG 63	Biology for Engineers II	Sp12*, 13*, 14*
BENG 63L	Biology for Engineers II Lab	Sp12, 13, 14, 15 16
BENG 124	Biomechanics	F13, 14, 15
BENG 193A	Biotransport	Sp16
BENG 195	Senior Project	Sp12, 13, 14, 15*
ENGR 45	Materials Science	F12, 13
ENGR 110	Instrumentation & Exp. Methods	F12, Sp13, Sp14, F14, Sp15, F15, Sp16*
ENGR 110L	Instrumentation & Exp. Methods Lab	F12(2), Sp13, Sp14, F14(2), Sp15, F15(2), Sp16*
BENG 197	Undergraduate Research	Detailed below
ENGR 191	Independent Study	Detailed below
ENGR 291	Graduate Independent Study	Detailed below
MECH 297	Graduate Research	Detailed below
MECH 299	Thesis	Detailed below

*as support instructor

AS ADJUNCT/VISITING ASSISTANT PROFESSOR:

BENG 53	Biology for Engineers I	F11*
BENG 103	Biomaterials	F10
BENG 124	Biomechanics	Sp11
ENGR 45	Materials Science	F11

*as support instructor

UNDERGRADUATE MENTORED STUDY/RESEARCH

- Alissa Matuska, *Drug Dissolution Method Development*, Su16 – present (not for credit)
- Colleen Motoyasu, *Microfluidic Platform for High-throughput Tissue Marking*, F14 – present
- Kylee Schesser, *Drug Dissolution Method Development*, F14 – Sp16
- Brad Hirayama, *Evaluation of Microfluidic Fabrication Tools*, F15 – Sp16
- Colleen Motoyasu, *Shrinkydink Microfluidics Workshop*, Su14 – F14 (not for credit)
- Brad Hirayama, *Shrinkydink Microfluidics Workshop*, Su14 (not for credit) – F14
- Colleen Motoyasu, *Shrinkydink Microfluidics Workshop*, Su14 – F14 (not for credit)
- Akhil Patel, *Micro-droplet Formation – Statistical Testing*, F14 – Sp15
- Joshua Arucan, *Quartz Crystal Microbalance for Drug Dissolution – Experiment*, Sp14 – F15, Sp16 (not for credit)
- Krista Suizo, *Shrinkydink Fabricated Microfluidic Gradient Generator*, Sp14
- Travis Bodnar, *Microfluidics for Single Cell Studies – Simulation of Four-roll Mill*, F13 – Sp14
- Warren Tamayo, *Micro-droplet Formation – Experiment and Simulations*, F13 – Sp15
- Krista Suizo, *Shrinkydink Microfluidics Workshop*, Su13 – F13
- Anthony Leonetti, *Shrinkydink Microfluidics Workshop*, Su13 – F13
- Krista Suizo, *Microfluidics for Single Cell Studies – Literature Review*, Su13 (not for credit)
- Travis Bodnar, *Microfluidics for Single Cell Studies – Literature Review*, Su13
- G. Scott Tyler, *Writing and Design in Bio Lab*, Sp13
- Brian Liu, *Quartz Crystal Microbalance Systems for Drug Dissolution Studies – Simulations*, Sp13 – Su13
- Janpierre Bonoan, *Quartz Crystal Microbalance Systems for Drug Dissolution Studies – Experiment*, Sp13
- Brendan Nichols, *Microfabrication using Shrinkydinks*, Sp13
- Edison Huang, *Microfabrication using Shrinkydinks*, Sp13
- Janpierre Bonoan, *Evaluation of Quartz Crystal Microbalance Systems for Drug Dissolution Studies*, F12
- Brian Liu, *Evaluation of Quartz Crystal Microbalance Systems for Drug Dissolution Studies*, F12
- Wilson Good, *Micro-droplet Formation – Experimental Measurements*, Su12 – Sp13 (not for credit), Sp14
- Isha Srivastava, *Micro-droplet Formation – Experimental Measurements*, Su12, Sp13
- Diana Valenzuela Medina, *Fundamentals of Microfluidic Design*, Sp12 (not for credit)
- Isha Srivastava, *Fundamentals of Microfluidic Design*, Sp12
- Tyler Chuang, *Fundamentals of Microfluidic Design*, Sp12

GRADUATE MENTORED STUDY/RESEARCH

- Brendan Nichols, *Microfluidic Blood pH Sensor*, F14
- Janpierre Bonoan, *Development and Characterization of a Novel Drug Dissolution Test Method Using a Quartz Crystal Microbalance*, F14 – Sp15
- Brendan Nichols, *Microfluidic Sensor Design*, Su14

COMMITTEE MEMBERSHIP – MASTER’S THESIS

- Janpierre Bonoan, *Development and Characterization of a Novel Drug Dissolution Test Method Using a Quartz Crystal Microbalance*, Sp15
- Tyler Chuang, *Characterization of a Family of Cysteine Rich Proteins and Development of MaSp1 Derived Miniature Fibroin*, F14

SHELLY GULATI

TEACHING ASSISTANTS MENTORED

Brad Hirayama	Instrumentation & Experimental Methods Laboratory	F15, F16
Brendan Nichols	Instrumentation & Experimental Methods Laboratory	Sp14, F14, Sp15
Akhil Patel	Biology for Engineers Laboratory	Sp15, Sp16
G. Scott Tyler	Biology for Engineers Laboratory	Sp14
Janpierre Bonoan	Biology for Engineers Laboratory	Sp13
Tory Passalacqua	Materials Science Laboratory	F12 & Sp13
	Instr. & Experimental Methods	F12 & Sp13
Tyler Chuang	Biology for Engineers Laboratory	Sp12

ACADEMIC ADVISING

- Provide academic guidance in curriculum planning as well as toward achieving career aspirations.
- Advised 40 undergraduate students (including four that transferred to bioengineering from other majors and ten that transitioned to other majors after time as bioengineering students) and one graduate student as of Spring 2016.

SCHOLARSHIP AT UNIVERSITY OF THE PACIFIC

JOURNAL PUBLICATIONS – TIER 1 (*DENOTES UNDERGRADUATE AUTHOR)

1. M.K. Camarillo, G.A. Weissmann, S. Gulati, J. Herr, S. Sheeder, and W.T. Stringfellow, “Pairing long-term continuous data and a link-node model to manage dissolved oxygen impairment in a dredged estuary” *Environmental Monitoring and Assessment*, **188**(8), 2016, p. 1-18.
2. S. Gulati, A. Stubblefield, J. Hanlon, C. Spier, M.K. Camarillo, and W. Stringfellow, “Evaluation of watershed-derived mass loads to prioritize TMDL decision-making” *Water Science and Technology*, **73**(3), 2016, p. 654-661.
3. S. Gulati, K. Vijayakumar, W. Good*, W. Tamayo*, A. Patel*, X. Niu, “Micro-droplet formation in rounded flow focusing junctions” *Microfluidics and Nanofluidics*, **20**(2), 2016, p. 1-9.
4. S. Gulati, S.J. Muller, and D. Liepmann, “Flow of DNA solutions in a microfluidic gradual contraction” *Biomicrofluidics*, **9**, 2015, p. 054102.
5. S. Gulati, A.A. Stubblefield, J.S. Hanlon, C.L. Spier, and W.T. Stringfellow, “Use of continuous and grab sample data for calculating total maximum daily load (TMDL) in agricultural watersheds” *Chemosphere*, **99**, 2014, p.81-88.
6. J.K. Domen, W.T. Stringfellow, M.K. Camarillo, and S. Gulati, “Fog water as an alternative and sustainable water resource” *Clean Technologies and Environmental Policy*, **16**(2), 2014, p. 235-249.

PRESENTATIONS WITH PEER-REVIEWED CONFERENCE PAPERS – TIER 1 (*DENOTES UNDERGRADUATE AUTHOR; **DENOTES GRADUATE AUTHOR)

1. S. Gulati, J.A. Bonoan**, K.V. Schesser*, J.F. Arucan*, and X. Li, Microfluidic measurements of drug dissolution using a quartz crystal microbalance, *ASME 2016 Summer Heat Transfer Conference/ 5th Joint US-European Fluids Engineering Summer Meeting / 14th International Conference on Nanochannels, Microchannels, and Minichannels*, Washington DC, July 10-14, 2016.
2. S. Gulati, S. Muller, and D. Liepmann, Quantifying elastic vortex growth of DNA solutions in planar micro-bends, *ASME Fluids Engineering Division Summer Meeting/International Conference on Nanochannels, Microchannels, and Minichannels*, Chicago, IL, August 2-6, 2014.

SHELLY GULATI

3. M. Camarillo, W. Stringfellow, J. Herr, S. Sheeder, G. Weissmann, S. Gulati, A. Stubblefield, “Use of a one-dimensional link-node model to develop total maximum daily load strategies for the San Joaquin River Estuary,” *International Environmental Modelling and Software Society (iEMSs)*, San Diego, CA, June 15-19, 2014.
4. W. Stringfellow, J. Herr, S. Sheeder, S. Gulati, G. Weissmann, M. Camarillo, M. Jue, Use of the WARMF Model to Identify Sources of Oxygen Impairment and Potential Management Strategies for the San Joaquin River Watershed, *International Environmental Modelling and Software Society (iEMSs)*, San Diego, CA, June 15-19, 2014.
5. S. Gulati, J. Hanlon, C. Spier, W. T. Stringfellow, “Total maximum daily load (TMDL) estimation using a joint real-time and periodic sampling approach,” *IWA World Water Congress 2012*, Busan, Korea, September 16-21, 2012.
6. W. T. Stringfellow, J. Hanlon, C. Spier, M. Brunell, S. Borglin, J. Graham, E. Karpuzcu, K. Nguyen, M. Jue, S. Gulati, “Riparian Wetlands as Buffer Zones for Protecting River Water Quality,” *IWA World Water Congress 2012*, Busan, Korea, September 16-21, 2012.

PRESENTATION WITH PUBLISHED CONFERENCE PAPERS (NOT PEER-REVIEWED) – TIER 2 (*DENOTES UNDERGRADUATE AUTHOR; **DENOTES GRADUATE AUTHOR)

1. S. Gulati, A. Stubblefield, J. Hanlon, C. Spier, M. Camarillo, and W. Stringfellow, Mass Balance Analysis for Salts, Nutrients, and Oxygen-Demanding Substances in the San Joaquin River, *13th IWA Specialist Conference on Watershed and River Basin Management*, San Francisco, CA, September 9-12, 2014.

TECHNICAL REPORTS – TIER 2

1. M. Jue, S. Gulati, J. Hanlon, and W. Stringfellow, 2013 (December). Dissolved Oxygen Conditions in the Old and Middle Rivers in 2011 and 2012 (Report 4.3.1). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
2. M. Jue, S. Gulati, W. Stringfellow, G. Weissmann, and J. Herr, 2013 (December): Using the WARMF 2008 model to quantitate the effect of nutrient control and tributary inputs on water quality in the San Joaquin River (Report 4.8.1). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
3. G. Weissmann, S. Gulati, A. Love, S. Sheeder, J. Herr, and W. Stringfellow, 2013 (December). Analysis of the Gowdy Output Results from the SJR-WARMF 2012 Model (Report 4.8.2). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
4. A. Stubblefield, S. Gulati, M. Camarillo, J. Hanlon, and W. Stringfellow, 2013 (December). Mass Balance Analysis for the San Joaquin River from Lander Avenue to Vernalis (Report 4.8.3). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
5. S. Gulati, A. Stubblefield, J. Hanlon, C. Spier, and W. Stringfellow, 2013 (December). Methods for Direct Load Calculations in Agricultural Watersheds (Report 4.8.4). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
6. G. Weissmann, W. Stringfellow, S. Gulati, S. Sheeder, and J. Herr, 2013 (December). Analysis of Link-Node Model Mass Loading Scenarios (Report 4.8.5). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.
7. J. Hanlon, C. Spier, S. Gulati, W. Stringfellow, A. Stubblefield, and M. Jue, 2013 (December). High Resolution Salinity Profiling of the Stockton Deep Water Ship Channel during the Summer of 2012 (Report 4.8.7). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.

8. E. Karpuzcu, G. Weissmann, W. Stringfellow, S. Gulati, and J. Herr, 2013 (December). Orestimba Creek Agricultural Drainage Study (Report 5.2.2). Ecological Engineering Research Program, School of Engineering & Computer Sciences, University of the Pacific, Stockton, CA.

REFeree FOR PEER-REVIEWED PUBLICATION – TIER 2

1. Microfluidics and Nanofluidics, 2014 – 2016 (3 assignments)

CONFERENCE PRESENTATIONS (*DENOTES UNDERGRADUATE AUTHOR)

1. W. Stringfellow, S. Gulati, A. Stubblefield, J. Hanlon, C. Spier, J. Herr, and M.K. Camarillo, “Characterization of the Mass Flux of Salts, Nutrients, and Oxygen-Demanding Substances from the San Joaquin River to the Estuary,” Bay-Delta Science Conference, Sacramento, CA, October 28-30, 2014.
2. M.K. Camarillo, J. Herr, S. Sheeder, G. Weissmann, S. Gulati, W. Stringfellow, “Application of an Estuary Model to Quantify Factors Contributing to Low Dissolved Oxygen Conditions in the San Joaquin River Deep Water Ship Channel,” Bay-Delta Science Conference, Sacramento, CA, October 28-30, 2014.
3. S. Gulati, W. Good*, K. Vijayakumar, W. Tamayo*, X. Niu, J.B. Edel, A.J. de Mello, “Influence of Microfluidic Geometry on Micro-droplet formation,” *Biomedical Engineering Society Annual Fall Meeting*, San Antonio, TX, October 23, 2014.
4. M. Camarillo, W. Stringfellow, J. Herr, S. Sheeder, S. Gulati, G. Weissmann, Computer Modeling to Promote Stakeholder Involvement and Informed Decision-Making in a TMDL Program, *13th IWA Specialist Conference on Watershed and River Basin Management*, San Francisco, CA, September 9-12, 2014.
5. S. Gulati, J.S. Hanlon, C.L. Spier, and W. T. Stringfellow, “Estimation of total maximum daily load (TMDL) in agricultural watersheds using a combined real-time and periodic sampling approach,” *National Water Quality Monitoring Council*, Portland OR, May 4, 2012.
6. W.T. Stringfellow, S. Gulati, J.S. Hanlon, and C.L. Spier, “Ranking Matrix to Prioritize Watersheds in a TMDL Context,” *National Water Quality Monitoring Council*, Portland OR, May 4, 2012.

CONFERENCE POSTER PRESENTATIONS (*DENOTES UNDERGRADUATE AUTHOR; **DENOTES GRADUATE AUTHOR)

1. C. Motoyasu*, B. Hirayama*, and S. Gulati, “A microfluidic device for marking small tissues,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 30, 2016.
2. K. Schesser* and S. Gulati, “Characterization of thin film application parameters for drug dissolution testing using a quartz crystal microbalance,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 30, 2016.
3. J. Arucan* and S. Gulati, “Development of a Drug Dissolution Test and Automated Analysis Method Using a Quartz Crystal Microbalance,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 30, 2016.
4. C. Motoyasu*, B. Hirayama*, and S. Gulati, “A microfluidic device for marking small tissues,” *National Conference on Undergraduate Research (NCUR)*, University of North Carolina, Asheville, NC, April 7-9, 2016.
5. K. Schesser* and S. Gulati, “Characterization of thin film application parameters for drug dissolution testing using a quartz crystal microbalance,” *National Conference on Undergraduate Research (NCUR)*, University of North Carolina, Asheville, NC, April 7-9, 2016.
6. C. Motoyasu*, B. Hirayama*, A. Patel*, and S. Gulati, “Educational workshop on microfluidic principles using shrinky dinks,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 25, 2015.

SHELLY GULATI

7. K. Schesser*, J. Bonoan**, and S. Gulati, “Characterization of mass application techniques for a quartz crystal microbalance (QCM) drug dissolution test method,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 25, 2015.
8. W. Tamayo*, A. Patel*, and S. Gulati, “Characterization of micro-droplet formation: experiment and simulation,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 25, 2015.
9. J. Bonoan**, X. Li, and S. Gulati, “Determination of drug dissolution using a quartz crystal microbalance,” *2014 American Association of Pharmaceutical Scientists Annual Meeting and Exposition*, San Diego, CA, November 6, 2014.
10. W. Good*, W. Tamayo*, and S. Gulati, “Influence of microfluidic geometry on micro-droplet formation,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 26, 2014.
11. K. Suizo* and S. Gulati, “Educational workshop on microfluidic principles using shrinky dinks,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 26, 2014.
12. S. Gulati, C. Spier, J. Hanlon, A. Stubblefield, M. Jue, M.K. Camarillo, W. Stringfellow, G. Weissmann, E. Garcia, J. Herr, and S. Sheeder, “Methodologies to evaluate dissolved oxygen impairment in the San Joaquin River for watershed management,” *Pacific Research Day*, Stockton, CA, April 26, 2014.
13. J. Bonoan**, J. Arucan*, S. Gulati, and X. Li, “Measuring drug dissolution using a Quartz Crystal Microbalance,” *Pacific Research Day*, Stockton, CA, April 26, 2014.
14. W. Stringfellow, S. Gulati, J. Herr, J. Hanlon, C. Spier, A. Stubblefield, M. Jue, G. Weissmann, S. Sheeder, E. Garcia and M.K. Camarillo, “Investigation of Oxygen Consuming Materials Effecting a Dissolved Oxygen TMDL in the San Joaquin River’s Deepwater Ship Channel near Stockton, CA,” *State of the San Francisco Estuary Conference*, Oakland, CA, October 29-30, 2013.
15. W. Good*, I. Srivastava*, and S. Gulati, “Influence of microfluidic geometry on micro-droplet formation,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 20, 2013.
16. J. Bonoan*, B. Liu*, and S. Gulati, “Quantifying drug dissolution using a quartz crystal microbalance,” *Pacific Undergraduate Research and Creativity Conference*, Stockton, CA, April 20, 2013.
17. A.A. Stubblefield, S. Gulati, J.S. Hanlon, C.L. Spier, and W.T. Stringfellow, “Comparison of load estimation methods for calculating total maximum daily load (TMDL) in agricultural watersheds,” *Pacific Research Day*, Stockton, CA, March 18, 2013.
18. W. Good*, I. Srivastava*, and S. Gulati, “Influence of microfluidic geometry on micro-droplet formation,” *Pacific Research Day*, Stockton, CA, March 18, 2013.

FUNDED PROJECTS

1. Principle Investigator, 2016, *Simulation of micro-droplet formation in parallel channels*, University of the Pacific Eberhardt Research Fellowship, \$3499.

PUBLICATIONS PRIOR TO APPOINTMENT AT UNIVERSITY OF THE PACIFIC

JOURNAL PUBLICATIONS

1. K. Vijayakumar, S. Gulati, A.J. de Mello, and J.B. Edel, “Rapid cell extraction in aqueous two-phase microdroplet systems” *Chemical Science*, **1**, 2010, p. 447-452 (cover art).
2. E. Alpay and S. Gulati, “Student-led podcasting for engineering education” *European Journal of Engineering Education*, **35**(4), 2010, p. 415-427.

3. S. Gulati, C.D. Dutcher, D. Liepmann, and S.J. Muller, “Elastic secondary flows in sharp 90 degree micro-bends: a comparison of PEO and DNA solutions” *Journal of Rheology*, **54**(2), 2010, p. 375-392.
4. K.L.A. Chan, S. Gulati, J.B. Edel, A.J. de Mello, and S.G. Kazarian, “Chemical imaging of microfluidic flows using ATR-FTIR spectroscopy” *Lab on a Chip*, **9**, 2009, p. 2909-2913.
5. S. Gulati, V. Rouilly, X. Niu, J. Chappell, R.I. Kitney, J.B. Edel, P. Freemont, and A.J. de Mello, “Opportunities for microfluidic technologies in synthetic biology” *Journal of the Royal Society Interface*, **6**, 2009, S493-S506.
6. X. Niu, S. Gulati, J.B. Edel, and A.J. de Mello, “Pillar-induced droplet merging in microfluidic circuits” *Lab on a Chip*, **8**, 2008, p.1837-1841.
7. S. Gulati, S.J. Muller, and D. Liepmann, “Direct measurements of viscoelastic flows in micro-contractions” *Journal of Non-Newtonian Fluid Mechanics*, **155**(1-2), 2008, p.51-66.
8. S. Gulati, D. Liepmann, and S.J. Muller, “Elastic secondary flows of semidilute DNA solutions in abrupt 90° micro-bends” *Physical Review E*, **78**(1), 2008, p. 036314. Additionally published in *Virtual Journal of Nanoscale Science & Technology* and *Virtual Journal of Biological Physics Research*.
9. M.M. Garcia, S. Gulati, D. Liepmann, G.B. Stackhouse, K. Greene, and M.L. Stoller, “Traditional Foley drainage systems – do they drain the bladder?” *Journal of Urology*, **177**(1), 2007, p. 203-207.

PRESENTATIONS WITH PEER-REVIEWED CONFERENCE PAPERS

1. E. Alpay and S. Gulati, “Student-led podcasting for engineering education,” *European Society for Engineering Education (SEFI) Annual Conference*, Rotterdam, Netherlands, July 1-4, 2009.
2. S. Gulati, X. Niu, J.B. Edel, and A.J. de Mello, “Simulation of formation and dynamics of microdroplets,” *1st European Conference on Microfluidics*, Bologna, Italy, December 10-12, 2008.
3. S. Gulati, S.J. Muller, and D. Liepmann, “Quantitative velocity measurements of lambda-DNA transport in microdevices,” *Micro Total Analysis Systems*, Boston, Massachusetts, October 9-13, 2005.
4. S. Gulati, S.J. Muller, and D. Liepmann, “Direct measurements of viscoelastic flows in micro-contractions,” *ASME Third International Conference on Microchannels and Minichannels*, Toronto, Ontario, Canada, June 13-15, 2005.
5. S. Gulati, S.J. Muller, and D. Liepmann, “Quantifying viscoelastic behavior of DNA-laden flows in microfluidic systems,” *International IEEE-EMBS Special Topic Conference on Microtechnologies in Medicine & Biology*, Turtle Bay, Hawaii, May 12-15, 2005.

PRESENTATIONS WITH PUBLISHED CONFERENCE PAPERS (NOT PEER-REVIEWED)

1. M.H. Lean, J.-P. Lu, S.J. Limb, J.H. Daniel, A.R. Volkel, H.B. Hsieh, S.E. Solberg, B.T. Preas, and S. Gulati, “Traveling wave particle separation in fluidic cell,” *AIChE Fifth World Congress on Particle Technology*, April 23-27, 2006.
2. A. Nonaka, S. Gulati, D. Trebotich, G. H. Miller, S. Muller, and D. Liepmann, “A computational model with experimental validation for DNA flow in microchannels,” *Technical Proceedings of the 2005 Nanotechnology Conference and Tradeshow*, Anaheim, California, May 8-12, 2005.
3. D. Trebotich, P. Colella, G.H. Miller, A. Nonaka, T. Marshall, S. Gulati and D. Liepmann, “A numerical algorithm for complex biological flow in irregular microdevice geometries,” *Technical Proceedings of the 2004 Nanotechnology Conference and Tradeshow*, Volume 2, 470-473, Boston, Massachusetts, 2004.

SERVICE

MECHANICAL ENGINEERING DEPARTMENT AND BIOENGINEERING PROGRAM

Mechanical Engineering 30th Anniversary Dinner, Homecoming	F15
Transfer Orientation Advisor	Su15, Sp16
Bioengineering Faculty Search Committee Member (Dr. Shadi Othman selected)	Sp15
Guest Lecturer, Biology for Engineers course (BENG 53) “Biomimicry: Nature as Model, Measure, and Mentor”	F14, 15
Orientation Advisor	Su14, 15
Bioengineering Faculty Search Committee Member (Dr. Huihui Xu selected)	F13 – Sp14
Bioengineering Faculty Search Committee Member (search did not result in hire)	Sp13 – Su13
Bioengineering Lab Coordinator (on safety and IT)	2013 –
Bioengineering Recruiting, Pacific Preview Days	F12(2), 15
Guest Lecturer, Introduction to Bioengineering course (BENG 5) “Biological fluid flows in microfluidic systems”	Sp12, 16
Bioengineering Lab Tours, ABET Review and Visit	F12
Speaker, Biomedical Engineering Society (BMES) meeting “Biological fluid flows in microfluidic systems”	F12
Prospective student meetings	2011 –
Faculty Advisor, BioMedical Engineering Society (BMES)	2011 – 2015
Guest Lecturer, Polymer and Composite Materials course (MECH 202) “Polymers in Bioengineering”	F10

SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

Speaker, SOECS Presentation at Honor’s Day	Sp16
Speaker, School of Engineering and Computer Science Dean’s Council Meeting “Microfluidic platforms for biological and pharmaceutical applications”	Sp14
Coordinator, Comsol Multiphysics Workshops for students and faculty	Sp14, F14
Panelist, Theta Tau Question and Answer session	Sp14
Microfluidics Lab Demonstration and Open House, Homecoming	F13, 15
Faculty Research Committee (FRC) Member (substitute for colleague on sabbatical)	F13
Bioengineering Lab Open House, SOECS 55th Anniversary Celebration	2012
University of the Pacific Seed Grant Reviewer	2012
School of Engineering and Computer Science (SOECS) Council Member	2011 –

UNIVERSITY OF THE PACIFIC

Academic Council Committee Member	F16 –
STEM Librarian Search Committee Member	Sp16
Powell Scholars Interviewer	Sp15
Committee for Academic Planning and Development (CAPD) Member	F14 –

ENGINEERING AND BIOENGINEERING PROFESSIONS

Society of Women Engineers (SWE) Women in Academia Mentor	Sp16
Abstract Reviewer, Biomedical Engineering Society (BMES) annual meeting	Sp14, 15
Reviewer, <i>Design of Biomedical Devices and Systems</i> (3rd ed.) by King and Fries (one chapter)	Sp14

SHELLY GULATI

COMMUNITY

MESA California Engineering Design Competition Poster Judge	Su15
Bioengineering workshop at Science Exploration Saturday at San Joaquin Elementary School	Su14
Lab visit for Benjamin Holt College Preparatory Academy student	Sp14
Lab tour to Lodi Leadership	Sp14
Expanding Your Horizons (EYH) Bioengineering Workshop Organizer	Annually, 2011 –