RASIM O. GULDIKEN, Ph.D.
Associate Dean for Academic Affairs, College of Engineering
Professor, Department of Mechanical Engineering
University of South Florida
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PROFESSIONAL PREPARATION

Georgia Institute of Technology, Atlanta, GA Ph.D. in Mechanical Engineering 2008
Dissertation: "Dual-electrode Capacitive Micromachined Ultrasonic Transducers for Medical Ultrasound Applications"
Northeastern University, Boston, MA M.S. in Mechanical Engineering 2004
Thesis: "Metrology and Removal of Submicron and Nano Particles from Structured and Flat Substrates"
Middle East Technical University, Turkey B.S. in Mechanical Engineering 2002

ADMINISTRATIVE AND ACADEMIC APPOINTMENTS

Associate Dean for Academic Affairs, College of Engineering 2021 – present
University of South Florida, Tampa, FL

Graduate Program Director, Mechanical Engineering Department 2015 – 2021
University of South Florida, Tampa, FL

Professor of Mechanical Engineering Department 2023 – present
University of South Florida, Tampa, FL

Associate Professor of Mechanical Engineering Department 2014 – 2023
University of South Florida, Tampa, FL

Assistant Professor of Mechanical Engineering Department 2008 – 2014
University of South Florida, Tampa, FL

AWARDS AND HONORS

- National Academy of Inventors, Senior Member 2024
- ASME Fellow 2022
- USF Faculty Outstanding Research Achievement Award 2022
- USF Academic Excellence Award 2022
- USF Academy of Distinguished Engineering Educators 2021
- USF STEER Scholar 2021
- USF College of Engineering Outstanding Undergraduate Teaching Award 2020
- USF University-Wide Outstanding Undergraduate Teaching Award 2019
- USF Outstanding Graduate Faculty Mentor, Honorable Mention 2018
- SAE Ralph Teetor Educational Award 2014

- ASME Florida West Coast Section Engineer of the Year 2012
- USF University-Wide Outstanding Undergraduate Teaching Award 2012
- "Grantee Spotlight" on the Florida Department of Health Website 2011
- Sigma Xi Best Ph.D. Dissertation Award Nominee, Georgia Tech Chapter 2008
- International IEEE Ultrasonics Symposium, Best Student Paper Award 2005 and 2007

RESEARCH INTERESTS

Acoustics, Ultrasonics, Microfluidics, Fluid Mechanics, Sensors and Transducers, Engineering Education Research

RESEARCHER SUPERVISION (Total: 57 – Current: 3, Alumni: 54)

- Post-Doctoral Fellows (3)
  - Dr. Mustafa Demirci 2023
    Current Position: TBA
  - Dr. Emre Tufekcioglu 2015 – 2016
    Current Position: Assistant Professor, Eskisehir University, Eskisehir, Turkey
  - Dr. Alper Sisman 2011 – 2012
    Current Position: Assistant Professor, Electrical and Electronics Engineering, Marmara University, Istanbul, Turkey

- Doctoral Students (19)
  - Ozge Uyanik, Ph.D. Candidate Ph.D. expected in 2026
  - Samuel Donatus, Ph.D. Student, co-advised with J. Wang Ph.D. expected in 2026
  - Jose Paul, Ph.D. in Mechanical Engineering 2024
    Dissertation Title: Ultrasound Based Dynamic Reference Reflection Technique for Simultaneous Specific Gravity and Temperature Estimation
    Current Position: Engineer at Cemex
  - John Cotter, Ph.D. in Mechanical Engineering 2022
    Dissertation Title: Bulk Glass as Compressive Reinforcement in Structural Elements
    Current Position: Principal Investigator at Transtek International Group, Orlando, FL
  - Saleh Alhumaid, Ph.D. in Mechanical Engineering 2022
    Dissertation Title: A Noncontact Magneto-Piezo Harvester-Based Vehicle Regenerative Suspension System, Co-advised with D. Hess
    Current Position: Assistant Professor at University of Hail, Saudi Arabia
  - Hani Alhazmi, Ph.D. in Mechanical Engineering 2020
    Dissertation Title: Experimental Investigation of Liquid Height Estimation and Simulation Verification of Bolt Tension Quantification Using Surface Acoustic Waves
    Current Position: Assistant Professor at Umm Al-Qura University, Saudi Arabia
  - Joel Cooper, Ph.D. in Mechanical Engineering 2020
    Dissertation Title: Manipulation and Patterning of Mammalian Cells using Vibrations and Acoustic Force, Co-advised with D. Gallant
    Current Position: Project Engineer, Triton Systems, Inc. Chelmsford, MA

- Marwan Belaed, Ph.D. in Mechanical Engineering 2020
  Dissertation Title: Simulation and Verification of Phase Change Materials for Thermal Energy Storage, Co-advised with M. Rahman
  Current Position: Solar Engineering Consultant as DBA, Tampa, FL
- Matt Trapuzzano, Ph.D. in Mechanical Engineering 2019
  Dissertation Title: Controlled Wetting Using Ultrasonic Vibration, Co-advised with N. Crane
  Current Position: Mechanical Engineer at Blue Origin, Cape Canaveral, FL
- Mohsen Ziaee, Ph.D. in Mechanical Engineering 2018
  Dissertation Title: Materials and Methods to Fabricate Porous Structures Using Additive Manufacturing Techniques, Co-advised with N. Crane
  Current Position: Additive Manufacturing Engineer at 3DEO, Gardena, CA
- Shantanu Shevade, Ph.D. in Mechanical Engineering 2018
  Dissertation Title: Simulation of Turbulent Air Jet Impingement for Commercial Cooking Applications, Co-advised with M. Rahman
  Current Position: Director of Engineering, Welbilt, Inc., Newport Richey, FL
- Scott Padilla, Ph.D. in Mechanical Engineering 2017
  Dissertation Title: Novel Transducer Calibration and Simulation Verification of Polydimethylsiloxane (PDMS) Channels on Acoustic Microfluidic Device
  Current Position: Project Manager at Neuralink, Austin, TX
- Rafael Rodriguez, Ph.D. in Mechanical Engineering 2017
  Dissertation Title: Experimental Evaluation of Cooling Effectiveness and Water Conservation in a Poultry House Using Flow Blurring Atomizers
  Current Position: Associate Professor at Embry–Riddle Aeronautical University
- Adrian Avila, Ph.D. in Electrical Engineering 2017
  Dissertation Title: Development of MEMS Acoustic Emission Sensors, Co-advised with J. Wang
  Current Position: R&D Engineer at Intel, Chandler, AZ
- Tao Wang, Ph.D. in Mechanical Engineering 2016
  Dissertation Title: Optimization and Characterization of Integrated Microfluidic Surface Acoustic Wave Sensors and Transducers
  Current Position: Microfluidic Engineer at Technicolor SA in Camarillo, CA
- Ahmad Manasrah, Ph.D. in Mechanical Engineering 2016
  Dissertation Title: Application and Analysis of Asymmetrical Hot and Cold Stimuli, Co-advised with K. Reed
  Current Position: Assistant Professor at Al-Zaytoonah University, Jordan
- Eric Tridas, Ph.D. in Mechanical Engineering 2015
  Dissertation Title: Use of FDM Components for Ion Beam and Vacuum Applications, Co-advised with R. Schlaf
  Current Position: Staff R&D Engineer at Pivot, Inc., San Francisco, CA
- Onursal Onen, Ph.D. in Mechanical Engineering 2013
  Dissertation Title: Analytical Modeling, Perturbation Analysis and Experimental Characterization of Guided Surface Acoustic Wave Sensors
  Current Position: Owner and CEO at Metapax Akustik, Turkey

- Myeong Chan Jo, Ph.D. in Mechanical Engineering 2013
  Dissertation Title: An Acoustic-based Microfluidic Platform for Active Separation and Mixing
  Current Position: Vice-President of Development at Innovative Biochips LLC, Houston, TX

- Visiting Faculty (1)
  - Dr. Vinayak Ranjan 2012
    Current Position: Department Chair and Professor, Department of Mechanical and Aerospace Engineering, Bennett University, NCR Delhi, India

- Masters Students (13)
  - Akshay Gulhane, M.S. in Mechanical Engineering 2020
    Thesis Title: Rescue Operations Bot Operating in Water, Co-advised with A. Mujumdar
    Current Position: Engineer at NeilSoft Limited, India
  - Mohammed Al-Busaidi, M.S. in Mechanical Engineering 2019
    Thesis Title: Simulation and Experimental Investigation of Fluid Mixing Enhancement with Orifice Plate
    Current Position: Development Mechanical Engineer in Petroleum Development Oman
  - Robert Bebeau, M.S. in Mechanical Engineering 2018
    Thesis Title: Simulation of Radiation Flux from Thermal Fluid in Origami Tubes
    Current Position: Fatigue Engineer at Boeing, St. Louis, MO
  - Shivaraman Asoda, M.S. in Mechanical Engineering 2018
    Thesis Title: Simulation and Optimization of a Sheathless Size-Based Acoustic Particle Separator
    Current Position: Engineer at Cybel LLC, Allentown, PA
  - Frederick Schousboe, M.S in Mechanical Engineering 2017
    Thesis Title: Media Velocity Considerations in Pleated Air Filtration
    Current Position: Engineering Manager at EnerSys, Tampa, FL
  - Matt Hardy, M.S. in Mechanical Engineering 2017
    Thesis Title: Heat Flux Modeling of Asymmetrically Heated and Cooled Thermal Stimuli, Co-advised with K. Reed
    Current Position: U.S. Navy Civil Engineer Corps Officer, Newport, Rhode Island
  - Senmiao Hu, M.S. in Mechanical Engineering 2016
    Thesis Title: Simulation and Verification of Fluid Jet Polishing
    Current Position: Unknown
  - Jairo Martinez, M.S. in Mechanical Engineering 2012
    Thesis Title: A Novel Ultrasonic Method to Quantify Bolt Tension
    Current Position: Thermal Integration Engineer at Cummins Inc., Milpitas, CA
  - Greeshma Manohar, M.S. in Mechanical Engineering 2012
    Thesis Title: Investigation of Various Surface Acoustic Wave Design Configurations for Improved Sensitivity

Current Position: Engineer at HARMAN International, Detroit, MI

- Eric Tridas, M.S. in Mechanical Engineering 2012
  Thesis Title: Experimental and Numerical Investigation of an Electrospray RF Ion Funnel, Co-advised with R. Schlaf
  Current Position: Staff R&D Engineer at Pivot, Inc., San Francisco, CA
- Ahmad Manasrah, M.S. in Mechanical Engineering 2012
  Thesis Title: Human Motion Tracking for Assisting Balance Training and Control of a Humanoid Robot, Co-advised with K. Reed
  Current Position: Assistant Professor at Al-Zaytoonah University, Jordan
- Asad Ahmad, M.S. in Mechanical Engineering 2011
  Thesis Title: Surface Functionalization and Analysis Thereof for an Ovarian Cancer Diagnostic Biosensor, Co-advised with N. Gallant
  Current Position: Global Key Accounts, Tempus Labs, Inc. Chicago, Illinois
- Lynford Davis, M.S. in Mechanical Engineering 2009
  Thesis Title: Investigation of Residual and Thermal Stress on Membrane-Based MEMS Devices
  Current Position: High School Math Teacher, Pasco County, FL

- Undergraduate Students (21)
  - Adam Major, A Non-Invasive, Label-Free Acoustic Microfluidics Separation Device: An Experimental Study 2023 – Present
  - Teehran Francis, Concrete Inspection on Bridges with an Ultrasonic Transducer Integrated to a Tire 2022 – 2023
  - Matthew Moss, Does Metacognition and Reflection Increase Student Learning in an Undergraduate STEM Course? 2021 – 2023
  - Rafael Braga Gomes, Coupled Analysis of Powder Bed Interaction with Laser for Laser Melting Process 2020 – 2021
  - Charles Baker, HVAC Design (a Chilled Water System with Hydronic Heating) for Braden River Middle School Classroom Addition 2020
  - Richard Leyton, Performance, Efficiency and Cost Optimization of Custom-designed Camshaft for Mx-5 (NB) 2019
  - Daniel O'Connor, Honor's Thesis, Committee Member, Exploring the SCUBA of Yesterday, Today and Tomorrow 2016 – 2017
  - Joshua Garno, Honor's Thesis Director, Computational Study on Reducing Drag and Boundary Layer Separation in Airfoils 2015 – 2016
  - Marcos Robles, Analysis of a Modular Engine Air Particle Separator for use in Unmanned Aerial Vehicles 2014 – 2015
  - Brandon Demers, Investigation of Redirecting Air to Increase the Normal Load on the Tires for Added Grip 2014
  - Laura Byrnes-Blanco, Ultrasonic Modulation of Protein and Cellular Attachment in Jackson Pratt Drainage System 2013
  - Kimberly Witke, Acoustic Analysis of Venturi Nozzle 2013
  - Alex McCulla, Change in Shear Stress due to Skin-Friction and Aerodynamic Shape Altered by the Surface Roughness, 2012 – 2013

- Stephen MacNeil, Simulation of a Space Electrical Power System 2012
- Dean Velasquez, Phased Array Surface Acoustic Wave Transducers for Bolt Tension Measurement 2012
- Ahmad Hares, Spring Rate and Preload Investigation of Various Valve Sizes using Fluid Transportation Principles 2011
- Andrew Abney, Drag Reduction on an Arbitrary Shaped Flying Disc and Simulation of Operation Parameters for Capacitive Acoustic Transducers 2011
- Jaime Pagan, Design and Fabrication of Characterization Setup for High-Frequency Immersion Ultrasonic Transducers 2010
- Chris Nelson, Simulation of Thermal Effects on Micro Membranes 2010
- Nathan Rice, Study on Ground Loop Air-Conditioning Systems 2009
- Momo Kajiwara, High-Intensity Ultrasound for Breast Cancer Treatment 2009

RESEARCH GRANTS AND CONTRACTS

G1 Propagation and Interaction of Stress Waves from Repeated, Low-Pressure Concussive Pulses, U.S. Army Research Lab and U.S. Special Operations Command, $300K, PI, 10/2024 – 12/2025

G2 Using Adaptive Lessons to Enhance Motivation, Cognitive Engagement, and Achievement Through Equitable Classroom Preparation, NSF, $383K, co-PI (PI: Autar Kaw), 05/2024 – 04/2027

G3 Fast Track Ultrasonic Imaging of Concrete Bridge Decks, Source: U.S. Department of Transportation (through TIG, LLC) and FHTC, $240K, PI, 03/2021 – 12/2024

G4 Structured Use of Metacognitive Activities in a Flipped Undergraduate Engineering Course to Enhance Learning and Professional Skill Development, NSF, $207K, PI, 10/2020 – 09/2024

G5 I-Corps: Recycled Plastic Lumber Building Material Replacement for Structural Lumber, NSF, $50K Role: PI, 06/2022 – 05/2023

G6 CHS: Small: Investigation of Dynamic Thermal Perception over Large Skin Areas, NSF, Amount: $530K, Co-PI (PI: Kyle Reed), 09/2015 – 08/2021

G7 Controlling Liquid Wetting of Textured Surfaces using Ultrasound, Brigham Young University, $55K, PI, 11/2018 – 12/2019

G8 I-Corps: An Individualized 3D Printed Silicone Bottle Nipple, NSF, $50K, PI, 07/2018 – 12/2018

G9 Controlling Liquid Wetting of Textured Surfaces using Ultrasound, NSF, $375K, Co-PI (PI: Nathan Crane), 01/2015 – 10/2018

G10 Large Stroke Microscale Actuators Based on Electrowetting, NSF, $390K, Co-PI (PI: Nathan Crane), 08/2011 – 07/2017

G11 Microfluidic-Acoustic Biosensing-Multicell Tumoroid (MABMCT) Platform, Florida Department of Health, $100K, Co-PI (PI: Shyam Mohapatra), 04/2016 – 03/2017

G12 EAGER: A Surface Acoustic Wave Device for High-Resolution Atherosclerotic Plaque Inspection, NSF, $200K, PI, 08/2011 – 07/2014

G13 A Novel, Low Cost, Ultra-sensitive Nanosensor for Early Detection of Ovarian Cancer, Florida Department of Health, $400K, PI, 07/2010 – 06/2013

G14 Acoustic Emission on a Chip (AECHIP), NSF (through WavesinSolids LLC), $130K, PI, 01/2013 – 12/2013

PUBLICATIONS (Jan. 2025, Google Scholar Citations: 2500+, h-index: 27, i-10 index: 44)

(i) Patents

** Students supervised in my research group are underlined*

P1 J. Cotter and R. Guldiken, "Cost-Effective Bulk Glass Reinforced Composite Columns," U.S. Patent 12,195,965, 2025

P2 M. C. Wang, and R. Guldiken, "Metals-based Additive Manufacturing Methods and Systems with Thermal Monitoring and Control," U.S. Patent 12,103,077, 2024

P3 J. Cotter and R. Guldiken, "Arc Melted Glass Piles for Structural Foundations," U.S. Patent 11,021,846, 2021

P4 S. S. Mohapatra, S. Mohapatra, R. Guldiken, R. Nair and T. Wang, "System and Method of Measuring Cell Viability and Growth," U.S. Patent 11,016,062, 2021

P5 S. S. Mohapatra, S. Mohapatra, R. Guldiken, R. Nair and T. Wang, "System and Method of Measuring Cell Viability and Growth," U.S. Patent 10,520,472, 2019

P6 G. Mumcu, R. Guldiken, and A. Gheethan, "Microfluidic Beam Scanning Focal Plane Arrays," U.S. Patent 10,454,166, 2019

P7 R. Guldiken, M. C. Jo and J. Zhe, "Two-Stage Microfluidic Device for Acoustic Particle Manipulation and Methods of Separation," U.S. Patent 9,821,310, 2017

P8 G. Mumcu, R. Guldiken, and A. Gheethan, "Microfluidic Beam Scanning Focal Plane Arrays," U.S. Patent 9,716,313, 2017

P9 G. Mumcu, T. Palomo and R. Guldiken, "Dynamically Reconfigurable Bandpass Filters," U.S. Patent 9,325,047, 2016

P10 R. Guldiken and J. Martinez Garcia, "Active ultrasonic method of quantifying bolt tightening and loosening," U.S. Patent 9,127,998, 2015

(ii) Refereed Journal Publications

** Students supervised in my research group are underlined*

J1 Jose Paul, and R. Guldiken, "Isothermal Dynamic Reference Reflection Method for Specific Gravity Estimation in Fluids Using Ultrasound" *Applied Acoustics*, under review

J2 R. Clark, O. Uyanik, A. Kaw, and R. Guldiken, "The Case for Metacognition Support in a Flipped STEM Course," *International Journal of Mechanical Engineering Education*, https://doi.org/10.1177/03064190241255113, 2024

J3 J. Cotter and R. Guldiken, "Reinforced, Nailable Rubber Concrete with Strength and Withdrawal Properties Similar to Lumber," *Journal of Composites Sciences*, 7(10):405. https://doi.org/10.3390/jcs7100405, 2023

J4 J. Cotter and R. Guldiken, "Bulk Glass Reinforced Composite Columns: Physical Testing Results, Analysis, and Discussion," *Journal of Composites Sciences*, 7(6):241. https://doi.org/10.3390/jcs7060241, 2023

J5 K. Ettini, J. Cotter, and R. Guldiken, "Analytical, Simulation, and Experimental Verification of Acoustic Thermometry Technique" *Applied Acoustics*, vol 207, 109345, 2023

J6 R. Clark, A. Kaw, and R. Guldiken, “Metacognition instruction and repeated reflection in a fluid mechanics course: Reflective themes and student outcomes,” *International Journal of Mechanical Engineering Education*, vol 51 (4), pp. 243-269, 2023

J7 S. Alhumaid, D. Hess, and R. Guldiken, “A Noncontact Magneto-Piezo Harvester-Based Vehicle Regenerative Suspension System: An Experimental Study,” *Energies*, vol 15 (12), 4476, 2022

J8 J. Cotter, J. Wang, and R. Guldiken, “Intrinsically Patterned Electrical Systems: Physical Requirements and Experimental Demonstration,” *Microsystem Technologies*, 27(1), pp. 307-314, 2021

J9 S. Alhumaid, D. Hess and R. Guldiken, “Energy Regeneration from Vehicle Unidirectional Suspension System by a Non-contact Piezo-magneto Harvester,” *Engineering Research Express*, 3 (1), 015033, 2021

J10 J. Cotter, and R. Guldiken, “Vertical Manipulation of Fluids through Electrostatic Formation: Model Development and Experimental Validation,” *Microsystem Technologies*, vol. 26 (4), pp. 1301-1315, 2020

J11 J. Cotter, and R. Guldiken, “Cost-Effective Bulk Glass Reinforced Composite Columns,” *Journal of Composite Sciences*, vol. 4(2), no:47, 2020

J12 H. Alhazmi, and R. Guldiken, “Contactless Liquid Height and Property Estimation Using Surface Acoustic Waves,” *Acoustics*, vol 2 (2), pp. 366-381, 2020

J13 J. Cotter, and R. Guldiken, “Theoretical Design Strategies, Strengths, Costs, and Environmental Impacts of Triple Composite Beams Utilizing Glass Compressive Reinforcement,” *Journal of Composite Sciences*, vol. 4 (1), no:22, 2020

J14 M. Belaed, M.M. Rahman, and R. Guldiken, “Influence of Optical Thickness on the Melting of a Phase Change Material in a Thermal Energy Storage Module,” *Journal of The Minerals, Metals & Materials Society (TMS)*, vol. 71, pp. 2089-2095, 2020

J15 M. Trapuzzano, N.B. Crane, R. Guldiken and A. Tejada-Martinez, “Wetting Metamorphosis of Hydrophobic Fluoropolymer Coatings Submerged in Water and Ultrasonically Vibrated” *Journal of Coatings Technology and Research*, vol. 17, pp. 633-642, 2020

J16 M. Trapuzzano, A. Tejada-Martinez, R. Guldiken and N.B. Crane, “Volume and Frequency-Independent Spreading of Droplets Driven by Ultrasonic Surface Vibration” *Fluids*, vol 5 (1), 18, 2020

J17 T. Wang, R. Murphy, J. Wang, S. Mohapatra, and S.S. Mohapatra, and R. Guldiken, “Perturbation Analysis of a Multiple Guiding Layer Surface Acoustic Wave-based Sensor in a Viscoelastic Environment,” *Sensors*, vol 19 (20), 4553, 2019

J18 S. Asoda, and R. Guldiken, “Simulation and Optimization of a Sheathless Size-Based Acoustic Particle Separator,” *Microsystem Technologies*, vol 25, pp. 2793-2804, 2019

J19 H. Alhazmi, and R. Guldiken, “Contactless Quantification of Bolt Tension by Surface Acoustic Waves,” *Acoustics*, vol 1 (4), pp. 794-807, 2019

J20 S. Shevade, M. Rahman and R. Guldiken, “Optimization of Turbulent Air Jet Impingement for Energy Efficient Commercial Cooking” *Energy Procedia*, vol 160, pp. 691-698, 2019

J21 T. Wang, R. Green, R. Guldiken, S. Mohapatra and S.S. Mohapatra, “Multiple-Layer Guided Surface Acoustic Wave (SAW)-based pH Sensing in Longitudinal FiSS-Tumoroid Cultures,” *Biosensors and Bioelectronics*, vol 124, pp. 244-252, 2019

J22 T. Wang, R. Green, R. Guldiken, J. Wang, S. Mohapatra, and S.S. Mohapatra, "Finite Element Analysis for Surface Acoustic Wave Device Characteristic Properties and Sensitivity," *Sensors*, vol 19 (8), 1749, 2019

J23 A. Manasrah, M. Hojatmadani, R. Guldiken, and K. Reed, "Computational Analysis of Asymmetrically Applied Hot and Cold Stimuli," *International Journal of Engineering Research and Innovation*, vol 11 (2), pp.18-27, 2019

J24 S. Padilla, E. Tufekcioglu, and R. Guldiken, "Simulation and Verification of Polydimethylsiloxane (PDMS) Channels on Acoustic Microfluidic Devices," *Microsystem Technologies*, vol. 24, pp. 3503-3512, 2018

J25 T. Wang, Q. Ni, N. Crane, and R. Guldiken, "Surface Acoustic Wave based Pumping in a Microchannel," *Microsystem Technologies*, vol. 23, pp. 1335-1342, 2017

J26 A. Manasrah, N. Crane, R. Guldiken and K. Reed, "Perceived Constant Cooling Using Asymmetrically - Applied Hot and Cold Stimuli*" IEEE Transactions on Haptics,* vol. 10, pg.75-83, 2017

J27 A. Dey, R. Guldiken and G. Mumcu, "Microfluidically Reconfigured Wideband Frequency Tunable Liquid Metal Monopole Antenna" *IEEE Transactions on Antennas and Propagation*, vol 6, pp. 2572-2577, 2016

J28 T. Wang, R. Green, R.R. Nair, M. Howell, S. Mohapatra, R. Guldiken and S.S. Mohapatra, "Surface Acoustic Waves (SAW)-Based Biosensing for Quantification of Cell Growth in 2D and 3D Cultures," *Sensors*, vol 15, pp. 32045-32055, 2015

J29 E. Tridas, J.M. Anthony, R. Guldiken, and R. Schlaf, "Enhanced Simulation of an RF Ion Funnel including Gas Turbulence" *Journal of Mass Spectroscopy*, vol 50, pp. 206-211, 2015

J30 M. Jo, and R. Guldiken, "Particle Manipulation by Phase-shifting of Surface Acoustic Waves," *Sensors and Actuators A,* vol 207, pp. 39-42, 2014

J31 O. Onen, and R. Guldiken, "Investigation of Guided Surface Acoustic Wave Sensors by Analytical Modeling and Perturbation Analysis," *Sensors and Actuators A,* vol 205, pp.38-46, 2014

J32 M. Jo, and R. Guldiken, "Effects of Polydimethylsiloxane (PDMS) Microchannels on Surface Acoustic Wave-based Microfluidic Devices," *Microelectronic Engineering*, vol 113, pp. 98-104, 2014

J33 M. Jo, and R. Guldiken, "Dual Surface Acoustic Wave-based Active Mixing in a Microfluidic Channel," *Sensors and Actuators A*, vol 196*,* pp. 1-7, 2013

J34 N. B. Crane, O. Onen, J. Carballo, Q. Ni, and R. Guldiken, "Fluidic Assembly at the Microscale: Progress and Prospects," *Microfluidics and Nanofluidics*, vol 14, pp. 383-419, 2013

J35 A. Gheethan, M. Jo, R. Guldiken and G. Mumcu, "Microfluidic Based Ka-Band Beam Scanning Focal Plane Array," *IEEE Antennas and Wireless Propagation Letters*, vol 12, pp. 1638-1641, 2013

J36 J. Martinez, A. Sisman, O. Onen, D. Velasquez, and R. Guldiken, "A Synthetic Phased Array Surface Acoustic Wave Sensor for Quantifying Bolt Tension," *Sensors,* vol 12, pp. 12265-12278, 2012

J37 M. Jo, and R. Guldiken, "Active Density-based Separation using Standing Surface Acoustic Waves," *Sensors and Actuators A*, vol 187, pp. 22-28, 2012

J38 O. Onen, A. Ahmad, R. Guldiken, and N. Gallant, “Surface Modification on Acoustic Wave Biosensors for Enhanced Specificity,” *Sensors, vol 12,* pp. 12317-12328, 2012

J39 O. Onen, A. Sisman, N. Gallant, P. Kruk, and R. Guldiken, “Urinary Bcl-2 Surface Acoustic Wave Biosensor for Early Ovarian Cancer Detection,” *Sensors,* vol 12, pp. 7423-7437, 2012

J40 O. Onen, and R.O. Guldiken, “Detailed Investigation of Capacitive Micromachined Ultrasonic Transducer Design Space,” *Microsystem Technologies,* vol 18, pp. 399-408, 2012

J41 R.O. Guldiken, M.C. Jo, N.D. Gallant, U. Demirci and J. Zhe, “Sheathless Size-Based Acoustic Particle Separation,” *Sensors*, vol 12, pp. 905-922, 2012

J42 F. Xu, T. D. Finley, M. Turkaydin, Y. Sung, U.A. Gurkan, R.O. Guldiken, and U. Demirci “The Assembly of Cell-Encapsulating Microscale Hydrogels using Acoustic Waves.” *Biomaterials*, vol 32, pp. 7847-7855, 2011

J43 O. Onen, L.O. Davis, C. Nelson, and R.O. Guldiken, “Thermal Stresses on Membrane Based Microdevices,” *Microsystem Technologies*, vol 16, pp. 1967-1973, 2010

J44 R.O. Guldiken, J. Zahorian, F. Yamaner, and F.L. Degertekin, “Dual Electrode CMUTs with Non-Uniform Membranes for High Electromechanical Coupling Coefficient and High Bandwidth Operation,” *IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control*, vol. 56, pp. 1270-1276, 2009

J45 R.O. Guldiken, M. Balantekin, J. Zahorian, and F.L. Degertekin, “Characterization of Dual-Electrode CMUTs: Demonstration of Improved Performance and Pulse-Echo Operation with Dynamic Membrane Shaping,” *IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control*, vol. 55, pp. 2336-2344, 2008

J46 R.O. Guldiken, P. Makaram, K. Bakhtari, J. Park, and A.A. Busnaina, “Nanoparticle Scanning and Detection on Flat and Structured Surfaces Using Fluorescence Microscopy,” *Microscopy Research and Technique,* vol. 70, pp. 534-538, 2007

J47 R.O. Guldiken, J. McLean, and F.L. Degertekin, “CMUTS with Dual-electrode Structure for Improved Transmit and Receive Performance,” *IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 53, pp. 483-491, 2006

J48 F.L. Degertekin, R.O. Guldiken, and M. Karaman, “Annular-Ring CMUT Arrays for Forward-Looking IVUS: Transducer Characterization and Imaging,” *IEEE Transactions on Ultrasonics Ferroelectrics and Frequency Control,* vol. 53, pp. 474-482, 2006

J49 K. Bakhtari, O. Guldiken, A.A. Busnaina, and J.G. Park, “Experimental and Analytical Study of Submicrometer Particle Removal from Deep Trenches,” *Journal of the Electrochemical Society,* vol. 153, pp. 603-607, 2006

J50 K. Bakhtari, O. Guldiken, P. Makaram, A.A. Busnaina, and J. G. Park, “Experimental and Numerical Investigation of Nanoparticle Removal Using Acoustic Streaming and the Effect of Time,” *Journal of the Electrochemical Society,* vol. 153, pp. 846-850, 2006

J51 A.G. Onaran, M. Balantekin, W. Lee, W.L. Hughes, B.A. Buchine, R.O. Guldiken, Z. Parlak, C.F. Quate, and F.L. Degertekin, “A New Atomic Force Microscope Probe with Force Sensing Integrated Readout and Active Tip,” *Review of Scientific Instruments,* vol. 77, 023501, 2006 (Also in *Virtual Journal of Nanoscale Science & Technology*, Volume 13, Issue 7

J52 O. Guldiken, K. Bakhtari, A. Busnaina, and J. Park, "Metrology and Removal of Nanoparticles from 500 microns Deep Trenches," *Journal of Solid State Phenomena,* vol. 103-104, pp. 137-140, 2005

(iii) Invited Book Chapters (2)

* *Students supervised in my research group are underlined*

B1. N.B. Crane, J. Carballo, Q. Ni, O. Onen and R. Guldiken (2013). Assembly, Fluidic-Assisted. In. D. Li (Ed.) *Encyclopedia of Microfluidics and Nanofluidics, 2nd Edition*. Germany: Springer

B2. R. Guldiken and O. Onen (2012). MEMS Ultrasonic Transducers for Biomedical Applications. In S. Bhansali and A. Vasudev (Eds.) *MEMS for Biomedical Applications* (pp.120-149). Cambridge, UK: Woodhead Publishing

(iv) Conference Publications/Presentations

* *Students supervised in my research group are underlined*

C1 M. Demirci and R. Guldiken, "Thermography With an Ultrasonic Transducer and Buffer Rod" ASME IMECE 2023-119965, New Orleans, Louisiana

C2 R. Clark, M. Moss, A. Kaw, and R. Guldiken, "Community as "Surroundings" in a Classroom Ecosystem" Proceedings of the ASEE Annual Conference 2023, Baltimore, Maryland

C3 S. Alhumaid, D. Hess and R. Guldiken, "A Noncontact Magneto-Piezo Harvester-Based Vehicle Regenerative Suspension System: An Experimental Study" ASME IMECE 2022-96938, Colombus, Ohio

C4 K. Ettini, J. Cotter and R. Guldiken, "Employing Contactless Acoustic Thermometry for Additive Manufacturing: An Experimentally Verified Simulation Study" ASME IMECE 2022-95434, Colombus, Ohio

C5 R. Clark, A. Kaw, and R. Guldiken, "Do Metacognitive Instruction and Repeated Reflection Improve Outcomes?" Proceedings of the ASEE Annual Conference 2022, Minneapolis, Minnesota

C6 R. Clark, A. Kaw, and R. Guldiken, "Use of Metacognitive Skills Instruction and Repeated Reflection in a Fluid Mechanics Course to Enhance Outcomes." 2022 American Association for the Advancement of Science (AAAS) Improving Undergraduate STEM Education (IUSE) Summit, Washington, DC

C7 J. Cotter, T. Sayers, and R. Guldiken, "Wide Spread of the Acoustical Wavefront of Low Frequency Transducers Utilized for Concrete Inspection" 2022 Eighth World Conference on Structural Control and Monitoring (8WCSCM), Orlando, FL

C8 J. Cotter, T. Sayers, and R. Guldiken, "Optimized Wheel Probe for Inspection of Delamination in Highly Attenuating Thick Materials" 2021 Florida Chapter Meeting of Acoustical Society of America, Gainesville, FL

C9 J. Cotter and R. Guldiken, "Remote Versus In-Class Active Learning Exercises for an Undergraduate Course in Fluid Mechanics" 2021 ASEE Annual Conference Proceedings, Virtual

C10 C. Garcia, and R. Guldiken, “Active Remote Learning or Active No More Learning? A Lessons Learned from an Undergraduate STEM Course in Fluid Mechanics” STEMPowered 2020, Virtual

C11 H. Alhazmi, and R. Guldiken, “An Experimental Study of Contactless Fluid Height Estimation Using Surface Acoustic Waves” ASME IMECE 2020-56127, Virtual

C12 J. Cotter, and R. Guldiken, “The Utilization of Glass as a Cost-Effective, Compressive Compositing Material in Structural Applications; Finite Element Modeling and Physical Testing” ASME IMECE 2020-56343, Virtual

C13 S. Alhumaid, D. Hess and R. Guldiken, “Rotational Energy Harvesting Based on an Integrated Magnetic and Piezoelectric Pair” ASME IMECE 2020-56337, Virtual

C14 M. Trapuzzano, N. Crane, R. Guldiken and A. Tejada-Martinez, “Driving Wetting Transitions on Textured Surface Using Ultrasonic Vibration,” ASME IMECE 2020-84652, Virtual

C15 M. Al Busaidi, C Garcia, C. Brown, and R. Guldiken, “Towards Flipping the Undergraduate Fluid Mechanics Class” ASME IMECE 2019-13944, Salt Lake City, Utah

C16 J. Cotter, N.B. Crane and R. Guldiken, “Digitally Defined Patterns for Manufacturing by Utilizing Point-Patterning” ASME IMECE 2019-11525, Salt Lake City, Utah

C17 H. Alhazmi and R. Guldiken, “Simulation and Optimization of a Surface Acoustic Wave Transducer for Contactless Bolt Tension Quantification” ASME IMECE 2019-11517, Salt Lake City, Utah

C18 M. Trapuzzano, A. Tejada-Martinez, R. Guldiken and N. B. Crane “Controllable Spreading of Microliter-Sized Liquid Droplets Using Ultrasonic Vibration” ASME IMECE 2019-11966, Salt Lake City, Utah

C19 S. S. Shevade, M. Rahman and, R. Guldiken, “Turbulent Multi-Jet Impingement for Applications in Commercial Cooking” ASME IMECE 2018-88635, Pittsburgh, PA

C20 S. S. Shevade, M. Rahman and, R. Guldiken, “Analysis and Optimization of Controlling Parameters during Impingement of Single Un-bound Jet” Turbulence, Heat and Mass Transfer (THMT-18), Rio de Janeiro, Brasil

C21 M. Trapuzzano, A. Tejada-Martinez, R. Guldiken, and N. B. Crane “Control of Droplet Spreading On Ultrasonically Vibrated Hydrophobic Surfaces” APS Division of Fluid Dynamics (DFD) 2018, Atlanta, GA

C22 M. Trapuzzano, N. B. Crane, R. Guldiken and A. Tejada-Martinez, “Forced Wetting of Liquids using Ultrasonic Surface Vibration” ASME IMECE 2018-87832, Pittsburgh, PA

C23 M. Trapuzzano, R. Guldiken, A. Tejada-Martinez, and N. B. Crane “Degradation of Hydrophobic Surface Coatings under Water Exposure” ASME IMECE 2018-87860, Pittsburgh, PA, *Best Oral Presentation Award*

C24 M. Hojatmadani, M. Hardy, A. Manasrah, R. Guldiken, and K. Reed, “Heat Flux Characteristics of Asymmetrically Heated and Cooled Thermal Stimuli” ASME IMECE 2017-71995, Tampa, FL

C25 A. Manasrah, N. Crane, R. Guldiken and K. Reed, “Asymmetrically Applied Hot and Cold Stimuli gives Perception of Constant Heat” 2017 IEEE World Haptics Conference, 484-489, Munich, Germany

C26 F. Moloney, C. Wickramaratne, E. Almatrafi, D.Y. Goswami, E. Stefanakos, and R. Guldiken, “Experimental Study on Thermal Storage Performance of Cylindrically

Encapsulated PCM in a Cylindrical Storage Tank with Axial Flow" ASME IMECE 2016-65730, Houston, TX

C27 M. Trapuzzano, K. Pierre, E. Tufekcioglu, R. Guldiken, A. Tejada-Martinez and N.B. Crane, "Comparison of Simulated and Measured Fluid Surface Oscillation Frequencies in a Cylindrical Tube," American Physical Society, Division of Fluid Dynamics, 2016, Portland, OR

C28 J. Cooper, R. Guldiken, and N. Gallant, "Spatial Manipulation And Patterning of Micro-Particles and Biological Cells using Acoustic Forces" BMES 2015, Tampa, FL

C29 F. Khalili, F.D. Paoli, and R. Guldiken, "Impact Resistance of Liquid Body Armor Utilizing Shear Thickening Fluids: A Computational Study" ASME IMECE 2015-53376, Houston, TX

C30 A. Gheethan, R. Guldiken, and G. Mumcu, "Microfluidic Enabled Beam Scanning Focal Plane Arrays," IEEE International Symposium on Antennas and Propagation, Paper#3804, 2013, Orlando, FL

C31 A. Dey, R. Guldiken and G. Mumcu, "Wideband Frequency Tunable Liquid Metal Monopole Antenna," IEEE International Symposium on Antennas and Propagation, Paper#3944, 2013, Orlando, FL (Student Paper Finalist)

C32 O. Onen, A. Sisman, P. Kruk and R. Guldiken, "A Urinary Biosensor for Early Stage Ovarian Cancer Detection: Experimental Characterization," ASME IMECE 2012-87850, Houston, TX

C33 J. Martinez, O. Onen, A. Sisman, and R. Guldiken, "An Ultrasonic Method to Estimate Tension in Bolted Joints," ASME IMECE 2012-87864, Houston TX

C34 G. Manohar, O. Onen, and R. Guldiken, "Performance and Sensitivity Comparison of Shear Horizontal Surface Acoustic Wave, Love Wave, Surface Skimming Bulk Acoustic wave and Surface Transverse Wave Sensors," ASME IMECE 2012-87879, Houston, TX

C35 J. Cooper, O. Onen, N. Gallant and R. Guldiken, "Spatial Bio-Particle Manipulation Using Acoustic Radiation Force," ASME IMECE 2012-88229, Houston, TX

C36 O. Onen and R. Guldiken, "Introduction of Microfluidics to Undergraduate Fluid Mechanics Course," ASEE Annual Conference, 2012-3059, San Antonio, TX

C37 A. Sisman, J. Martinez, and R. Guldiken, "A Novel Ultrasonic Method to Quantify Pressure in Bolted Joints," International Symposium on Ultrasound in the Control of Industrial Processes (UCIP), 2012, Madrid, Spain

C38 O. Onen, P. Kruk and R. Guldiken, "Design of Urinary Biomarker Sensor for Early Ovarian Cancer Detection," ASME IMECE 2011-62818, Denver, CO

C39 A. Ahmad, O. Onen, R. Guldiken, and N. Gallant, "Surface Functionalization of an Ovarian Cancer Diagnostic Biosensor," ASME IMECE 2011-64311, Denver, CO

C40 N. Crane, Q. Ni, and R. Guldiken, "Ultrasonic Excitation Induced Wenzel to Cassie Transition," ASME IMECE 2011-64391, Denver, CO

C41 O. Onen and R. Guldiken, "Detailed Investigation of Capacitive Micromachined Ultrasound Transducer Design Space for Optimal Operation," ASME IMECE 2011-62816, Denver, CO

C42 M.C. Jo and R. Guldiken, "Two-stage Microfluidic Device for Acoustic Particle Manipulation," SPIE Smart Biomedical and Physiological Sensor Technology VIII, 2011, Orlando, FL

C43 M.C. Jo and R. Guldiken, "Label-free Cell Separation using Surface Acoustic Waves," IEEE Engineering in Medicine and Biology Society (EMBC), 2011, Boston, MA

C44 M.C. Jo and R. Guldiken, “An Acoustic Microfluidic Platform for Size and Density-Based Cell Separation,” IEEE International Ultrasonics Symposium, 2011, Orlando, FL

C45 R. Guldiken, O. Onen, M. Gul, and F. N. Catbas, “A Structural Health Monitoring System with Ultrasonic MEMS Transducers” SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace, 2011, San Diego, CA

C46 O. Onen, P.Kruk and R.O. Guldiken, “A MEMS Ultrasonic Sensor Design for Early Detection of Ovarian Cancer,” SPIE Microfluidics, BioMEMS, and Medical Microsystems IX, 2011, San Francisco, CA

C47 R. Guldiken, O. Onen. L.O. Davis, M. Gul and F. N. Catbas “A Non-Destructive Ultrasonic MEMS Structural Health Monitoring System” ASCE Engineering Mechanics Institute (EMI), 2010, Los Angeles, CA

C48 O. Onen, L.O. Davis, R. Sen, and R.O. Guldiken, “An Ultrasonic MEMS Corrosion Monitoring System for Bridge Piles in Tidal Waters,” ASME IMECE 2010-40554, Vancouver, Canada

C49 O. Onen, L.O. Davis, C. Nelson, and R.O. Guldiken, “Effect of Fabrication-related Thermal Stresses on the Operation of Membrane-based MEMS Devices,” ASME IMECE 2010-40558, Vancouver, Canada

C50 R. Guldiken, J. Zahorian, M. Balantekin, F.L. Degertekin, “Dual-electrode CMUT Optimization for CMUTs with Uniform and Non-uniform Membranes,” IEEE Ultrasonics Symposium, 2008, Beijing, China

C51 J. Zahorian, R. Guldiken, G. Gurun, M.S. Qureshi, M. Balantekin, P. Hasler, F.L. Degertekin, “Single-Chip CMUT Arrays with Integrated CMOS Electronics: Fabrication Process Development and Experimental Results,” IEEE Ultrasonics Symposium, 2008, Beijing, China

C52 G. Gurun, M.S. Qureshi, M. Balantekin, R. Guldiken, J. Zahorian, S. Peng, A. Basu, M. Karaman, P. Hasler, F.L. Degertekin, “Front-end CMOS Electronics for Monolithic Integration with CMUT Arrays: Circuit Design and Initial Experimental Results,” IEEE Ultrasonics Symposium, 2008, Beijing, China

C53 R.O. Guldiken, J. Zahorian, M. Balantekin, M. Karaman, and F. L. Degertekin, “Multiple Annular Ring Capacitive Micromachined Ultrasonic Transducer Arrays for Forward-looking Intravascular Ultrasound Imaging Catheters” ASME IMECE 2007-42493, Seattle, WA

C54 R. O. Guldiken, J. Zahorian, M. Karaman, and F. L. Degertekin, “Dual Electrode Capacitive Micromachined Ultrasonic Transducer Array for 1-D Intracardiac Echocardiography (ICE),” ASME IMECE 2007-42480, Seattle, WA

C55 R. Guldiken, J. Zahorian, M. Balantekin, and F. L. Degertekin, “Design and Experimental Characterization of Dual-Electrode CMUT Array for Intra-Cardiac Ultrasound Imaging,” IEEE Ultrasonics Symposium, 2007, New York, NY

C56 R. O. Guldiken, J. Zahorian, G. Gurun, M. S. Qureshi, M. Balantekin, P. E. Hasler, M. Karaman, S. Carlier, and F. L. Degertekin, “Forward-looking IVUS Imaging Using a Dual-Annular-Ring CMUT Array: Experimental Results,” IEEE Ultrasonics Symposium, 2007, New York, NY (Best Student Paper Award)

C57 J. Zahorian, R. O. Guldiken, G. Gurun, M. S. Qureshi, M. Balantekin, S. Carlier, M. Karaman, and F. L. Degertekin, “Annular CMUT Arrays for Side Looking Intravascular Ultrasound Imaging,” IEEE Ultrasonics Symposium, 2007, New York, NY

C58 F. L. Degertekin, P. E. Hasler, M. Balantekin, M. Karaman, A. Basu, R. Guldiken, G. Gurun, P. Sheng-Yu, M. S. Qureshi, and J. Zahorian, "Design Optimization and Integrated Electronics for Dual Electrode CMUTs," IEEE Ultrasonics Symposium, 2007, New York, NY

C59 R. Guldiken, J. Zahorian, M. Balantekin, F. L. Degertekin, C. Tekes, A. Sisman, and M. Karaman, "Dual-Annular-Ring CMUT Array for Forward-Looking IVUS Imaging," IEEE Ultrasonics Symposium, 2006, Vancouver, Canada

C60 P. Sheng-Yu, M. S. Qureshi, A. Basu, R. O. Guldiken, F. L. Degertekin, and P. E. Hasler, "Floating-Gate Based CMUT Sensing Circuit Using Capacitive Feedback Charge Amplifier," IEEE Ultrasonics Symposium 2006, Vancouver, Canada

C61 R. O. Guldiken, M. Balantekin, and F. L. Degertekin, "Analysis and Design of Dual-electrode CMUTs," IEEE Ultrasonics Symposium, 2005, Rotterdam, Netherlands (Best Student Paper Award)

C62 F. L. Degertekin, M. Karaman, and R. O. Guldiken, "Forward-looking IVUS Imaging Using an Annular-ring CMUT Array," IEEE Ultrasonics Symposium, 2005, Rotterdam, Netherlands

C63 F. L. Degertekin, R. Guldiken, and M. Karaman, "Micromachined Capacitive Transducer Arrays for Intravascular Ultrasound Imaging," SPIE Symposium on MOEMS Display and Imaging Systems, Special Session on Bioimaging, 2005, San Francisco, CA (Invited)

C64 R. O. Guldiken and F. Levent Degertekin, "Micromachined Capacitive Transducer Arrays for Intravascular Ultrasound Imaging," IEEE MEMS, 2005, Miami, FL

C65 J. McLean, R. O. Guldiken, and F. L. Degertekin, "CMUTs with Dual-electrode Structure for Improved Transmit and Receive Performance," IEEE Ultrasonics Symposium, 2004, Montreal, Canada

C66 N. A. Hall, R. Guldiken, J. McLean, and F. L. Degertekin, "Modeling and Design of CMUTs Using Higher-Order Vibration Modes," IEEE Ultrasonics Symposium, 2004, Montreal, Canada

C67 K. Bakhtari, O. Guldiken, A. A. Busnaina, and J. Park, "Removal of Nano-Particles Using Pulsating Flow in Micro-Scale Trenches," 28th Annual Meeting of the Adhesion Society, 2005, Mobile, AL

C68 K. Bakhtari, O. Guldiken, P. Makaram, A. A. Busnaina and J. Park "Nano-Scale Particle Removal Using High-Frequency Acoustic Streaming," 28th Annual Meeting of the Adhesion Society, 2005, Mobile, AL

C69 K. Bakhtari, R.O. Guldiken, A. A. Busnaina and J. Park "Experimental and Modeling Study of Submicron Particle Removal from Deep Trenches," 10th International CMP MIC Conference, 2005, Fremont, CA

C70 O. Guldiken, A.A. Busnaina, J. Park, G. Zhang, and F. Eschbach, "Metrology and Removal of Nanoparticles from EUV Substrates," 3rd International Symposium on Extreme Ultraviolet Lithography, 2004, Miyazaki, Japan

C71 O. Guldiken, A. A. Busnaina and J. Park, "The Removal of Submicron Particles from 500 Micron Deep Trenches," Sematech International Wafer Clean & Surface Prep Conference, 2004, Austin, Texas

C72 A. A. Busnaina, O. Guldiken, and J. Park, “Metrology and Removal of Nanoparticles from 500 Micron Deep Trenches,” 7th International Symposium on Ultra Clean Processing Of Silicon Surfaces, UCPSS 2004, Brussels, Belgium

INSTRUCTION AND COURSE DEVELOPMENT

** Student assessment of instruction (overall rating of the instructor/5.00)are in parenthesis*

- EML3701: Fluid Mechanics (Number of students taught: ~2000)

  Fall08 (4.47) Spr09 (4.78) Fall09 (4.81) Spr10 (4.85) Fall10 (4.78)
  Spr11 (4.78) Fall11 (4.61) Spr12 (4.79) Fall12 (4.85) Spr13 (4.80)
  Fall13 (4.75) Spr14 (4.84) Spr15 (4.56) Spr16 (4.83) Sum18 (4.64)
  Fall18 (4.79) Sum19 (4.92) Fall19 (4.74) Spr20 (4.73) Sum20 (4.88)
  Fall20 (4.59) Spr21 (4.64) Fall21 (4.47) Spr22 (4.47) Fall22 (4.55)
  Spr23 (4.52) Fall23 (4.73)
  - Made 142 lecture videos freely available on YouTube, including F.E. exam practice questions; taught the course in a blended modality from 2018 to 2020; teaching the course in a fully-flipped modality since 2020
- EML6713: Advanced Fluid Dynamics (Number of students taught: ~500)

  Fall10 (4.78) Fall11 (4.90) Fall12 (4.62) Fall14 (4.92) Fall15 (4.70)
  Fall16 (4.68) Spr17 (4.67) Fall17 (4.58) Spr18 (4.69) Spr19 (4.48)
  - Taught the course in a blended modality from 2018 to 2019
- EML6069: Advanced Engineering Mathematics (Number of students taught: ~150)

  Spr18 (4.67) Fall18 (4.61) Fall20 (4.68)
  - Made 65 lecture videos freely available on YouTube; taught the course in a blended modality from 2018 to 2019; teaching the course in a fully-flipped modality since 2020
- EGN3343: Thermodynamics (Number of students taught: ~100)

  Sum21 (4.25)
  - Made 67 lecture videos freely available on YouTube; teaching the course in a fully-flipped modality since 2021

PROFESSIONAL LEADERSHIP AND SERVICE

- ASEE Mechanical Engineering Division
  - Treasurer/Secretary 2024 – 2026
  - Member-at-Large 2021 – 2024
- ASME Fluid Engineering Division, Micro & Nano Fluid Dynamics Technical Committee
  - Chair 2022 – 2024
  - Vice Chair 2020 – 2022
- ASME Microelectromechanical Systems (MEMS) Division
  - Past Chair 2019 – 2020
  - Chair 2018 – 2019
  - Vice Chair 2017 – 2018
  - Treasurer 2016 – 2017
  - Program Chair 2015 – 2016
  - Member-at-Large 2014 – 2015
- External Reviewer for Tenure and Promotion
  - Texas State University 2024
  - Kennesaw State University 2023
  - University of Pittsburgh 2022
  - Florida International University 2019
  - Brigham Young University 2018
- Editorial Board, Sensors Journal 2019 – present
- Guest Editor, Sensors Journal
  - Special Issue “Intelligent Microfluidics” 2024
  - Special Issue “Ultrasonic Sensors for Biomedical Applications” 2022
  - Special Issue "Electrostatic Sensors and Actuators" 2021
- Track Chair
  - Micro&Nano Fluid Dynamics, ASME FEDSM 2020 – 2024
  - Micro- and Nano-Systems Engineering and Packaging, ASME IMECE 2016
- Symposium Chair, Microfluidics, ASME IMECE 2020 and 2022
- Topic / Session Chair for several technical sessions in
  - ASME IMECE 2009 – 2023
  - ASME Fluid Engineering Division Annual Summer Meeting 2020 – 2024
  - IEEE EMBC 2011
- National Science Foundation Proposal Panelist
  - Division of Undergraduate Education 2021
  - Chemical, Bioengineering, Environmental, and Transport Systems 2008, 2009 (3), 2010 (2), 2011 (3), 2012, 2013, 2016, 2019 (2), 2020
  - Graduate Research Fellowship Program 2019, 2020, 2022, 2023
  - Industrial Innovation and Partnerships 2016 (2), 2017, 2018
  - Emerging Frontiers in Research and Innovation 2011
  - Cyber-enabled Discovery and Innovation 2009
  - Civil, Mechanical, and Manufacturing Innovation 2009
- National Defense Science and Engineering Graduate Fellowship Reviewer 2017 – 2024

- KWF Kankerbestrijding (Dutch Cancer Society) Proposal Reviewer 2022
- State of North Carolina Biotechnology Center Proposal Reviewer 2012
- National Institutes of Health Proposal Reviewer 2009
- Invited Textbook Reviewer
    - Fluid Mechanics, Cengel and Cimbala, McGraw Hill 2022
    - Fundamentals of Fluid Mechanics, Munson, Young, Okiishi Wiley 2022
    - Fluid Mechanics, Hibbeler Pearson 2019
- Journal Paper Reviewer (partial list)
    - Advances in Engineering Education
    - Analytical Chemistry
    - Applied Sciences
    - Applied Surface Science
    - ASCE Journal of Structural Engineering
    - ASCE Journal of Bridge Engineering
    - ASME Journal of Energy Resources Technology
    - Biomicrofluidics
    - Biosensors
    - Energies
    - IEEE Journal of MEMS
    - IEEE Sensors
    - IEEE Trans. on Advanced Packaging
    - IEEE Trans. on Electron Devices
    - IEEE Trans. on Ultrasonics, Ferroelectrics, and Frequency Control
    - Journal of Biomedical Imaging
    - Journal of Heat and Mass Transfer
    - Journal of Biosensors & Bioelectronics
    - Journal of Raman Spectroscopy
    - Lab on a Chip
    - Laser Physics
    - Mathematics
    - Micromachines
    - Microsystem Technologies
    - Nanomaterials
    - Nanoscience and Nanotechnology Letters
    - Nature Communications
    - Nature Microsystems and Nanoengineering
    - Non-destructive Testing and Evaluation
    - Physics of Fluids
    - Royal Society of Chemistry Advances
    - Sensors
    - Sensors and Actuators-A Physical
    - Sensors and Actuators-B Chemical
    - Symmetry
    - Ultrasonics Sonochemistry
- Conference Proceeding/Abstract Reviewer
    - ASME IMECE 2009 – 2024
    - ASEE Annual Conference 2010, 2012, 2015 – 2025
    - ASME Fluid Engineering Division Annual Summer Meeting 2020 – 2024
    - IEEE Sensors 2019
    - ASME Summer Bioengineering Conference 2009, 2011

INSTITUTIONAL SERVICE

- Associate Dean for Academic Affairs 2021 – present
- USF Global Campus Steward for the College of Engineering 2021 – present
- Theta Tau, F.E. Exam, Fluid Mechanics Semesterly Reviews 2020 – present
- Sloan University Center of Exemplary Mentoring Steering Committee 2019 – present
- Task Force for Initiating the College of AI, Cybersecurity and Computing 2024
- Strategic College of Engineering Task Force for Envisioning the Future 2024
- Search Committee Chair for the Assistant Dean for Academic Outreach and Innovation, USF Undergraduate Studies 2024
- Strategic Enrollment Planning Work Group 2023
- Search Advisory Committee for the Associate Vice President and Executive Director of Career Services 2022
- Workgroup to Optimize Centralized Instructional Space for Success 2022
- Graduate Program Director, Mechanical Engineering Department 2015 – 2021
- ABET Assessment Committee, Mechanical Engineering Department 2019 – 2021
- Outstanding Undergraduate Teaching Award Evaluation Committee 2020
- Administrator/Staff Search Committee Member Mechanical Engineering Department 2018, 2019, 2020
- Task Force to Develop an Improved Process to Evaluate Faculty Teaching 2019
- Faculty Search Committee Member 2012, 2019
- Graduate Council, Member of Policy and Fellowship Committee 2016 – 2019
- Graduate Student Research Symposium Judge 2010, 2017– 2019
- Chair of the Faculty Search Committee 2015, 2016, 2017
- Research Day Poster Competition Judge 2010, 2015, 2016
- Undergraduate Curriculum Committee Member 2008 – 2015
- Engineering EXPO Judge 2010, 2015
- Nanotechnology Research & Education Center, Advisory Board 2009 – 2011
- Research Experiences for Undergraduates Symposium Judge 2009 – 2011
- Eminent Scholars Lecture Series Speaker Selection Committee 2009

COMMUNITY ENGAGEMENT

- Share freely available 280+ educational resources on YouTube (http://youtube.com/c/collegefluidmechanics) 2020 – present
  - Viewed over 1.2M times, watched for 60K hours from 114 Countries
- Led the annual USF Engineering EXPO, hosted 4,000-6,000 Students from Local Elementary, Middle, and High Schools for 2-days at USF Engineering 2020 – 2025
- Organized lab tours to Various High School Students (Los Robles Elementary School, Robles Elementary School, Plant High School, and Great American Teach-In Program, etc.) 2009 – present
- Hillsborough County Science & Engineering /STEM Fair Judge 2010, 2014, 2017

PROFESSIONAL AFFILIATIONS (Present)

- American Society of Mechanical Engineers (ASME), Fellow
- National Academy of Inventors (NAI), Senior Member
- American Society of Engineering Education (ASEE), Member
- American Association for the Advancement of Science (AAAS), Member

DISSERTATION AND THESIS COMMITTEE MEMBERSHIP

- Doctoral Dissertation (75)
    - Liguan Li, Ph.D. Student in Electrical Engineering — Current
    - Carlos Molina Martinez, Ph.D. Student in Electrical Engineering — Current
    - Vishvajitsinh Kosamiya, Ph.D. Candidate in Electrical Engineering — Current
    - Rouke Liu, Ph.D. Candidate in Electrical Engineering — Current
    - Abdul Aldaddi, Ph.D. Candidate in Mechanical Engineering — Current
    - Donald McCleeary, Ph.D. Candidate in Mechanical Engineering — Current
    - Sohan Nagaraj, Ph.D. Candidate in Mechanical Engineering — Current
    - Zongze Li, Ph.D. Candidate in Mechanical Engineering — Current
    - Mina Erturk, Ph.D. Candidate in Mechanical Engineering — Current
    - Anthony Perez, Ph.D. Candidate in Civil Engineering — Current
    - Ramy Mounir, Ph.D. in Computer Science and Engineering, Chair — 2024
    - Asad Elmagarhe, Ph.D. in Civil Engineering — 2024
    - Daniel Ramirez, Ph.D. in Electrical Engineering, Chair — 2024
    - Fahad Alshehri, Ph.D. in Civil Engineering — 2024
    - Ting-Hung Liu, Ph.D. in Electrical Engineering — 2024
    - Javad Zeidi, Ph.D. in Civil Engineering — 2023
    - Juan Penaloza Gutierrez, Ph.D. in Civil Engineering — 2023
    - Md Rubayat-E Tanjil, Ph.D. in Mechanical Engineering — 2023
    - Walid Elsiwi, Ph.D. in Civil Engineering — 2023
    - Ting-Hung Liu, Ph.D. Candidate in Electrical Engineering — 2023
    - Kuvvat Garayev, Ph.D. in Mechanical Engineering — 2023
    - Hai Zhu, Ph.D. in Civil Engineering — 2023
    - Ali Alshamrani, Ph.D. in Mechanical Engineering — 2022
    - Ali Aljumah, Ph.D. in Electrical Engineering — 2022
    - Sanjib Gurung, Ph.D. in Mechanical Engineering — 2022
    - Abdullah Alburidy, Ph.D. in Electrical Engineering — 2022
    - Abdulhakim Alsaif, Ph.D. in Electrical Engineering — 2022
    - Palak Dave, Ph.D. in Computer Science and Engineering, Chair — 2022
    - Jonas Mendoza, Ph.D. in Electrical Engineering — 2022
    - Kyle Cogswell, Ph.D. in Chemical Engineering — 2022
    - Mehdi Hojatmadani, Ph.D. in Mechanical Engineering — 2021
    - Ali Al Dasouqi, Ph.D. in Mechanical Engineering — 2021
    - Mustafa Fincan, Ph.D. in Mechanical Engineering — 2021
    - Poonam Lathiya, Ph.D. in Electrical Engineering — 2021

- Abdulrahman Alsolami, Ph.D. in Electrical Engineering 2021
- Sulaiman Almutairi, Ph.D. in Electrical Engineering 2021
- Mohammed Alqahtani, Ph.D. in Electrical Engineering 2021
- Xu Han, Ph.D. in Electrical Engineering 2021
- Ferhat Karakas, Ph.D. in Mechanical Engineering 2020
- Ahmet Manisali, Ph.D. in Chemical Engineering 2020
- Kawsher Roxy, Ph.D. in Electrical Engineering 2020
- Fatemeh Khorramshahi, Ph.D. in Electrical Engineering 2020
- Enrique Gonzalez, Ph.D. in Electrical Engineering 2020
- Adnan Zaman, Ph.D. in Electrical Engineering 2020
- Francesca Moloney, Ph.D. in Mechanical Engineering 2019
- Eydhah Almatrafi, Ph.D. in Mechanical Engineering 2019
- Anand Santhanakrishna, Ph.D. in Electrical Engineering 2019
- Ibrahim Azad, Ph.D. in Electrical Engineering, Chair 2019
- Di Lan, Ph.D. in Electrical Engineering 2018
- Denise Lugo, Ph.D. in Electrical Engineering 2018
- Daniel Romero Rodriguez, Ph.D. in Industrial Engineering, Chair 2018
- Jesudoss Jeyaraj, Ph.D. in Civil Engineering 2018
- Mehdi Zeyghami, Ph.D. in Mechanical Engineering 2017
- Chatura Wickramaratne, Ph.D. in Mechanical Engineering 2017
- Amine Hafsi, Ph.D. in Civil Engineering 2017
- Qi Ni, Ph.D. in Mechanical Engineering 2016
- Abhishek Dey, Ph.D. in Electrical Engineering 2016
- Timothy Palomo, Ph.D. in Electrical Engineering 2016
- Jose Carballo, Ph.D. in Mechanical Engineering 2015
- Greeshma Mohan, Ph.D. in Mechanical Engineering 2015
- Ivan Rivera, Ph.D. in Electrical Engineering 2015
- Maria Cordoba Erazo, Ph.D. in Electrical Engineering, Chair 2015
- Tete Tevi, Ph.D. in Electrical Engineering, Chair 2015
- Ashish Chaudhary, Ph.D. in Electrical Engineering, Chair 2014
- Ahmad Gheethan, Ph.D. in Electrical Engineering 2014
- Saurabh Gupta, Ph.D. in Electrical Engineering, Chair 2014
- Mian Wei, Ph.D. in Electrical Engineering 2014
- Rachana Vidhi, Ph.D. in Chemical Engineering, Chair 2014
- Saeb Besarati, Ph.D. in Chemical Engineering, Chair 2014
- Roozbeh Golshan, Ph.D. in Civil Engineering 2014
- Julio Dewdney, Ph.D. in Electrical Engineering, Chair 2012
- Al-Aakhir Rogers, Ph.D. in Electrical Engineering, Chair 2012
- Qiang Hu, Ph.D. in Mechanical Engineering 2011
- Christopher Locke, Ph.D. in Electrical Engineering 2011
- Kingsley Lau, Ph.D. Civil Engineering 2010

- Master's Thesis (25)
  - Joseph Tarriela, M.S. in Mechanical Engineering 2022

- Abdullah Akdemir, M.S. in Mechanical Engineering 2021
- Sindhu Reddy Mutra, M.S. in Mechanical Engineering 2021
- Yunjo Jeong, M.S. in Mechanical Engineering 2020
- David Dukeman, M.S. in Mechanical Engineering 2019
- Zongze Li, M.S. in Mechanical Engineering 2019
- Ahmet Topcuoglu, M.S. in Mechanical Engineering 2019
- Dawei She, M.S. in Mechanical Engineering 2018
- Xuan Li, M.S. in Mechanical Engineering 2016
- Federico De Paoli, M.S. in Mechanical Engineering 2015
- Joel Jenkins, M.S. in Mechanical Engineering 2015
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- Maria Echeverria Molina, M.S. in Mechanical Engineering 2012
- FNU Atiquzzaman, M.S. in Mechanical Engineering 2012
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- Caroline Liberti, M.S. in Mechanical Engineering 2011
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- Robert Cole, M.S. in Mechanical Engineering 2010
- Corey Lynch, M.S. in Mechanical Engineering 2010
- Francy Sinatra, M.S. in Mechanical Engineering 2010
- Ajay Rajgadkar, M.S. in Mechanical Engineering 2010
- Ejiro Ojada, M.S. in Mechanical Engineering 2009