

Ethan O. Kung, Ph. D.
231 Fluor Daniel Bldg, Clemson, SC 29634
Mechanical Engineering & Bioengineering, Clemson University
ekung@clemson.edu (650) 307-5557 <http://www.cmerl.com>



ACADEMIC APPOINTMENTS

- Associate Professor**, Mechanical Engineering, Clemson University, 2020-present
- Assistant Professor**, Mechanical Engineering, Clemson University, 2014-2020
- Assistant/Associate Professor** (joint appointment), Bioengineering, Clemson University, 2016-present
- Faculty Scholar**, School of Health Research, Clemson University, 2015-2018

EDUCATION

- Stanford University** (Stanford, CA), Ph.D. Bioengineering – Medical Devices, 2010 *Advisor*: Dr. Charles A. Taylor
- Stanford University** (Stanford CA), M.S. Bioengineering – Medical Devices, 2006
- Queen’s University** (Kingston, ON), B.Sc. Electrical Engineering Honours First Class, 2003

CERTIFICATE TRAINING

- Clemson University** (Clemson, SC), Effective Online Teaching for Student Engagement Certificate, Office of Teaching Effectiveness and Innovation, 2020
- Clemson University** (Clemson, SC), Critical Thinking Pedagogy Certificate, Clemson Thinks², 2018
- University of California San Diego** (La Jolla, CA), The College Classroom Certificate, Center for Teaching Development, 2014

HONORS AND AWARDS

- CAREER Award** National Science Foundation, 2018-2023
- Dean’s Faculty Fellow Award** Clemson University, 2018-2021
- Nominated for Full Membership**, Sigma Xi, The Scientific Research Honor Society, 2020
- 3rd Place Winner Science as Art Competition** Clemson University, 2020
- Eastman Award for Excellence** Clemson University, 2017-2018
- Congenital Heart Defect Research Award** The Children’s Heart Foundation, 2016

Postdoctoral Fellowship Award American Heart Association, 2012- 2014

1st Place Winner PhD Student Paper Competition ASME Summer Bioengineering Conference, 2010

Postgraduate Scholarship PhD Natural Sciences and Engineering Research Council of Canada, 2006-2009

Postgraduate Scholarship MS Natural Sciences and Engineering Research Council of Canada, 2005-2006

Dean's Scholar Award Queen's University, 2000-2002

PROFESSIONAL EXPERIENCES

Yates, Mclamb & Weyher (Raleigh, NC), *Litigation Consultant*, Oct-Dec 2019

University of California San Diego (La Jolla, CA), *Postdoctoral Fellow*, Mechanical & Aerospace Engineering, 2011-2014 *Advisor*: Dr. Alison Marsden

Great Ormond Street Hospital for Children (London, UK), *Visiting Research Scholar* (Leducq Foundation Network), 9/09/2012-9/23/2012 and 10/18/2012-10/26/2012

Politecnico di Milano (Milan, Italy), *Visiting Research Scholar* (Leducq Foundation Network) 9/23/2012-10/18/2012 and 3/12/2013-3/27/2013

Clemson University (SC, USA), *Visiting Research Scholar* (Leducq Foundation Network) 5/4/2012-5/15/2012

PUBLICATIONS

1. Villa C, Zafar F, Lorts A, **Kung E**. "Hemodynamic Response to Device Titration in the Shunted Single Ventricle Circulation: A Patient Cohort Modeling Study" *Submitted*
2. Pradhan A, Scaringi J, Kaminsky L, Arena R, Myers J, **Kung E**. "Systematic Review and Regression Modeling of the Effects of Age, Body Size, and Exercise on Cardiovascular Parameters in Healthy Adults" *Submitted*
3. **Kung E**, Baker C, Corsini C, Baretta A, Biglino G, Arbia G, Marsden A, Taylor A, Quail M, Vignon-Clementel I, Pennati G, Migliavacca F, Schievano S, Hlavacek A, Dorfman A, Hsia TY, Figliola R. "Hemodynamics After Fontan Procedure are Determined by Patient Characteristics and Anastomosis Placement Not Graft Selection: a Patient-Specific Multiscale Computational Study" *In preparation*
4. Gupta A, **Kung E**. "A Protocol for Automated a-posteriori Adaptive Meshing with SimVascular: A Test Case" *BMC Research Notes*. DOI: 10.1186/s13104-020-05057-7 (2020)
5. Gupta A, Gillett C, Gerard P, Cheung M, Mynard JP, **Kung E**. "Predictive Models for Pulmonary Artery Size In Fontan Patients" *Cardiovascular Translational Research*. DOI: 10.1007/s12265-020-09993-4 (2020)
6. Farahmand M, Kavarana MN, Trusty PM, **Kung EO**. "Target Flow-Pressure Operating Range for Designing a Failing Fontan Cavopulmonary Support Device" *IEEE Transactions on Biomedical Engineering*. DOI: 10.1109/TBME.2020.2974098 (2020) **Featured Article**

7. Mirzaei E, Farahmand M, **Kung E**. “An Algorithm for Coupling Multi-Branch In-vitro Experiment to Numerical Physiology Simulation for a Hybrid Cardiovascular Model” *Int J Num Meth Biomed Eng.* e3289 (2019)
8. Kaufmann J, **Kung E**. “Factors Affecting Cardiovascular Physiology in Cardiothoracic Surgery: Implications for Lumped-parameter Modeling” *Front. Surg.* 6:62 (2019)
9. **Kung E**, Corsini C, Marsden A, Vignon-Clementel I, Pennati G, Figliola R, Hsia TY, MOCHA. “Multiscale Modeling of Superior Cavopulmonary Circulation: Hemi-Fontan And Bidirectional Glenn Are Equivalent” *Semin Thorac Cardiovasc Surg.* DOI: 10.1053/j.semtevs.2019.09.007 (2019)
10. Farahmand M, Kavarana M, **Kung E**. “Risks and Benefits of Using a Commercially Available Ventricular Assist Device for Failing Fontan Cavopulmonary Support: A Modeling Investigation” *IEEE Transactions Biomed Eng.* DOI:10.1109/TBME.2019.2911470 (2019)
11. **Kung E**, Farahmand M, Gupta A. “A Hybrid Modeling Framework Combining In-Vitro Experiment With Computational Physiology Simulation for Cardiovascular Device Testing.” *J Biomech Eng.* 141(5):051012 (2019)
12. Conover T, Hlavacek A, Migliavacca F, **Kung E**, Dorfman A, Figliola R, Hsia TY. “An Interactive Simulation Tool for Patient-Specific Clinical Decision Support in Single Ventricle Physiology.” *J Thoracic Cardiovascular Surg.* 155(2):712-721 (2018)
13. Schmidt T, Rosenthal D, Reinhartz O, Riemer RK, He F, Hsia TY, Marsden A, **Kung E**, MOCHA Investigators. “Superior Performance of Continuous Over Pulsatile Flow Ventricular Assist Devices in the Single Ventricle Circulation: A Computational Study.” *J Biomech.* 52:48-54 (2017)
14. Mechoor R, Schmidt T, **Kung E**. “A Real-Time Programmable Pulsatile Flow Pump For In-Vitro Cardiovascular Experimentation.” *Journal of Biomechanical Engineering.* 138(11):111002 (2016)
15. Van De Bruaene A, Claessen G, Gerche A, **Kung E**, Marsden A, Meester P, Devroe S, Bogaert J, Claus P, Heidbuchel H, Budts W, Gewillig M. “Effect Of Respiration On Cardiac Filling At Rest And During Exercise In Fontan Patients: A Clinical And Computational Modeling Study.” *IJC Heart & Vasculature.* (2015)
16. **Kung E**, Marsden A, Baker C, Giardini A, Figliola R, Hsia TY, “Does TCPC Power Loss Really Affect Exercise Capacity?” *Heart.* DOI:10.1136/heartjnl-2014-307379 (2015)
17. Schiavazzi D, **Kung E**, Marsden AL, Baker C, Pennati G, Hsia TY, Dorfman A, ”Hemodynamic Effects of Left Pulmonary Artery Stenosis Following Superior Cavopulmonary Connection: A Patient-Specific Multiscale Modeling Study.” *J Thoracic and Cardiovascular Surgery.* (2014)
18. Corsini C, Baker C, Baretta A, Biglino G, Hlavacek AM, Hsia TY, **Kung E**, Marsden A, Migliavacca F, Vignon-Clementel I, Pennati G, “Integration of Clinical Data Collected at Different Times For Virtual Surgery in Single Ventricle Patients: A Case Study.” *Annals of Biomedical Engineering.* (2014)
19. **Kung E**, Perry JC, Davis C, Migliavacca F, Pennati G, Giardini A, Hsia TY, Marsden A, “Computational Modeling of Pathophysiologic Responses to Exercise in Fontan Patients.” *Annals of Biomedical Engineering.* DOI:10.1007/s10439-014-1131-4 (2014)
20. **Kung E**, Kahn AM, Burns JC, Marsden A, “In-vitro Validation of Patient-Specific Hemodynamic Simulations in Coronary Aneurysms Caused by Kawasaki Disease.” *Cardio Eng and Tech.* 5(2):189-201 (2014)
21. Sengupta D, Kahn AM, **Kung E**, Moghadam ME, Shirinsky O, Lyskina GA, Burns JC, Marsden AL, “Thrombotic Risk Stratification Using Computational Modeling in Patients with Coronary Artery

Aneurysms Following Kawasaki Disease.” *Biomechanics and Modeling in Mechanobiology*. DOI 10.1007/s10237-014-0570-z (2014)

22. **Kung E**, Pennati G, Migliavacca F, Hsia TY, Figliola R, Marsden A, Giardini A, MOCHA Investigators, “A Simulation Protocol For Exercise Physiology In Fontan Patients Using A Closed-Loop Lumped-Parameter Model.” *Journal of Biomechanical Engineering*. 136(8):081007 (2014)
23. Lee J, Moghadam ME, **Kung E**, Cao H, Beebe T, Miller Y, Roman BL, Lien C-L, Chi NC, Marsden AL, “Moving Domain Computational Fluid Dynamics to Interface with an Embryonic Model of Cardiac Morphogenesis.” *PloS one*. 8(8):e72924 (2013)
24. **Kung E**, Baretta A, Baker C, Arbia G, Biglino G, Corsini C, Schievano S, Vignon-Clementel IE, Dubini G, Pennati G, Taylor A, Dorfman A, Hlavacek AM, Marsden AL, Hsia T-Y, Migliavacca F, “Predictive modeling of the virtual Hemi-Fontan operation for second stage single ventricle palliation: Two patient-specific cases.” *Journal of Biomechanics*. 46(2):423-429 (2013)
25. Corsini C, Baker C, **Kung E**, Schievano S, Arbia G, Baretta A, Biglino G, Migliavacca F, Dubini G, Pennati G, Marsden A, Vignon-Clementel I, Taylor A, Hsia TY, Dorfman A, MOCHA Investigators, “An integrated approach to patient-specific predictive modeling for single ventricle heart palliation.” *Comput Methods Biomech Biomed Engin*. Available online, DOI:10.1080/10255842.2012.758254 (Jan 23, 2013)
26. **Kung E**, Les A, Figueroa CA, Medina F, Arcaute K, Wicker R, McConnell M, Taylor C, “In Vitro Validation of Finite Element Analysis of Blood Flow in Deformable Models.” *Annals of Biomedical Engineering*. 39(7):1947-1960 (2011)
27. **Kung E**, Les AS, Medina F, Wicker RB, McConnell MV, Taylor CA, “In vitro validation of finite-element model of AAA hemodynamics incorporating realistic outlet boundary conditions.” *J Biomech Eng*. 133(4):041003 (2011).
28. **Kung E**, Taylor C, “Development of a Physical Windkessel Module to Re-Create In Vivo Vascular Flow Impedance for In Vitro Experiments.” *Cardiovascular Engineering and Technology*. 2(1):2-14 (2011)

BOOK CHAPTERS

1. Marsden A, **Kung E**, “Multi-scale Modeling of Cardiovascular Flows”, *Computational Bioengineering*, CRC Press Taylor & Francis Group, Editor: Guigen Zhang
2. **Kung E**, “Cardiovascular Biomechanical Models”, *Advances in Experimental Surgery*, Nova Science Publishers, Editor: Huifang Chen
3. **Kung E**, Marsden A, Hsia TY, “Fontan Surgery and Fluid Dynamics”, *Modelling Congenital Heart Disease: Engineering A Patient-Centred Therapy*, Springer Nature, Editors: Gianfranco Butera, Silvia Schievano, Giovanni Biglino, McElhinney Doff B. (*In Press*)

FUNDED RESEARCH

National Science Foundation CAREER Award, (PI) “Hybrid Experimental-Computational Modeling Framework for Transformative Research and Multidisciplinary Education in Cardiovascular Biomechanics,” 2018-2023, \$513,729

Health Sciences Center, Prisma Health COVID-19 Research Grant, (Co-PI, PI John Desjardins) “Development, Testing and Evaluation the "COVER" Device (Covering for Operations during Viral Emergency Response) in the Emergency Room,” 2020-2020, \$15,128 (Co-PI portion \$3,025)

American Heart Association *Scientist Development Grant*, (PI) “Design of Fontan Cavopulmonary Assist Using A Novel Combined Experimental-Computational Technology,” 2016-2019, \$231,000

Saving tiny Hearts Society *Research Grant*, (PI) “Feasibility of a Novel Fontan Right-Side Assist Device,” 2017-2018, \$65,000

Clemson University *TIGER Grant Award*, (PI) “Trans-catheter Aortic Valve Replacement Treatment Planning via A Novel Virtual Procedure,” 2017-2018, \$18,000

Jarvik Heart, Inc. *Research Grant*, (PI) “Assessment of the Jarvik 2000 Ventricular Assist Device Using the Physiology-Modeling Coupled Experiment,” 2017-2017, \$6,013

Leducq Foundation *Transatlantic Network of Excellence for Cardiovascular Research*, (Co-investigator, PI TY Hsia) “Multi-Scale Modeling of Single Ventricle Hearts for Clinical Decision Support,” 2010-2015, \$6M (Co-investigator portion \$33,000 for 2015-2016)

American Heart Association *Postdoctoral Fellowship*, (PI) “In-vivo Validation of Multi-scale CFD Simulations in Exercise Fontan Circulation,” 2012-2014, \$85,000

FIRST/LAST AUTHORED CONFERENCE PROCEEDINGS

1. Farahmand M, Kavarana M, **Kung E**. Target Operation Criteria for a Fontan Cavopulmonary Mechanical Support Device. BMES Annual Meeting, Philadelphia, PA, Oct 16-19, 2019 *Oral presentation*
2. **Kung E**, Farahmand M, Gupta A. A Hybrid Experimental-Computational Modeling Framework for Cardiovascular Device Testing. ASAIO 65th Annual Conference, San Francisco, CA, June 26–29, 2019
3. Pradhan A, **Kung E**. Systematic Review and Meta-Analysis of the Effect of Age and Body Size on Left Ventricular Volume. BMES/FDA Frontiers in Medical Devices Conference, Washington, DC, March 19-21, 2019
4. Farahmand M, Kavarana M, **Kung E**. Optimal Range of Settings for Fontan Cavopulmonary Pump. BMES Annual Meeting, Atlanta, GA, Oct 17-20, 2018 *Oral presentation*
5. Salek S, Behrle N, Shah S, Divekar A, Farahmand M, **Kung E**. A Patient-Specific In-Vitro Setup for Transcatheter Pulmonary Valve Replacement Outcome Prediction. BMES Annual Meeting, Atlanta, GA, Oct 17-20, 2018
6. **Kung E**, Farahmand M, Gupta A. Unifying Experiment and Computation in Cardiovascular Modelling. 8th World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018
7. Farahmand M, Mirzaei E, Shabani M, Kavarana M, **Kung E**. A Novel Right-Side Assist Device for Univentricular Fontan Patients. 8th World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018 *Oral presentation*
8. Gupta A, **Kung E**. Smart Discretization Through Automated Iterative Adaptive Meshing. 8th World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018
9. Gupta A, **Kung E**. Pulmonary Artery and Somatic Growth in Fontan Patients. 8th World Congress of Biomechanics, Dublin, Ireland, July 8-12, 2018
10. Farahmand M, **Kung E**. Modified Cavopulmonary Assist Device Implemented In the Inferior Vena Cava Can Improve Fontan Hemodynamics. ASAIO 64th Annual Conference, Washington, DC, June 13-16, 2018 *Oral presentation*

11. Mirzaei E, **Kung E**. An Algorithm for Coupling Multi-Outlet Experimental Sections to Numerical Physiology Simulations for a Hybrid Cardiovascular Model. ASAIO 64th Annual Conference, Washington, DC, June 13-16, 2018
12. Gupta A, **Kung E**. A Protocol For Automated Adaptive Discretization of Complex Geometry. ASAIO 64th Annual Conference, Washington, DC, June 13-16, 2018
13. Blais F, Luraghi G, Migliavacca F, Pennati G, Sierad L, **Kung E**. 3-Dimensional Fluid-Structure Interaction Computational Model of Heart Valves for Bioreactor Optimization. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, Oct 11-14, 2017 *Oral presentation*
14. Scaringi J, **Kung E**. Multivariate Models For Aortic Pressure And Cardiac Output Constructed From Meta-Analysis. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, Oct 11-14, 2017
15. Neely K, Danahy R, Capobianco P, Shabanisamghabady M, Farahmand M, **Kung E**. Design of an Actuated Pressure Waveform Generating Device for In-Vitro Cardiovascular Experiments. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, Oct 11-14, 2017
16. Shabanisamghabady M, **Kung E**. External Balloon For Fontan Cavo-Pulmonary Assist – In-Vitro Study Of Device Design Considerations. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, Oct 11-14, 2017 *Oral presentation*
17. **Kung E**, Farahmand M, Gupta A. Physiology-Modeling Coupled Experiment: A High Fidelity Hardware-in-the-loop Hybrid Model for the Circulation. Biomedical Engineering Society Annual Meeting, Phoenix, AZ, Oct 11-14, 2017
18. Mirzaei E, Kavarana M, Georgakopoulos D, **Kung E**. A Novel Right-Side Assist Implementation Could Bring Potential Hemodynamic Improvements in Fontan Patients. ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, June 21-24, 2017 *Finalist: MS student paper competition.*
19. Gupta A, **Kung E**. Pulmonary Artery and Somatic Growth in Fontan Patients. ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, June 21-24, 2017 *Finalist: MS student paper competition.*
20. Farahmand M, **Kung E**. Hemodynamic Effects of Stenosis in the Inferior Vena Cava Conduit and Left Pulmonary Artery of the Fontan Circulation. ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, June 21-24, 2017
21. Shabanisamghabady M, Mirzaei E, Kavarana M, Georgakopoulos D, **Kung E**. In-vitro Validation of a Lumped-parameter Model For A Fontan Right-side Assist Device. ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, June 21-24, 2017
22. **Kung E**, Farahmand M, Gupta A. Physiology-Modeling Coupled Experiment: A High Fidelity Hardware-in-the-loop Hybrid Model for the Circulation. ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, June 21-24, 2017
23. Schmidt T, Rosenthal D, Reinhartz O, Marsden A, **Kung E**, MOCHA Investigators. Evaluation of Pulsatile and Continuous Flow Ventricular Assist Device Implementation in the Single-Ventricle Circulation: A Lumped-Parameter Modeling Study. Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, MD, June 29-July 2, 2016
24. Mechoor R, Schmidt T, **Kung E**. A Real-Time Programmable Pulsatile Flow Pump For In-Vitro Cardiovascular Experimentation. Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, MD, June 29-July 2, 2016

25. Kavarana M, Georgakopoulos D, **Kung E**. Pediatric Mechanical Circulatory Support Device: The Fontan-Booster. ASAIO 62nd Annual Conference, San Francisco, CA, June 15-18, 2016
26. Schmidt T, Rosenthal D, Reinhartz O, Marsden A, **Kung E**, MOCHA Investigators. Computational Evaluation of Ventricular Assist Implementation in Single-Ventricle Circulation. BMES/FDA Frontiers in Medical Devices Conference, College Park, MD, May 23-25 2016
27. **Kung E**. Computational and Experimental Engineering Approach to Cardiovascular Medicine. Clemson Research Symposium: Building a Culture of Transdisciplinary Research, Clemson, SC, May 4 2016 *Oral presentation*
28. **Kung E**, De Bruaene A, Claessen G, Gerche A, Marsden A, Meester P, Devroe S, Bogaert J, Claus P, Heidbuchel H, Budts W, Gewillig M. Respiration Increases Ventricular Filling At Rest And Exercise Via Pulmonary Compliance: A Clinical And Computational Modeling Study. American Heart Association Scientific Sessions, Orlando, FL, Nov 7-11 2015 *Oral presentation.*
29. **Kung E**. Integration of Computational and Benchtop Experimental Engineering Methods in Cardiovascular Medicine. Clemson 2nd Annual Research Symposium, Clemson, SC, Mar 12 2015 *Oral presentation*
30. **Kung E**, Giardini A, Hsia TY, Marsden A, MOCHA Investigators. Realistic Simulation of Exercise Physiology in Fontan Patients. Congenital Heart Surgeons' Society Annual Meeting, Chicago, IL, Oct 19-20 2014
31. **Kung E**, Kahn AM, Burns JC, Marsden A. In-vitro Validation of Patient-Specific Hemodynamic Simulations in Coronary Aneurysms Caused by Kawasaki Disease. 7th World Congress of Biomechanics, Boston, MA, July 6-11 2014
32. **Kung E**, Pennati G, Migliavacca F, Hsia TY, Marsden A, Giardini A, MOCHA Investigators. A Simulation Protocol For Exercise Physiology In Fontan Patients Using A Closed-Loop Lumped-Parameter Model. 7th World Congress of Biomechanics, Boston, MA, July 6-11 2014
33. **Kung E**, Perry J, Davis C, Hsia TY, Marsden A, MOCHA Investigators. Computational Modeling of Pathophysiologic Responses to Exercise in Fontan Patients. 4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Paris, France, May 21–22 2014
34. **Kung E**, Pennati G, Migliavacca F, Hsia TY, Figliola R, Marsden A, Giardini A, MOCHA Investigators. A Simulation Protocol For Exercise Physiology In Fontan Patients Using A Closed-Loop Lumped-Parameter Model. The 8th Southern California Symposium on Flow Physics, Los Angeles, CA, Apr 12 2014 *Oral presentation.*
35. **Kung E**, Giardini A, Migliavacca F, Pennati G, Hsia TY, Marsden A. An Automated Simulation Protocol For Exercise Physiology In Fontan Patients Using A Closed-Loop Lumped-Parameter Model. ASME Summer Bioengineering Conference, Sunriver, OR, June 26-29 2013 *Oral presentation.*
36. **Kung E**, Giardini A, Migliavacca F, Pennati G, Hsia TY, Marsden A. An Automated Simulation Protocol For Exercise Physiology In Fontan Patients Using A Closed-Loop Lumped-Parameter Model. 14th UC Systemwide Bioengineering Symposium, San Diego, CA, June 19-21 2013 *Oral presentation.*
37. **Kung E**, Baker C, Corsini C, Baretta A, Schievano S, Arbia G, Vignon-Clementel I, Migliavacca F, Pennati G, Dorfman A, Hlavacek A, Hsia TY, Marsden A. Patient-specific Multi-scale Model and Virtual Surgery of the Superior Cavopulmonary Connection. The seventh Southern California Symposium on Flow Physics, Pasadena, CA, Apr 13 2013 *Oral presentation.*

38. **Kung E**, Marsden A. Multi-scale Simulation and Surgical Optimization for Congenital Heart Disease Patients. SIAM Conference on Computational Science and Engineering, Boston, MA, Feb 25-Mar 1, 2013 *Oral presentation.*
39. **Kung E**, Baker C, Corsini C, Baretta A, Schievano S, Arbia G, Vignon-Clementel I, Migliavacca F, Pennati G, Dorfman A, Hlavacek A, Marsden A, Hsia TY. Patient-specific Multi-scale Model and Virtual Surgery of the Superior Cavopulmonary Connection. Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease, Stanford, CA, United States, May 1-2 2012
40. **Kung E**, Les A, Medina F, Wicker R, McConnell M, Taylor CA. In Vitro Validation of Finite Element Model of AAA Hemodynamics Incorporating Realistic Outflow Boundary Conditions. BioMechanical Engineering Conference at Stanford, Stanford, CA, United States, May 24th 2010
41. **Kung E**, Les A, Medina F, Wicker R, McConnell M, Taylor CA. In Vitro Validation of Finite Element Model of AAA Hemodynamics Incorporating Realistic Outflow Boundary Conditions. ASME 2010 Summer Bioengineering Conference, Naples, FL, United States, June 16-19 2010 *Oral presentation. 1st Place Winner: PhD Student Paper Competition Podium Presentation - Biofluids and Biotransport Engineering & Other Category*

INVITED TALKS

1. “Fontan VADs: Engineer’s perspective”, Pediatric Medical Device Day Course, **ASAIO Annual Conference**, June 10, 2020 (*postponed*)
2. “Incentivizing Participation in Highly Technical Classes”, Teaching Symposium: Communication, Technology, & Research, **Clemson University**, Dec 17, 2019
3. “Tissue and Organ Scale Cardiovascular Modelling Across Fidelities and Modalities”, Vascular Biomechanics in Development and Disease Symposium, **Society of Engineering Science Annual Technical Meeting**, October 13-15, 2019
4. “Cardiovascular Biomechanics Modeling and Experimentation”, Biophysics Seminar, **Clemson University**, Oct 25, 2018
5. “Computational Modelling of the Fontan Circulation”, Friday Keynote Lecture, **Universitaire ziekenhuizen Leuven**, June 29, 2018
6. “Three Emerging Engineering Tools that Can Benefit Cardiovascular Healthcare”, Seminar, **Murdoch Childrens Research Institute**, Dec 16 2016
7. “Clinical Applications of Novel Engineering Tools in Cardiovascular Biomechanics”, Biomedical Engineering Seminar, **University of South Carolina**, Sep 9 2016
8. “Application of Computational and Experimental Engineering Tools to Cardiovascular Medicine”, MUSC Children's Hospital Medical Conference, **Medical University of South Carolina**, Nov 12 2015
9. “Integration of Computational and Benchtop Experimental Engineering Methods in Cardiovascular Medicine”, Cardiovascular Institute Seminar, **Weill Cornell Medical College**, June 26 2014
10. “Integration of Computational and Benchtop Experimental Engineering Methods in Cardiovascular Medicine”, Cardiovascular Institute Seminar, **Weill Cornell Medical College**, May 30 2014
11. “Integration of Computational and Benchtop Experimental Engineering Methods in Cardiovascular Medicine”, Mechanical Engineering Seminar, **Clemson University**, May 4 2014
12. “In-Vitro Experimental Validation of Finite Element Analysis of Blood Flow and Vessel Wall Dynamics,” MAE Dept Biomechanics Seminar, **University of California San Diego**, Jan 5 2011

13. “Product Development, Design, and Manufacturing for the Deep Bleeder Acoustic Coagulation Project,” **C8 MediSensors Inc.** (Los Gatos, CA), Oct 28 2010
14. “In-Vitro Experimental Validation of Finite Element Analysis of Blood Flow and Vessel Wall Dynamics,” **Triple Ring Technologies** (Newark, CA), Sep 9 2010
15. “Product Development, Design, and Manufacturing for the Deep Bleeder Acoustic Coagulation Project,” **Design-Revolution** (Palo Alto, CA), Aug 24 2010

TEACHING

Instructor, Cardiovascular Biomechanics and Modeling, Globex Julmester Program, Peking University, Summer 2019

Instructor, Cardiovascular Biomechanics, Bioengineering / Mechanical Engineering, Clemson University, F15/S17/S18/S19/F19/F20

Instructor, Fluid Mechanics (ME3080), Dept. of Mechanical Engineering, Clemson University, S15 – Current

Advisory Committee, Internship in Engineering Design (ME4020): *Clemson Hydrodynamic Water Tunnel*, Dept. of Mechanical Engineering, Clemson University, S20

Advisory Committee Chair, Internship in Engineering Design (ME4020): *ABB IP5x Bearing Test Stand*, Dept. of Mechanical Engineering, Clemson University, S20

Advisory Committee, Internship in Engineering Design (ME4020): *Sound-Emitting System Design for Club Car Low-Speed Vehicles*, Dept. of Mechanical Engineering, Clemson University, S19

Advisory Committee Chair, Internship in Engineering Design (ME4020): *Turbine Blade Lift Fixture Design*, Dept. of Mechanical Engineering, Clemson University, F16

Advisory Committee Chair, Internship in Engineering Design (ME4020): *Automated Guided Vehicle*, Dept. of Mechanical Engineering, Clemson University, F14/S15 (*In the News: Fox Carolina, WSPA, WYFF4 News, Clemson Newsstand, GSA Business, Greenville News.*)

Guest Lecturer, Cardiovascular Fluid Mechanics (MAE261), Dept. of Mechanical and Aerospace Engineering, University of California San Diego, Feb 8 2013

Guest Lecturer, Computational Methods for Engineers (MAE107), Dept. of Mechanical and Aerospace Engineering, University of California San Diego, 2011

Teaching Assistant, Molecular and Cellular Bioengineering (BIOE 200A), Dept. of Bioengineering, Stanford University, Fall 2005/2006

Teaching Assistant, Cardiovascular Bioengineering (ME/BIOE 284A/B), Dept. of Bioengineering/Mechanical Engineering, Stanford University, Fall & Winter 2007-2009

Teaching Assistant, Systems Biology and Tissue Engineering (BIOE 300B), Dept. of Bioengineering, Stanford University, Spring 2007/2008

SERVICE ACTIVITIES

Grant Reviewer.

- National Science Foundation – 2018

- American Heart Association – 2016, 2017, 2018
- National Sciences and Engineering Research Council of Canada – 2016
- UK Medical Research Council – 2015, 2016
- National Institute of Health – 2020

Professional Service.

- American Society of Mechanical Engineers, Bioengineering Division, Co-chair, Industry Advisory Committee (2019-)
- BMES Annual Meeting, Philadelphia, PA, 2019 – Session chair, "Biofluid Mechanics"
- BMES Annual Meeting, Philadelphia, PA, 2019 – Abstract reviewer, "Biomechanics" and "Translational" tracks
- ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Seven Springs, PA, 2019 – Career Connection Event co-organizer
- BMES/FDA Frontiers in Medical Devices Conference, Washington DC, 2019 – Track chair, "Real World Data as Model Input"
- BMES Annual Meeting, Atlanta, GA, 2018 – Session chair, "Interventional Devices and Robotics"
- 8th World Congress of Biomechanics, Dublin, Ireland, 2018 – Session organizer and chair, "Technological Innovation in Medical Devices"
- ASME Summer Biomechanics, Bioengineering and Biotransport Conference, Tucson, AZ, 2017 – Industry luncheon organizer
- ASME Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, 2016 – Session chair, "Pediatric Cardiology and Embryology"
- American Physical Society Division of Fluid Dynamics, San Diego, 2012 – Abstract reviewer

Journal Reviewer.

- American Journal of Physiology Heart and Circulatory
- American Society for Artificial Internal Organs Journal
- Annals of Biomedical Engineering
- Applied Sciences
- ASME Journal of Engineering and Science in Medical Diagnostics and Therapy
- Bioengineering
- Cardiology in the Young
- Cardiovascular Engineering and Technology
- Cardiovascular Translational Research
- Computers in Biology and Medicine
- Frontiers in Pediatrics
- Frontiers in Physiology
- IEEE Transactions on Biomedical Engineering
- International Journal for Numerical Methods in Biomedical Engineering
- Journal of Biomechanical Engineering
- Journal of Biomechanics
- Journal of Clinical Medicine
- Journal of Engineering in Medicine
- Journal of Medical and Biological Engineering
- Journal of Mechanical Science and Technology
- Medical Engineering & Physics
- Proceedings of the Institution of Mechanical Engineers, J Engineering in Medicine
- Progress in Pediatric Cardiology
- Scientific Reports
- World Journal for Pediatric and Congenital Heart Surgery

Professional memberships. American Society of Mechanical Engineers, American Heart Association, American Society for Artificial Internal Organs, Biomedical Engineering Society

Educational Outreach.

Summer 2020 Instructor, Mechanical Engineering 1-week course, Clemson University Summer Scholars

Summer 2020 Mentor, Clemson EUREKA summer program (5 mentees)
 Summer 2020 Mentor, COVID Challenge summer research program (6 mentees)
 2/27/2020 Tech demo, ONE Seneca STEAM Night
 10/24/2019 Host: Lab tour for Bioinspired Honors Seminars HON1940 (Instructor: Charles Beard)
 Summer 2019 Mentor, Summer Creative Inquiry & Undergraduate Research Program (1 mentee)
 2/21/2019 Tech demo, ONE Seneca STEAM Night
 12/7/2018 Host: Lab tour for elementary school students, Clemson Engineering Design Expo
 11/2/2018 Judge: Three Minute Thesis Competition, Clemson University
 10/26/2018 Judge: Three Minute Thesis Competition, Clemson University
 2018-2019 Clemson Faculty Friends: Mentor for freshmen residence floor Core A2
 10/5/2018 Host: Lab tour for minority students in the STEM All IN program visit
 Summer 2018 Mentor, Clemson EUREKA summer program (2 mentees)
 3/27/2018 Tech demo, ONE Seneca STEAM Event
 Summer 2017 Mentor, Clemson EUREKA summer program (4 mentees)
 5/12~14, 2017 Engineering toys showcase, Artisphere Festival, Clemson STEAM Exhibit
 3/15/2017 Host: Lab tour for under-represented students from Morehouse College
 2/9/2017 DrawBot demonstration, ONE Seneca Family STEAM Night
 12/2/2016 Host: Lab tour for elementary school students, "*Clemson Engineering Design Expo*"
 Summer 2016 Mentor, Clemson EUREKA summer program (2 mentees)
 6/30/2016 Mentor, Career Networking Mixer, ASME SB3C Meeting
 5/13~15, 2016 Spin disc musical instrument showcase, Artisphere Festival, Clemson STEAM Exhibit
 1/28/2016 DrawBot demonstration, Seneca STEAM Outreach Night
 8/16/2015 Faculty volunteer: Clemson Out-of-State-Connection Orientation Outreach
 7/16/2015 DrawBot demonstration, Rotary Club Clemson
 Summer 2015 Mentor, Clemson EUREKA summer program (3 mentees)
 5/8~11, 2015 DrawBot demonstration, Artisphere Festival, Clemson STEAM Exhibit
 3/19/2015 Community Judge: National high school level debate tournament
 3/6/2015 Entry: Clemson Science as Art Festival
 11/20/2014 Organizer: Clemson Capstone Design Showcase "Automated Guided Vehicle"
 10/8/2014 Faculty Judge: Clemson 3rd Mechanical Engineering Poster Competition
 3/14/2014 Table Host: La Jolla Elementary School Family Science Night "*CompSci & Engineering*"
 1/31/2014 Teacher/Activity leader: San Diego Festival of Science and Engineering
Nifty 50 Program Led Outreach Activities 2014
 9/21/2013 Teacher/Activity leader: Center for Talented Youth, Family Academic Programs
Science and Technology Series @ UCSD
 7/26/2012 Guest lecturer: UCSD Academic Connections *Class: Fluid Mechanics*
 7/25/2012 Host: Lab tour for minority undergraduate student group
 2/28/2012 Host: Lab tour for high school visiting group
 1/21/2012 Host/Teacher: Lesson on cardiovascular physiology for high school visiting group
 Fall 2010 Instructor: Stanford "Splash!" Educational Studies Program
Classes: Catching Wildlife, Exploring Christian Apologetics, Parkour Free Running