

Asad Mirza

Assistant Research Professor, Florida International University

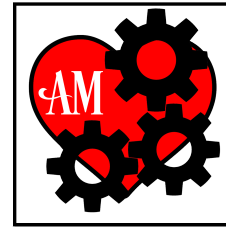
Department of Biomedical Engineering

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Education

- Ph.D., Biomedical Engineering**, Florida International University, Miami, FL, USA. Aug 2018 - June 2024
GPA: 3.84/4.0
Thesis: "Computational Model for Aortic Valve Calcification Prediction Through Hemodynamic Biomarkers"
- B.S., Biomedical Engineering**, Florida International University, Miami, FL, USA. Aug 2014 - Dec 2017
GPA: 3.74/4.0
Senior Design Project: "A System for Wholefield Fluorescent Microscopy Imaging In-Vivo"

Work Experience

- Assistant Research Professor**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Aug 2024 - Present
Dr. Tsoukias's Vascular Physiology and Biotransport
Dr. Hutcheson's Cardiovascular Matrix Remodeling Lab
Vida Engineering LLC
- Lab Assistant**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Aug 2019 - June 2024
Dr. Ramaswamy's Cardiovascular Therapeutics Lab
CAVD Hemodynamic Biomarker Project
- BME Department Tutor**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Oct 2017 - Dec 2017
BME 2740: Modeling and Simulation
BME 4100: Biomaterials
- Lab Assistant**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Jan 2016 - Aug 2019
Dr. Tsoukias's Vascular Physiology and Biotransport Lab
Pericyte cell modeling
- CHEMPAL Tutor**, Department of Chemistry, Florida International University, Miami, FL, USA. Aug 2014 - Aug 2018
- Teaching Assistant**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Jan 2017 - April 2017
BME 2740: Modeling and Simulation
- Professional Tutor**, Beck College Prep, Miami, FL, USA. Aug 2015 - Jan 2017
ACT/SAT/SAT Subject Test Tutor
- Graphics Design Intern**, Department of Biomedical Engineering, Florida International University, Miami, FL, USA. Jan 2015 - Jun 2017
- Social Media Head**, NextGen Climate - Miami Sector, Miami, FL, USA. Sep 2014 - Jan 2015
- General Tutor**, Little Lighthouse Foundation, Miami, FL, USA. Sep 2014 - Mar 2015
- Tutor**, Southwest Miami Senior High School, Miami, FL, USA. Aug 2014 - Apr 2015
AP Physics / AP Chemistry
- Hospital Volunteer**, Nicklaus Children's Hospital (formally Miami Children's Hospital), Miami, FL, USA. Aug 2010 - Apr 2014
Child Care, Activity Cart, In-Patient Pharmacy

Publications

Publication list also available on Google Scholar.

Journal Articles

- Mirza A**, Hsu C-PD, Rodriguez A, Alvarez P, Lou L, Sey M, Agarwal A, Hutcheson JD, Ramaswamy S. "Computational Model for Early-Stage Aortic Valve Calcification Shows Hemodynamic Biomarkers" *Bioengineering*, 2024 (Under Review) 2024
- Xiao, Z, **Mirza A**, et al., "A Bypass Flow Model to Study Endothelial Cell Mechanotransduction Across Diverse Flow Environments. *Materials Today Bio*" 2024: p. 101121. <https://doi.org/10.1016/j.mtbio.2024.101121> 2024
- Gonzalez, B.A; Herrera, A; Ponce, C; Gonzalez Perez, M; Hsu, C.-P.D; **Mirza, A**; Perez, M; Ramaswamy, S. "Stem Cell-Secreted Allogeneic Elastin-Rich Matrix with Subsequent Decellularization for the Treatment of Critical Valve Diseases in the Young" *Bioengineering* 2022, 9, 587. <https://doi.org/10.3390/bioengineering9100587> 2022
- Hsu C-PD, Tchir A, **Mirza A**, Chaparro D, Herrera RE, Hutcheson JD, Ramaswamy S. "Valve Endothelial Cell Exposure to High Levels of Flow Oscillations Exacerbates Valve Interstitial Cell Calcification" *Bioengineering* [10.3390/bioengineering9080393] <https://doi.org/10.3390/bioengineering9080393>, 2022 2022
- Mirza A**, Ramaswamy S. "Importance of Non-Newtonian Computational Fluid Modeling on Severely Calcified Aortic Valve Geometries-Insights from Quasi-Steady State Simulations" *Journal of Biomechanical Engineering*.doi: 10.1115/1.4054630, 2022 2022

	Gonzalez B, Perez-Nevarez M, Mirza AM , Perez M, Ramaswamy S. "Physiologically Relevant Fluid-Induced Oscillatory Shear Stress Stimulation of Mesenchymal Stem Cells Enhances the Engineered Valve Matrix Phenotype" <i>Frontiers in Cardiovascular Medicine</i> .doi: 10.3389/fcvm.2020.00069, 2020, Co-First Author	2020
	Mozneb M, Mirza AM , Li CZ. "Non-Invasive Plasmonic Based Real Time Characterization of Cardiac Drugs on Cardiomyocytes Functional Behavior". <i>Analytical Chemistry</i> . doi: 10.1021/acs.analchem.9b04956, 2019	2019
	Tesfamariam MD, Mirza AM , Chaparro D, et al. "Elastin-Dependent Aortic Heart Valve Leaflet Curvature Changes During Cyclic Flexure". <i>Bioengineering (Basel)</i> . doi: 10.3390/bioengineering6020039, 2019	2019
	Mirza AM , Moshkforoush A, Tsoukias N, "Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell", 2018 (In Preparation) .	2018
Conference Abstracts	CPD Hsu, Mirza A , Matheny R, Ramaswamy S. "Tricuspid Versus Mitral Performance of Cylindrical Porcine Small Intestinal Submucosa Valves" <i>Structural Heart</i> . doi: 10.1080/24748706.2021.1900706, 2021	2021
	Barreto A, Paolino L, Orikasa-Lopez K, Mirza A , Agarwal A, Hutcheson J, Ramaswamy S. "Constitutive Properties of Mitral Valve Tissues via Nanoindentation" <i>Structural Heart</i> . doi: 10.1080/24748706.2021.1901492, 2021	2021
	Mirza A , Barreto A, Boodooram T, Ramaswamy S. "Importance of Non-Newtonian Modeling of Blood Flow for Calcified Aortic Valves: Relevance to Sub-Clinical Thrombosis" <i>Structural Heart</i> . doi: 10.1080/24748706.2021.1901539, 2021	2021
	Gonzalez B, Perez M, Mirza A , Scholl F, Bibeovski S, Wagner K, Bibeovski J, Hernandez L, Ladich E, Brehier V, Casares M, Morales P, Lopez J, Wagner J, Ramaswamy S. "Extracellular Matrix Quantification of Fully Regenerated Neochorade After Bio-scaffold Mitral Valve Implantation in a Juvenile Non-human Primate Model" <i>Circulation</i> . doi: 10.1161/circ.142.suppl_3.14888, 2020	2020
	CPD Hsu, Mirza A , Ramaswamy S. "Hydrodynamic Assessment of a Small Intestinal Submucosa Tubular Aortic Valve" <i>Structural Heart</i> . doi: 10.1080/24748706.2020.1717270, 2020	2020
	Mirza A , CPD Hsu, Ramaswamy S. "Hydrodynamic Assessment of a Small Intestinal Submucosa Tubular Mitral Valve" <i>Structural Heart</i> . doi: 10.1080/24748706.2020.1717272, 2020	2020
	Ashenagar B, Moshkforoush A, Mirza A , Tsoukias N. "Integrative Modeling of Functional Hyperemia: From Ion Channel Activity to Functional Imaging" <i>The FASEB Journal</i> . doi: 10.1096/fasebj.2019.33.1_supplement.684.3, 2019	2019
	Mirza A , Moshkforoush A, Giles W, Tsoukias N. "A Mathematical Model of Plasma Membrane Electrophysiology of a Brain Capillary Pericyte: Investigating Pericyte Contribution to the Electrical Properties of the Capillary Network" <i>The FASEB Journal</i> . doi: 10.1096/fasebj.2018.32.1_supplement.712.10, 2019	2019
Grants, Fellowships, and Funding		
Fellowships	DYF 2023 Fellowship , University Graduate School, USA, \$17,000.	Aug 2023
	KFF 2021 Fellowship , Koerner Family Foundation, USA, \$10,000.	Dec 2020
	McNair Undergraduate Fellowship , Ronald E. McNair Post-Baccalaureate Achievement Program, USA, \$1,000.	Jun 2017
Grants	SGA Graduate Scholarship , SGA, USA, \$1,000.	Jan 2023
	Braman Scholars Completion Grant , Braman Family Foundation, USA, \$1,000.	Oct 2017
Awards and honors	Oral Competition 1st Place Winner , Graduate Research Day 2024, Miami, FL	Feb 2024
	Poster Competition 1st Place Winner , Heart Day 2024, Miami, FL	Feb 2024
	SGA Graduate Scholarship , SGA, Florida International University, Miami, FL.	Dec 2022
	Poster Competition 2nd Place Winner , Heart Day 2022, Miami, FL	Feb 2022
	Trainee Poster Award Winner , 11th World Congress for Microcirculation, Vancouver, CA.	Sep 2018
	2nd Place Oral Presentation , Fall 2017 Senior Design Competition, FIU Biomedical Engineering Department, Miami, FL.	Dec 2017
	"System for Wholefield Fluorescent Microscopy Imaging In-Vivo"	
	McNair Scholar , Ronald E. McNair Postbaccalaureate Achievement Program Scholar, Miami, FL. 14th Cohort	Apr 2017
	SGA Resident Scholarship , SGA, Florida International University, Miami, FL.	Dec 2015
	FIU Dean's List , Florida International University, Miami, FL.	Aug 2014 - Dec 2017
	FIU Presidential Scholarship , Florida International University, Miami, FL.	Aug 2014
	2nd Place Vex Robotics Competition , Florida Division, Southwest Miami Senior High School, Miami, FL.	Apr 2014
Conference Proceedings		
Oral Presentations	Mirza A , Ramaswamy S: Fluid-Structure-Interaction Models of Early-Stage Calcified Aortic Valves Show Hemodynamics Biomarkers. Graduate Research Day 2024, Florida International University, Miami, FL	Feb 2024
	Mirza A , Ramaswamy S: Development of a Patient-Specific Parameterized Aortic Heart Valve Computational Model. Graduate Research Day 2023, Florida International University, Miami, FL	Mar 2023

	Mirza AM , Barreto A, Boodooram T, Ramaswamy S (Pre-recorded): Importance of Non-Newtonian Modeling of Blood Flow for Calcified Aortic Valves, Heart Valve Society (HVS) Annual Meeting 2021, Virtual Meeting, April 9th, 2021.	April 2021
	Mirza AM , Barreto A, Ramaswamy S (Pre-recorded): The Effect of Pulsatility on Thrombus Risk in Trans-Aortic Stent Geometries, 2020 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), Virtual Meeting, June 17-20, 2020.	June 2020
	Hsu C-PD, Mirza A , Matheny R, Ramaswamy S: Hydrodynamic Assessment of a Small Intestinal Submucosa Tubular Mitral Valve, 2nd International Conference of Tissue-Engineered Heart Valves (ICTEHV), satellite meeting as part of the Heart Valve Society (HVS) Annual Meeting 2020 February 14-16, Abu Dhabi, UAE, 2020.	Feb 2020
	Moshkforoush A, Mirza A , Longden T, Dabertrand F, Harraz O, Nelson M, Tsoukias N: Requirements for regenerative conduction of hyperpolarization in cerebral capillaries: a model analysis. World Congress for Microcirculation 2018, Vancouver, CA, Oct 9-13.	Sep 2018
	Mirza A , Robledo E, Pinzon J, Fuenzalida N: System for Whole Field Fluorescence Microscopy Imaging In-Vivo. BME Senior Design Project, Florida International University, Miami, FL	Dec 2017
	Mirza A , Moshkforoush A, Giles W, Tsoukias N: Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell. 2017 FIU McNair's Scholars Research Conference, Florida International University, Miami, FL	Oct 2017
Poster Presentations	Mirza A , Ramaswamy S: Computational Reproduction of the Aortic Valve Geometry for Patient-Specific Simulations. Biomedical Engineering Society Annual Fall Meeting (BMES), October 11-14, Seattle, WA, 2023.	Oct 2023
	Mirza A , Ramaswamy S: Towards the Creation of a Parameterized Asymmetric Aortic Valve Model. GSAW Scholarly Forum 2023, Florida International University, Miami, FL	March 2023
	Mirza A , Ramaswamy S: Towards the Creation of a Parameterized Asymmetric Aortic Valve Model. Miami Heart Day 2023, Florida International University, Miami, FL	Feb 2023
	Mirza A , Ramaswamy S: Preliminary FSI Model of a Healthy Vs Severely Calcified Aortic Valve. GSAW Scholarly Forum 2022, Florida International University, Miami, FL	Apr 2022
	Perez M, Gonzalez B, L Yih-Mei, Mirza A , Ramaswamy S: Oscillatory Flow Conditioned Exosomes for the Treatment of Myocardial Infarction. Graduate Research Day 2022, Florida International University, Miami, FL	Mar 2022
	Mirza A , Ramaswamy S: Preliminary FSI Model of a Healthy Vs Severely Calcified Aortic Valve. Graduate Research Day 2022, Florida International University, Miami, FL	Mar 2022
	Mirza A , Ramaswamy S: Need For A More Representative Constitutive Model For Severely Calcified Aortic Valves. Heart Valve Society (HVS) Annual Meeting 2022, Nobu Hotel, Miami, FL	Mar 2022
	Perez M, Gonzalez B, L Yih-Mei, Mirza A , Ramaswamy S: Enhanced Stem Cell Exosome Production Under Oscillatory Flow. Miami Heart Day 2022, Florida International University, Miami, FL	Feb 2022
	Mirza A , Ramaswamy S: Discrepancies Between Material Models Used for Severely Calcified Aortic Valves. Miami Heart Day 2022, Florida International University, Miami, FL	Feb 2022
	Mirza AM , Barreto A, Boodooram T, Ramaswamy S: Enhanced Hemodynamics Predictions in a Calcified Aortic Valve Geometry Using the Quemada Model, Graduate Research Day 2021, Florida International University (Virtual), Miami, FL	March 2021
	Mirza A , Barreto A, Ramaswamy S: The Effect of Pulsatility on Thrombus Risk in Trans-Aortic Stent Geometries. Graduate Research Day 2020, Florida International University, Miami, FL	Mar 2020
	Mirza A , Barreto A, Ramaswamy S: The Effect of Pulsatility on Thrombus Risk in Trans-Aortic Stent Geometries. Miami Heart Day 2020, Florida International University, Miami, FL	Feb 2020
	Mirza A , Barreto A, Ramaswamy S: Aortic Valve Shape Assessment Following Elastin Degradation. Biomedical Engineering Society Annual Fall Meeting (BMES), October 16-19, Philadelphia, PA, 2019.	Oct 2019
	Barreto AD, Mirza AM , Ramaswamy S: A Spatial Mean Curvature Map of the Aortic Valve - Relevance to Calcification. SB3C2019, Summer Biomechanics, Bioengineering and Biotransport Conference, June 21 -24, Seven Springs, June 25-28, PA, 2019.	June 2019
	Mirza A , Barreto A, Ramaswamy S: Axial Curvature Evaluation in Aortic Valve Tissue-Strips Following Elastin Degradation. Graduate Research Day 2019, Florida International University, Miami, FL	Mar 2019
	Mirza A , Barreto A, Ramaswamy S: Axial Curvature Evaluation in Aortic Valve Tissue-Strips Following Elastin Degradation. Miami Heart Day 2019, Florida International University, Miami, FL	Feb 2019
	Mirza A , Moshkforoush A, Nelson M, Tsoukias N: Multiscale Modeling of Cerebral Blood Flow: From Neurovascular Coupling to Tissue Perfusion and Oxygenation. BMES 2018, Atlanta, GA	Oct 2018
	Moshkforoush A, Mirza A , Longden T, Dabertrand F, Harraz O, Nelson M, Tsoukias N: Requirements for regenerative conduction of hyperpolarization in cerebral capillaries: a model analysis. World Congress for Microcirculation 2018, Vancouver, CA, Sep 9-13.	Sep 2018
	Mirza A , Moshkforoush A, Nelson M, Tsoukias N: Multiscale Modeling of neurovascular Coupling: From Ion Channel Activity to BOLD fMRI Responses. World Congress for Microcirculation 2018, Vancouver, CA, Sep 9-13.	Sep 2018
	Mirza A , Moshkforoush A, Giles W, Tsoukias N: A Mathematical Model of Plasma Membrane Electrophysiology of a Brain Capillary Pericyte: Investigating Pericyte Contribution to the Electrical Properties of the Capillary Network. Experimental Biology 2018, San Diego, CA, USA	Apr 2018
	Mirza A , Moshkforoush A, Giles W, Tsoukias N: Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell. 8th Annual BME Undergraduate Research Day, Florida International University, Miami, FL	Oct 2017
	Mirza A , Moshkforoush A, Giles W, Tsoukias N: Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell. 10th Annual Nanoscience Technology Symposium, Florida International University, Miami, FL	Sep 2017

Mirza A, Moshkforoush A, Giles W, Tsoukias N: Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell. 2017 University of Buffalo (UB) Undergraduate Research Conference, University of Buffalo, Buffalo, NY, USA	Jul 2017
Mirza A, Blanco V, Kirk P, Garcia L, Jung R: Evidence of PAC During Preksha Meditation. 2017 Biophysics of Neural Computation Research Conference, Florida International University, Miami, FL	Apr 2017
Mirza A, Moshkforoush A, Giles W, Tsoukias N: Mathematical Model of Plasma Membrane Electrophysiology in a Single Pericyte Cell. 7th Annual BME Undergraduate Research Day, Florida International University, Miami, FL	Mar 2017

Teaching

Guest Lectures	Image Processing , Department of Biomedical Engineering, Florida International University, Miami, FL, USA	2023
	MATLAB Basics , Department of Biomedical Engineering, Florida International University, Miami, FL, USA	2023
	ANSYS CFD , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2021
	ANSYS FEA , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2021
	MATLAB Data Presentation , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	Image Processing Part 2 , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	Image Processing Part 1 , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	MATLAB Basics Part 3 , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	MATLAB Basics Part 2 , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	MATLAB Basics Part 1 , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	3D Printing , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020
	GUI Development , Department of Biomedical Engineering, Florida International University (Virtual), Miami, FL, USA	2020

Graduate Assistant Teaching

- BME 2740: Biomedical Engineering Modeling and Simulation (Dr. Tamames) - 34 students	Spring 2023
- Held weekly remote office hours assisting students with MATLAB	
- Graded MATLAB based assignments and provided feedback to students	
- Wrote lecture codes to assist students in understanding content	
- Created interactive lectures	
- BME 2740: Biomedical Engineering Modeling and Simulation (Dr. Tamames) - 51 students	Fall 2022
- Held weekly remote office hours assisting students with MATLAB	
- Graded MATLAB based assignments and provided feedback to students	
- Wrote lecture codes to assist students in understanding content	
- Created interactive lectures	
- BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - 68 students	Spring 2022
- Held weekly remote office hours assisting students with MATLAB	
- Graded MATLAB based assignments and provided feedback to students	
- BME 3632: BME Transport (Dr. Hutcheson) - 43 students	Fall 2021
- Assisted in teaching a module on Partial Differential Equations (PDE) for the purposes of team specific transport projects that were either energy, mass, or momentum based. Also improved and distributed code that the students could use as a template for their work.	
- BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - 68 students	Fall 2021
- Held weekly remote office hours assisting students with MATLAB	
- Graded MATLAB based assignments and provided feedback to students	
- ABET Accreditation Preparation (Dr. Godavarty) - Assist in compiling and analyzing department course data.	Summer 2020
- Creating several MATLAB scripts for processing and graphing of tabulated data for ease of use.	
- BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - 51 students	Spring 2020
- Conducting remote seminar hours where students could learn general MATLAB skills not usually offered in this or other courses. In addition to being able to discuss assignments as a group with TA supervision	
- Held weekly remote office hours assisting students with MATLAB	
- Graded MATLAB based assignments and provided feedback to students	
- BME 6266: Advanced Biofluid Mechanics (Dr. Ramaswamy) - N/A students	Winter 2020
- Worked with Dr. Ramaswamy to create a ANSYS CFD based project module focused on arterial aneurysm analysis	
- Pre-recorded instructional videos showing geometry importing, processing, solution setup,	

- solving, and post-processing
- Pre-processed 12 patient-specific geometry files to ready-to-use simulation state
- BME 4051L - Biomedical Engineering Lab II (Dr. Christie and Dr. Jiao) - **98 students** Fall 2020
 - Graded quizzes/final alongside 4 other TAs
 - Conducted remote lab sessions as well as recorded lab videos for student convenience
 - BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - **76 students** Fall 2020
 - Conducting remote seminar hours where students could learn general MATLAB skills not usually offered in this or other courses. In addition to being able to discuss assignments as a group with TA supervision
 - Held weekly remote office hours assisting students with MATLAB
 - Graded MATLAB based assignments and provided feedback to students
 - BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - **60 students** Spring 2020
 - Held weekly seminar hours where students could visit a computer lab where I could assist them with MATLAB
 - Held weekly office hours assisting students with MATLAB
 - Graded MATLAB based assignments and provided feedback to students
 - BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - **83 students** Fall 2019
 - Held weekly seminar hours where students could visit a computer lab where I could assist them with MATLAB
 - Held weekly office hours assisting students with MATLAB
 - Graded MATLAB based assignments and provided feedback to students
 - BME 1054L: Introduction to BME Computing (Dr. Tsoukias) - **N/A students** Summer 2019
 - Worked with Dr. Tsoukias and Dr. Jung to redesign parts of the course based on student feedback
 - Created accompanying videos for each course module where I explain the PowerPoint to students and code along with them
 - Created a series of BME-oriented assignments to engage students outside of normal course content
 - Created a brand new module, Biosignal Processing, where students learn the beginning steps of signal processing such as what makes up a signal, frequency analysis, Fourier/Inverse Fourier transform, and filters, all with a BME scope (ECG, EEG, etc)
 - Updated some of the PowerPoints to better match modern style and MATLAB concepts
 - BME 3632: BME Transport (Dr. Ramaswamy) - **43 students** Spring 2019
 - Grading of assignments / quizzes / exams
 - Held weekly office hours explaining BME Transport concepts
 - BME 3632: BME Transport (Dr. Hutcheson) - **49 students** Fall 2018
 - Grading of assignments / quizzes / exams
 - Held weekly office hours explaining BME Transport concepts
 - Taught 2 classes on solving PDEs using MATLAB for course project
 - BME 4211: Orthopaedic Biomechanics (Dr. McPherson) - **34 students** Spring 2018
 - Grading of assignments / quizzes / exams

Supervision

Senior Design Group

Consultation

- Team 1: Garrison Gauge Fall 2022
- Team 3: Wearable Transdermal Isoflurane Monitoring Device
- Team 7: Tremor Tranquil
- Team 1: P.R.O Scan Fall 2021
- Team 5: Ampoule Scoring and Sealing Machine
- Team 2: Heel Pressure Relief Sock Fall 2020
- Team 5: Dynamic Resistance Orthosis (D.R.O.)
- Team 7: FTMS: Force-Tension Monitoring System for the Central Cable Transport Device During Distraction Osteogenesis
- Team 5: Bite Force Recording Device Spring 2020
- Team 1: Wireless Electrode for the SA Node of the Heart Fall 2019
- Team 3: System to Quantify the Effect of Visual Inputs on Body Sway
- Team 5: Foam-Based Pressure System for AID in Casting of Transtibial and Transfemoral Amputees
- Team 10: Garrison Gauge
- Team 8: Delivery of Viscous Biologics in Wearable Injectors Spring 2019
- Team 10: System for Registering Tracking Bone Movement
- Team 9: Vein Preservation System Spring 2018
- Team 13: Standardized Vaportization Device Attachment for Inhalable Drug Dose Monitoring
- Team 5: Field Therapy Accelerator Fall 2017

Undergraduate Interns	<p>Tisha Boodooram, Biomedical Engineering Department, Florida International University, Miami, FL. 2020-2021</p> <p>Amanda Barreto, Biomedical Engineering Department, Florida International University, Miami, FL. 2018-2021</p> <p>Sergio Rodriguez, Biomedical Engineering Department, Florida International University, Miami, FL. 2019</p>
Professional Training	<p>Six Sigma - Yellow Belt, Florida International University, Miami, FL, USA. 2017 The Six Sigma Yellow Belt certification is aimed at those new to the world of Six Sigma who have a small role, interest, or need to develop foundational knowledge.</p>
University Service	<p>2024 Summer BME Senior Design Oral Judge, Biomedical Engineering Society, Florida International University, Miami, FL, USA Summer 2024</p> <p>2020 Fall BME Senior Design Poster Judge, Biomedical Engineering Society, Florida International University, Miami, FL, USA Fall 2020</p> <p>2020 Spring BME Senior Design Poster Judge, Biomedical Engineering Society, Florida International University, Miami, FL, USA Spring 2020</p> <p>2019 Fall BME Senior Design Poster Judge, Biomedical Engineering Society, Florida International University, Miami, FL, USA Fall 2019</p>
Community Outreach	<p>EMBS BME Presentation - 3D Printing and Simulation, Pinecrest Cove Preparatory Academy, Miami, FL, USA. 2019 Taught middle school students about 3D printing and BME oriented simulations (hip implants, computer cooling, etc)</p> <p>Guest lecture, Southwest Miami Senior High School, Miami, FL, USA. 2017 Taught Physics students MATLAB/Python programming and its relationship with BME simulations.</p>
Technical Skills	<p>Operating Systems: Windows / Linux</p> <p>General Software: MS Office, Adobe Photoshop, Adobe Illustrator, Adobe Lightroom, Adobe InDesign, Publisher</p> <p>Programming Languages: Python, JavaScript, Processing</p> <p>Markup/Formatting Languages: HTML, CSS, Markdown</p> <p>Scientific Computation and Simulation Packages: MATLAB, SIMULINK, COMSOL, ANSYS, LS-DYNA</p> <p>CAD Modeling Software: SolidWorks, SpaceClaim, Blender</p> <p>MATLAB Toolboxes: Neural Network, Image Processing, Data Acquisition, Computer Vision, Curve Fitting</p>
Languages	<p>Native: English, Urdu</p> <p>Basic: Hindi</p> <p>Last updated: July 2024</p>