CURRICULUM VITAE

Valentina Dargam
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1 EDUCATION AND ACAMEDIC POSITIONS

Researcher Assistant Professor *Florida International University* 2025-Present
Department: Biomedical Engineering

Postdoctoral Researcher *Florida International University* 2024-2025
Department: Environmental Health Sciences

Doctor of Philosophy *Florida International University* 2024
Major: Biomedical Engineering

Bachelor of Science *Florida International University* 2018
Major: Biomedical Engineering (Cum Laude)

2 PUBLICATIONS & PATENTS

2.1 Articles (*indicates co-first author)

1. **Dargam V***, Ashbrook SK*, da Silva Nogueira P, Bakhshian Nik A, Hutcheson JD. Phosphate Salt Selection Affects Mortality and Vascular Calcification in the Adenine-Induced CKD Mouse Model. *Manuscript in review*.
2. **Dargam V**, Sanchez A, Kolengaden A, Perez Y, Arias R, Valentin Cabrera AM, Chaparro D, Tarafa C, Coba A, Yapaolo N, da Silva Nogueira P, Todd EA, Williams MM, Shehadeh LA, Hutcheson JD. Sex-Specific Changes in Cardiac Function and Electrophysiology During Progression of Adenine-Induced Chronic Kidney Disease in Mice. *Journal of Cardiovascular Development and Disease*. 2024 Nov 7;11(11):362. PMID: 39590205.
3. Leizaola D, **Dargam V**, Leiva K, Alirezaei H, Hutcheson J, Godavarty A. Effect of chronic kidney disease induced calcification on peripheral vascular perfusion using near-infrared spectroscopic imaging. *Biomedical Optics Express*. 2024 Jan 1;15(1):277-93. PMID: 38223173.
4. Leiva K, Leizaola D, Gonzalez I, **Dargam V**, Alirezaei H, Kaile K, Robledo E, Hutcheson J, Godavarty A. Spatial-Temporal Oxygenation Mapping Using a Near-Infrared Optical Scanner: Towards Peripheral Vascular Imaging. *Annals of Biomedical Engineering*. 2023 Sep;51(9):2035-2047. doi: 10.1007/s10439-023-03229-7. PMID: 37204547.
5. **Dargam V***, Ng HH*, Nasim S, Chaparro D, Irion CI, Seshadri SR, Barreto A, Danziger ZC, Shehadeh LA, Hutcheson JD. S2 Heart Sound Detects Aortic Valve Calcification Independent of Hemodynamic Changes in Mice. *Frontiers in Cardiovascular Medicine*. 2022 May 25;9:809301; PMID: 35694672.
6. Chaparro D*, **Dargam V***, Alvarez P, Yeung J, Saytashev I, Bustillo J, Loganathan A, Ramella-Roman J, Agarwal A, Hutcheson JD. A method to quantify tensile biaxial properties of mouse aortic valve leaflets. *Journal of Biomechanical Engineering*. 2020 Oct 1;142(10):100801. PMID: 32291440.

2.2 Patents

1. Godavarty A, Hutcheson JD, Leizaola D, Leiva K, **Dargam V**. “Systems and methods for performing peripheral vascular imaging.” U.S. 2024/0350014 A1. Provisional patent issued on October 24, 2025.
2. **Dargam V** and Hutcheson JD. "Systems and methods for quantifying duration of heart sounds." U.S. Patent 11,771,378 issued October 3, 2023.
3. **Dargam V** and Hutcheson JD. "Methods and devices for processing heart sounds." U.S. Patent 11,484,284 issued November 1, 2022.
4. **Dargam V** and Hutcheson JD. "Methods and devices for processing heart sounds." U.S. Patent 11,272,900 issued March 15, 2022.

3 RESEARCH SUPPORT & GRANTS

Florida Heart Research Foundation **Dargam V (PI)** 04/21/2025-Present
This Junior Faculty Research Grant supports an early career investigator launching a research program in cardiovascular science at FIU. The award will fund the development of preclinical models to study how varying doses and durations of lead and cadmium exposure impact cardiac and vascular remodeling. Using a

combination of invasive and noninvasive techniques, the research will assess blood pressure, vascular resistance, and cardiac function in mice to determine exposure thresholds that trigger hypertension and cardiac dysfunction. The outcomes of this study will advance our understanding of how chronic environmental metal exposure contributes to the onset and progression of cardiovascular disease.
Total funding: $750,000

Florida Heart Research Foundation **Dargam V (PI)** 08/31/2022-08/31/2024
This is a grant awarded to an early career researcher within the state of Florida whose research is felt to have had the broadest impact on the advancement of knowledge in the diagnosis, treatment and/or prevention of cardiovascular disease. The funds from this award will be used to study non-invasive diagnostic markers that can help determine optimal timing of an aortic valve replacement. Data generated will be used to apply to external funding mechanisms to establish early independence as a principal investigator.
Total funding: $50,000

NIH F31 Predoctoral Fellowship (1F31HL154671) **Dargam V (PI)** 09/07/2020-06/06/2024
"Correlating Aortic Valve Structure to Heart Sound Characteristics"
Fellowship to support stipend, tuition, and partial research supplies to study low-cost techniques to diagnose and monitor cardiovascular remodeling.
Total funding: $135,973

NSF I-Corps Program (Award #2042851) Hutcheson JD (PI) 10/01/2020-06/30/2022
"Cardiacoustics: AI-based Heart Sound Screening for Early-Stage Heart Disease"
To study the commercialization potential and perform customer discovery for a cardiac diagnostic tool.
Role: Entrepreneur Lead
Total funding: $50,000

McNair Graduate Fellowship **Dargam V (PI)** 08/20/2018-07/31/2020
"Diagnosing Early Aortic Valve Disease: Correlation Between Heart Sounds and Remodeling"
Fellowship to support stipend, tuition, and health insurance to study changes of second heart sound characteristics in calcified murine aortic valves.
Total funding: $64,465

4 RESEARCH & TECHNICAL EXPERIENCE

2020 **Entrepreneur Lead** *National Science Foundation Innovation Corps (I-Corps™),* Department of Biomedical Engineering, Florida International University
2017-2019 **Undergraduate Lead Investigator and Research Assistant** Department of Modern Languages and Biomedical Engineering, Florida International University

5 POSITIONS AND HONORS

5.1 Honors, Awards, and Scholarships

2022 Florida Heart Research Foundation "Early Career Stop Heart Disease" Researcher of the Year
2020 National Science Foundation (NSF) Innovation Corps (I-Corps) Award
2020 Biomedical Engineering Society Career Development Award
2019 eMerge Americas Pitch Night at StartUP FIU Winner
2019 2nd Place in Florida Blue Health Innovation Pitch Competition
2019 Biomedical Engineering Society Career Development Award
2019 1st Place at Florida Statewide Graduate Research Symposium
2019 2nd Place Award at FIU's Graduate Student Appreciation Week 2019 Scholarly Forum
2019 Hispanic Scholarship Fund Scholar
2018 Award for Oral Presentation at Conference for Undergraduate Researchers at FIU (CURFIU)
2018 American Airlines First Generation Scholarship
2017 NACME Scholarship Recipient
2017 Ronald E. McNair Post-Baccalaureate Achievement Program Scholar

5.2 Professional Memberships

2020- Member, International Society of Applied Cardiovascular Biology (ISACB)
2020- Member, American Heart Association (AHA)
2018- Member, Biomedical Engineering Society (BMES)

5.3 Service Experience

2021- Member, Communications Committee, ISACB
2020- Symposium Organizer, LatinXinBME Organization

5.4 Offices Held in Professional Societies and Organizations

2023-2024 President, Executive Board, LatinXinBME Organization
2022-2023 President-Elect, Executive Board, LatinXinBME Organization
2021- Newsletter Co-Editor, Communications Committee, ISACB
2021-2022 Social Chair, Executive Board, LatinXinBME Organization

6 PRESENTATIONS

6.1 Conference and Symposium Oral Presentations (Presenting author)

1. **Dargam, V.**, Kolengaden, A., Perez, Y., R., Arias, Valentin, A., Williams, N., Yapaolo, A., Coba, D., Chaparro, P., Nogueira, & Hutcheson, J. D. "Sex-dependent Differences in the Progression of Chronic Kidney Disease Induced Cardiac Dysfunction". 2024 Biomedical Engineering Society Annual Meeting. October 23-26th, 2024. Baltimore, MD, USA.
2. **Dargam, V.**, Kolengaden, A., Perez, Y., Valentin, A., Williams, M. M., Todd, E. A., Shehadeh, L., & Hutcheson, J. D. "Low-cost Assessment of Cardiac Function and Remodeling During Heart Failure". International Society of Applied Cardiovascular Biology 18th Biennial Meeting. September 28th-October 1st, 2022. Memphis, TN, USA.
3. **Dargam, V.**, Ng, H. H., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. "Using the S2 Sound as an Early Marker of Aortic Valve Calcification". 2021 Florida Chapter American College of Cardiology Annual Meeting. August 13-15th, 2021. Orlando, FL, USA.
4. **Dargam, V.**, Ng, H. H., Sanchez, A., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. "Tracking Acoustic and Electrophysiological Changes Associated With CKD-induced Cardiac and Valvular Remodeling in a Mouse Model". International Society of Applied Cardiovascular Biology 17th Biennial Meeting. March 12-13th, 2021. Virtual.
5. **Dargam, V.**, Ng, H. H., Nasim, S., & Hutcheson, J. D. "Accelerated Aortic Valve and Cardiac Remodeling in a Chronic Kidney Disease Mouse Model". 2019 Biomedical Engineering Society Annual Meeting. October 14-17th, 2020. Virtual.
6. **Dargam, V.**, Bakhshiannik, A., & Hutcheson, J. D. "Diagnosing Early Aortic Valve Disease: Correlation Between Heart Sounds and Remodeling". 2019 Biomedical Engineering Society Annual Meeting. October 16-19th, 2019. Philadelphia, PA, USA.

6.2 Conference and Symposium Poster Presentations (Presenting author)

1. **Dargam, V.**, Sanchez, A., Kolengaden, A., Perez, Y., Arias R., Valentin, A., Williams, N., Yapaolo, A., Coba, D., Chaparro, P., Nogueira, & Hutcheson, J. D. "Sex-dependent Differences in the Progression of Chronic Kidney Disease Induced Cardiac Dysfunction". 19th Biennial Meeting of the ISACB. October 5-8th, 2024. Vienna, Austria.
2. **Dargam V**, Tong L, Kolengaden A, Perez Y, Arias R, Valentin Cabrera AM, Tarafa C, Coba AL, Yapaolo N, and Hutcheson JD. ''Using the Second Heart Sound as a Noninvasive Assessment of Markers Indicative of Heart Failure". Third Annual South Florida Translational Research Symposium. April 11-12th, 2024. Port St. Lucie, FL, USA.
3. **Dargam V**, Kolengaden A, Perez Y, Arias R, Valentin Cabrera AM, Tong L, and Hutcheson JD. ''Using the Second Heart Sound as a Noninvasive Assessment of Markers Indicative of Heart Failure". 2023 Biomedical Engineering Society Annual Meeting. October 11-14th, 2023. Seattle, WA, USA.
4. **Dargam, V.**, Chaparro D., Kolengaden, A., & Hutcheson J.D. "A Regional Analysis of Mouse Aortic Valve Leaflet Calcification and Biomechanical Properties." Heart Valve Society Meeting. March 29th-April 1st, 2023. Malaga, Spain. ePoster Competition.
5. **Dargam, V.**, Kolengaden, A., Perez, Y., Valentin, A., Williams, M. M., Todd, E. A., Shehadeh, L., & Hutcheson, J. D. "Low-cost Assessment of Cardiac Function and Remodeling in Heart Failure". 2022 PATHS-UP Industry Professional Advisory Board Meeting. August 29-30th, 2022. Houston, TX, USA.
6. **Dargam, V.**, Ng, H. H., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. (2021). "The S2 Sound Can Detect Early Stages of Aortic "Valve Calcification in a Mouse Model". ISACB 2021 Meeting "Building Translational Bridges for Cardiovascular Patients". September 17-18th, 2021. Atlanta, GA, USA.

7. **Dargam, V.**, Ng, H. H., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. "Using the S2 Sound as an Early Marker of Aortic Valve Calcification". Florida Chapter of the American College of Cardiology Annual Meeting. August 13-15th, 2021. Orlando, FL, USA.
8. **Dargam, V.**, Ng, H. H., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. "Using the S2 Sound as an Early Marker of Aortic Valve Calcification". American Heart Association's Scientific Sessions 2021. November 13-15th, 2021. Virtual.
9. **Dargam, V.**, Ng, H. H., Sanchez, A., Nasim, S., Irion, C. I., Seshadri, S.R., Shehadeh, L. & Hutcheson, J. D. "Tracking Acoustic and Electrophysiological Changes Associated With CKD-induced Cardiac and Valvular Remodeling in a Mouse Model". 2021 Heart Valve Society Annual Meeting. April 9th, 2021. Virtual.
10. **Dargam, V.**, Bakhshiannik, A., & Hutcheson, J. D. "Diagnosing Early Aortic Valve Disease: Correlation Between Heart Sounds and Remodeling". 2019 Conference of Florida Graduate Schools. April 17-18th, 2019. Miami, FL, USA.

6.3 Trainee Conference Presentations (Direct trainees underlined)

1. Kolengaden, A., **Dargam, V.**, & Hutcheson, J.D. (2022). "A Comparative Analysis of Fluorescent Probes Used for the Identification of Cardiovascular Calcification". 2022 Biomedical Engineering Society Annual Meeting. October 12-15th, 2022. San Antonio, TX, USA.
2. Sanchez, A., **Dargam, V.**, Ng, H.H., & Hutcheson, J.D. (2020). "Cardiac Electrophysiological Abnormalities in Chronic Kidney Disease". 2019 Biomedical Engineering Society Annual Meeting. October 14-17th, 2020. Virtual.

6.4 Pitching Competitions

1. eMerge Americas 2022. April 18-19, 2022. Miami, FL, USA.
   - Selected as a top 25 finalist in the Startup Showcase
2. Florida Venture Forum's 2020 Early-Stage Capital Conference. October 14-15th, 2020. Tampa, FL, USA.
3. eMerge Americas Pitch Night at StartUP FIU. December 11th, 2019. Miami, FL, USA.
   - Winner and selected to be fast-tracked into eMerge Americas 2020 Startup Showcase (postponed)
4. 2019 Florida Blue Health Innovation Pitch Competition. September 19th, 2019. Tampa, FL, USA.
   - Won 2nd place ($5,000 award) for the implementation of big data to solve problem in treating and managing of chronic diseases

7 WORKSHOPS, TRAININGS, & SEMINARS ATTENDED

2018-2024 **Culture Seminar Series***,* Department of Biomedical Engineering, Florida International University

2023 **Rodent Microsurgery and Hemodynamic Measurements Training Program**, Inside Scientific, University of Wisconsin-Madison

2022 **Rodent Pressure-Volume Loop Surgical Training**, Dr. James West Laboratory, Division of Allergy, Pulmonary and Critical Care Medicine, Vanderbilt University

8 ADVISING & TEACHING

8.1 List of Undergraduate Trainees (Affiliated research programs)

2025 - Lunna Gafas (Summer Research Internship Program, FIU)
2025- Alvaro Delgado (Summer Research Internship Program, FIU)
2023-2024 Alex Coba
2023-2024 Nathan Yapaolo
2023-2024 Christopher Tarafa
2022-2023 Yency Perez
2021-2023 Rebekah Arias (PATHS-UP Research Experience and Mentoring Program)
2021-2022 Aashiya Kolengaden
2020-2021 Anet Sanchez (Opportunities for Undergraduate Research and Scholarship Program)
2019-2020 Diego Sanchez

8.2 Teaching Experience

2025 Case Study Leader, Summer Research Internship Program, FIU
2018 Transport Tutor, Department of Biomedical Engineering, FIU

2018 Biomaterials Tutor, Department of Biomedical Engineering, FIU
2016-2018 Biology I Undergraduate Learning Assistant, Biology Department, FIU

9 OUTREACH

2018-2020 *Community Outreach Events Organizer for Family Fun Sundays at The Motivational Edge*
Organized and supervised a once-a-month event to showcase science activities with lab member to teach kids about the cardiovascular system