

EUGENIO FRIAS-MIRANDA

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EDUCATION

Purdue University, West Lafayette, IN *June 2022 - May 2027*
Ph.D. in Mechanical Engineering *Advisor: Laura H. Blumenschein GPA: 3.6/4.0*

Purdue University, West Lafayette, IN *August 2018 - May 2022*
B.S. in Mechanical Engineering *GPA: 3.5/4.0*

POSITIONS HELD

Graduate Student Researcher **June 2022 - Present**
Purdue University

Robust And Adaptive Design (RAAD) Lab

Localization of Vine Robot Through Obstacle Collision **June 2022 - March 2023**
Purdue Mechanical Engineering *West Lafayette, IN*

- Used understanding of vine robot motion and mathematical models to predict tip position of at every instant
- Developed an experimental setup allowing for the adjustment of individual variables which determine the pivot point
- Redesigned robot cap by increasing sensing accuracy and streamlining data collection process

Folded Pneumatic Artificial Muscle (foldPAM) **June 2022 - January 2023**
Purdue Mechanical Engineering *West Lafayette, IN*

- Designed a pneumatic actuator with controllable end geometry, symmetrically folded on each side
- Investigated force-strain relationships by understanding foldPAM units with 30 differing length and fold ratios
- Created an actuated foldPAM device to produce continuous on-demand adjustment of end geometry

Fau-Set: Senior Design Project **January 2022 - May 2022**
Purdue Mechanical Engineering *West Lafayette, IN*

- Implemented a 2:1 gear ratio and sized gearmotor to ensure torque and speed could be delivered at driving load conditions
- Conducted an FEA analysis using ANSYS on casing to minimize footprint while withstanding loads during stall torque
- Built a PD control system for faucet handle using a motor and gear train

Software Engineer Intern

May 2021 - August 2021

M365 Core, Microsoft

Redmond, WA

- Analyzed data gathered from a TDS machine and logged data analysis results in kusto using C#
- Created a processor which ingests a signal to obtain workplace data analytics

Thermal Control of Test Chamber

August 2020 - May 2021

Ray W. Herrick Laboratories, Purdue University

West Lafayette, IN

- Applied heat transfer and thermodynamics principles to design cooling blanket for test chamber
- Programmed LabView and MATLAB scripts to automate procedures and gather data

Program Manager Intern

May 2020 - August 2020

Microsoft Graph, Microsoft

Redmond, WA

- Defined current problems, customers, and potential solutions within Microsoft Graph's API Review process
- Interviewed 12 Microsoft Graph API reviewers to prioritize solutions

RECENT INTERESTS

I am a PhD candidate in Mechanical Engineering at Purdue University. I work in Laura H. Blumenschein's RAAD lab and am currently funded by a Graduate Research Assistanceship. My research focus is soft robotics. Currently I am working on developing a self sensing obstacle interaction vine robot and foldable pneumatic actuators. I am particularly interested in using soft robotics to enhance our current understanding in human rehabilitation and exoskeletons.

AWARDS AND HONORS

2022 - Honorable Mention, Purdue Engineering Virtual Graduate Showcase

2022 - 3rd place, Purdue BRIDGE Poster Competition

2022 - 2nd place, Thomas J. and Sandra H. Mallot Innovation Award

2021 - Purdue Mechanical Engineering Scholarship

2021 - SHPE Purdue x Boeing Scholarship

2020 - Ralph T Simon Memorial Scholarship

2020 - Gordon Hall Memorial Scholarship

2020 - Society of Hispanic Professional Engineers at Purdue Scholarship

2019 - Hispanic Scholarship Fund Scholar

2018 - Hispanic Scholarship Fund Scholar

2018 - Eagle Scout

PUBLICATIONS

Refereed Conference Articles:

1. Wang, S., Frias Miranda, E., and Blumenschein, L.H. (2022). IEEE Robotics And Automation Letters. arxiv.org/abs/2209.01315

TEACHING

ME 375: Systems, Measurements, and Controls II

Jan 2022 - May 2022

- Students develop skills in system measurement, sensor integration, and feedback control.

MENTORING

Undergraduate Students Mentored

- Purdue University: Adrian Pasinger, Emelina Aubeneau, Ethan Scurlock, Hailey Fitzsimmons, James Lindquist, Maxwell Tufer, Ryan Carlson, Connor Day, George Wehmann, Joshua J Evans, Tyler Hand, Isaac Noren, Keval Rubinchick, Matthew Torrisi, Samantha Hirsch, Seth Honnigford, Xavier Morice (17 students)

OUTREACH

Society of Hispanic Professional Engineers August 2019 - Present

- Build professional communication practices through networking and creating events with over 100 attendees
- Introduced STEM topics and engineering experiences to young audiences

RAAD Lab Outreach June 2022 - Present

- Demonstrated STEM and robotics research topics for elementary to high school age students from low-income backgrounds
- Participated in discussions with students about robotics research and getting a graduate degree

Purdue Space Day October 2022

- Helped with registration and organization of Purdue's Space day activities, aimed at introducing middle and high school aged students to a new STEM field

Purdue Mechanical Engineering Ambassadors November 2019 - May 2022

- Organized major events for ME as direct link between ME students, faculty, and staff
- Fostered communication skills by leading prospective student tours

PRESENTATIONS

1. Frias Miranda, E., Srivastava, A., Blumenschein, L.H. (2022). Purdue BRIDGE Poster Competition.
2. Frias Miranda, E., Boyina, A.R., Siefker, Z.A., Rhoads, J.F. (2021). IDETC-CIE Conference.
3. Frias Miranda, E., Warsinger, D.M. (2021). Purdue Undergraduate Research Conference.

PERSONAL

Enjoys playing video games, playing soccer, and working on personal projects