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: 3.3/4.0**

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 - Present**
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 Aritificial Muscle (foldPAM) **June 2022 - Present**
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 minize 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 pneaumatic 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, Mattew 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