Yahriel Salinas-Reyes

Palmer Group
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EDUCATION

Iowa State University of Science & Technology: Ames, IA **Anticipated Graduated: December, 16th 2023**
Bachelor of Aerospace Engineering (GPA: 3.4)

- Relevant Coursework: Systems Engineering, Electrical Engineering, FEA, Robotics, Engine Analysis, Engine Design, Thermodynamics, Controls, Applied Mechanics & Physics, Materials Science & Engineering, Machine-Learning, Computer Science, Software Engineering, etc.

RESEARCH & DEVELOPMENT EXPERIENCE

Senior Capstone Project

- Target Objective: "Modern Design Methodology with Aerospace Application & Design of Aerospace Systems"
- Oversaw the design and production of sUAS consisting of a "mothership" aircraft that deploys two expendable "drone" aircraft capable of delivering a small, versatile payload for industry partners DoD and NATO
- Implemented machine vision systems, industrial controls, automatic identification & data capture, and responsible for providing data-driven decisions as the signals & control systems/electronics lead
- Utilized systems engineering and aerospace techniques to optimize aircraft design features, dynamic & static stability, and aerodynamic performance of the small, unmanned aircraft system (sUAS

Undergraduate Research Assistant – **DARPA** **August 2021 to August 2023**

- Faculty mentor Dr. Thomas Ward II, Associate Professor, Department of Aerospace Engineering, ISU
- Research Project: "Experimental Techniques for Flow Separation Detection and Chemical Sintering"
- Operated as Experimental Engineer and composed an SOP for experiments and heavy machinery
- Designed hardware-software components (PCB Design) and built signal processing circuit-algorithm
- Manufactured MEMS nanocomposite and developed computations to model shear-viscosity at the thermal boundary for the Navier-Stokes Equations

Summer Undergraduate Research Fellow – **Greer Group** **May 2022 to August 2022**

- Faculty mentor Dr. Julia Greer, Assoc. Prof. of Materials Science, A. Mechanics, & Medical Sciences, Caltech
- Research Project: "Hybrid Nanocomposites: Semi-Empirical Method of Viscoelastic Behavior"
- Created nanocomposite with architectural features to achieve mechanical property enhancements
- Investigated the constituent material systems individually using compressions tests on a dynamic mechanical analyzer and observed deformation zones with scanning electron microscopy
- Developed a semi-empirical model for the deformation mechanisms observed in post-mortem analysis of samples; this enables FEA & Euler Theory to inform the viscoelastic continuum damage model

McNair Scholar – **Ronald E. McNair Post-Baccalaureate Achievement Program** **September 2021 to May 2022**

- Faculty mentor Dr. Ashley Garrin, Director of Ronald E. McNair Program, Graduate College, ISU
- Research Project: "Sociological Differences in Graduate School Motivation of Minority Identities"
- Constructed an experimental framework, completed literature synthesis, conducted interviews of program mentors, analyzed and interpreted results in a technical manner
- Participated in preparation courses and experiences for doctoral studies through involvement in research and other scholarly activities

Systems Engineer / Undergraduate Researcher – **Soft Matter Material Transport Group** **August 2019 to May 2022**

- Faculty mentor Dr. Martin Thuo, Associate Professor, Department of Materials Science and Engineering, ISU
- Research Project: "Design of Multi-Function 3D Piezo-electric Devices for Aeronautical Applications"
- Explored tunability, sensitivity, utility of paper-based devices with various configurations, optimized device design using engineering methods, created self-automated calibration & data capture system
- Assisted graduate students with SolidWorks, computer technology capabilities, systems engineering
- This research work was submitted to a scientific peer-review journal for publication (2023)

RESEARCH ACTIVITIES

MEMS Shear Sensor and Flow Separation Theory, funded by DARPA | Energy Absorbing Nano-Architected Composites, funded by SFP Programs | Wind Energy and Development of MEMS Sensors, funded by Boeing | Implementation of ML into The Scientific Method, funded by SFP Programs | Applications of Multi-functional Piezo-electric Devices, funded by NSF | Opportunities of Kirigami-Inspired MEMS Devices, funded by NSF | Heat-Free Manufacturing of Paper-Based MEMS Sensor, funded by ISU Honors

ASSOCIATIONS

Microscale Interfacial Fluid Physics Laboratory | Julia R. Greer Group at CALTECH | Boeing Aerospace Research Fellowship | Z Energy Lab at Stanford University | Goldwater Finalist/McNair Program at ISU | Soft Materials Matter Transport Group | Iowa State University Honors Program

RELEVANT SOFTWARE / TECHNICAL SKILLS

SQL, Windows OS, Linux OS, AWS Services, Java, C/C++/C# Programming, Python, MATLAB & Simulink, SAS - CAD & FEA, ANSYS/ABAQUS, Systems & Reverse Engineering, Internet of Things, Design of Experiments, etc.