Yahriel Salinas-Reyes

Aerospace Engineer — Neuroscience PhD Candidate

Education

Iowa State University of Science & Technology, Ames, IA
Bachelor of Aerospace Engineering (GPA: 3.3)
Anticipated Graduation: December 16th, 2023
Relevant Coursework: Systems Engineering, Electrical Engineering, FEA, Robotics, Engine Analysis, 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 for DoD and NATO, implemented machine vision systems, and optimized aircraft design features.

Undergraduate Research Assistant – DARPA (August 2021 to August 2023)
Research Project: Experimental Techniques for Flow Separation Detection and Chemical Sintering
Operated as Experimental Engineer, designed hardware-software components, and developed computations for Navier-Stokes Equations.

Summer Undergraduate Research Fellow – Greer Group (May 2022 to August 2022)
Research Project: Hybrid Nanocomposites: Semi-Empirical Method of Viscoelastic Behavior
Created nanocomposites, developed a semi-empirical model, and submitted research work for publication.

McNair Scholar – Ronald E. McNair Program (September 2021 to May 2022)
Research Project: Sociological Differences in Graduate School Motivation of Minority Identities
Constructed an experimental framework, conducted interviews, and participated in preparation courses for doctoral studies.

Systems Engineer / Undergraduate Researcher – Soft Matter Material Transport Group (August 2019 to May 2022)
Research Project: Design of Multi-Function 3D Piezo-electric Devices for Aeronautical Applications
Explored tunability of paper-based devices, assisted graduate students, and submitted research work for publication.

Research Fellow, Boeing Undergraduate Research Excellence in Engineering Internship (08/2021-08/2022)
Research Project: Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters
Designed and fabricated a force sensor, explored pathways for aeronautical data collection, and submitted research work for publication.

Stanford University Summer Undergraduate Research Fellow, Zheng Research Group (05/2021-08/2021)
Research Project: Insights of Machine-Learning Techniques for Scientific Methods & Prediction
Conducted literary analysis, adapted ML methods to scientific methods, and cross-validated various mathematical kernels.

Undergraduate Research Certificate Recipient, IINSPIRE-LSAMP(NSF) Scholars Program (08/2019-09/2020)
Research Project: Synthesizing Meta-stable Particles and High-Efficiency Paper-Based MEMS Sensors
Synthesized particles, designed experiments, and presented ideation of low-cost, green technology, sensor devices.

Work Experience

Design Team Lead, NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge (08/2021-12/2022)
Completed and assigned weekly tasks, led prototyping of device components, and our design was utilized by astronaut-scientists in NASA's Mission to the Moon and Mars.

Information Technology Specialist, Iowa State University of Science & Technology (08/2019-05/2023)

Implemented, monitored, and maintained IT systems, solved technical problems, and utilized SQL, Java, Python, C/C++, Linux OS, AWS Services, SAS, BASH scripting.

Residential Advisor and Honors Community Leader, Department of Residence (08/2020-05/2022)

Engaged students, nurtured positive experiences, moderated meetings, and directed multi-lingual health & resource programming for college.

Research Activities

MEMS Shear Sensor and Flow Separation Theory, Energy Absorbing Nano-Architected Composites, Wind Energy and Development of MEMS Sensors, Implementation of ML into The Scientific Method, Applications of Multi-functional Piezo-electric Devices, Opportunities of Kirigami-Inspired MEMS Devices, Heat-Free Manufacturing of Paper-Based MEMS Sensor.

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, SciTech Library Fellowship at Stanford, FirstGen at ISU, IINSPIRE-LSAMP NSF Research Fellow, Harvard University National College Resource Foundation, etc.

Publications

1. Y. Salinas-Reyes, et al., "Experimental Techniques for Flow Separation Detection and Chemical Sintering," Journal of Aerospace Engineering, 2023.
2. Y. Salinas-Reyes, et al., "Hybrid Nanocomposites: Semi-Empirical Method of Viscoelastic Behavior," Materials Science and Engineering, 2023.
3. Y. Salinas-Reyes, et al., "Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters," Journal of Renewable Energy, 2023.

Skills

Technical: SolidWorks, AutoCAD, MATLAB, Python, Java, C/C++, LabVIEW, ANSYS, COMSOL, Machine Learning (TensorFlow, PyTorch), SQL, Linux OS, AWS Services, SAS, BASH Scripting.

Soft: Leadership, Communication, Team Collaboration, Project Management.

Honors & Awards

Boeing Aerospace Research Fellowship (08/2021-08/2022)
Goldwater Scholar Finalist (03/2022)
McNair Scholar (09/2021-05/2022)
SciTech Library Fellowship at Stanford University (05/2021-08/2021)
Iowa State University Dean's List (Fall 2019 - Spring 2023)
FirstGen at ISU Leadership Certificate (05/2022)

Conference Presentations

American Institute of Aeronautics and Astronautics (AIAA) Conference (03/2023)

Presented research on Experimental Techniques for Flow Separation Detection and Chemical Sintering.

Materials Research Society (MRS) Conference (05/2023)

Presented research on Hybrid Nanocomposites: Semi-Empirical Method of Viscoelastic Behavior.

Professional Memberships

American Institute of Aeronautics and Astronautics (AIAA)
Materials Research Society (MRS)
National Society of Black Engineers (NSBE)
Society of Hispanic Professional Engineers (SHPE)

Languages

English (Native), **Spanish** (Proficient)

References

Available upon request.