Yahriel Salinas-Reyes

✉ yahrielsreyes@gmail.com 📞 (515)314-4160 📍 1709 E Walnut St, Des Moines, IA, 50316

09/14/23

To Whom It May Concern

Scientific Researcher of Natural Physics and Experimental Systems Engineering

Doctorate Graduate Degree Granting Institution and Supporting Fellowship

To whom it may concern,

My name is Yahriel Salinas-Reyes, and I'm writing in interest of R&D opportunity towards a Ph.D. with your fellowship/institution. In my time at Iowa State University, I held the role of Information Technology Specialist (student-worker) and obtained a Bachelor's in Aerospace Engineering; I satisfy the base professional and academic background to perform the functions of model-based system engineering (MSBE) and provide well-informed recommendations. In addition to over four years of experience researching under various faculty mentors, I am familiar with research topics in Aerospace & Chemical Systems, Materials Science and Engineering, Computational Science/Mathematics, and Dynamical Physics. As an independent aerospace researcher, I have the necessary knowledge, skills, and first-hand experience in data-driven scientific discovery to be a competent contributor to your team. Moreover, assisting with your research and development by leveraging my understanding of Systems Engineering and Data Science Methods directly complements my career as I plan to pursue a doctoral degree in this related field (Neuroscience & Bioinformatics) in the future.

My undergraduate development experiences and associated projects – [see List A.] – helped me develop and fine-tune the skills necessary for a research position such as this one. I have developed research soft skills such as scientific literature review, grant proposal and report writing, and scientific peer-review. Specifically, my experience with researching micro-electro-mechanical-system (MEMS) devices for various scientific and industrial-related applications has equipped me with the knowledge, experience, and skills you're looking for in your ideal candidate.

My inter-disciplinary experience and research approach also equips me with various engineering and research techniques to tackle challenges such as building safety-enhancing technology; analyzing utility of a design or system; applying computational techniques and implementing optimization decisions; as well as developing high-efficiency (i.e., performance/cost) green technologies to challenge overly – complex and expensive – practices. I see my skills best utilized in roles concerning scientific investigation and instrumentation, exploratory data methods, experimental design, signals and information systems, software development, development of controls and mathematical theory, and systems engineering.

On the technical side, I have extensive experience working with various software's and analysis tools, namely MATLAB, Python, Java, C++, Linux, Latex, Solidworks Modeling, ANSYS Simulations, Machine Learning and Data-Statistical Methods, Computational Fluid Dynamics, Signals and Systems (Control Systems) and Deep Learning topics. These skills, in supplement with the theoretical knowledge that I've gained, were honed throughout many completed projects; I am confident in this aspect of research assistantship or consultation.

Through my prior projects projects – [see List A.] – I've learnt how to manage my work in a collaborative environment. Furthermore, I understand the intricacies of research work. I can maintain focus on my individual tasks, with full knowledge of how they contribute to the overall research goals, no matter how mundane and repetitive my tasks are.

I look forward to discussing my candidacy with you virtually. If any additional information will help move my application forward, please let me know. Thanks for your time and consideration.

Sincerely,

- Yahriel Salinas-Reyes

List A.:

Research Activities	*Associations*
- MEMS Shear Sensor and Flow Separation Theory, funded by DARPA	- Microscale Interfacial Fluid Physics Laboratory
- Energy Absorbing Nano-Architected Composites, funded by SFP Programs	- Julia R. Greer Group at CALTECH
- Wind Energy and Development of MEMS Sensors, funded by Boeing	- Boeing Aerospace Research Fellowship
- Implementation of ML into The Scientific Method, funded by SFP Programs	- Z Energy Lab at Stanford University
- Applications of Multi-functional Piezo-electric Devices, funded by NSF	- Goldwater Finalist/McNair Program at ISU
- Opportunities of Kirigami-Inspired MEMS Devices, funded by NSF	- Soft Materials Matter Transport Group
- Heat-Free Manufacturing of Paper-Based MEMS Sensor, funded by ISU Honors	- Iowa State University Honors Program

Yahriel Salinas-Reyes

▫ yahrielsreyes@gmail.com ▫ (515)314-4160 ▫ https://bit.ly/2ZHdQjT

Education: **Iowa State University of Science & Technology, Ames, IA | Bachelor's of Aerospace Engineering '23**

Senior Capstone Project | Iowa State University of Science & Technology | 12/2022-11/2023

Description: Fundamental principles used in engineering design of aircraft, missile, and space systems. Preliminary design of aerospace vehicles. Engineering Ethics.

Target Objective: "Modern Design Methodology with Aerospace Application & Design of Aerospace Systems"

- 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).

Learning Outcomes: Upon completion, the individual will have reliably demonstrated the ability to:

- Apply the engineering design process with regards to aerospace vehicles.
- Utilize necessary tools in the engineering design process including computer modeling/simulation and experimentation to help develop the design.
- Function effectively on a small team by establishing leaders and member roles, project goals, and a timeline all in a collaborative and inclusive setting.
- Communicate effectively in formal and informal settings through written and/or oral means.

Relevant Topics and Courses/Curriculum

- Thermodynamics, Flight Dynamics & Controls, Astro-aeronautics, Aerospace & Propulsion Systems

- Applied Mechanics & Physics, Materials Science & Engineering, Engineering & Polymeric Chemistry

- Numerical & Graphical Techniques, Advanced Computing, Engineering Statistics, Multi-Variable Calculus

- Classical Physics, Mechanics of Materials, Engineering Statics, Dynamics & Differential Equations

- Machine-Learning/Data-Science, Computer Science & Information Tech. Systems, Software Engineering

- Technical Communication & Proposal Writing, Scientific Manuscript Writing, Literary Analysis & Review

Relevant Software Experience and 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

Research and Development Experience

Undergraduate Research Assistant | DARPA - Microscale & Interfacial Fluid Physics Lab | 08/2021-08/2023

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

California Institute of Technology Summer Undergraduate Research Fellow | Greer Group | 05/2022-08/2022

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 | 09/2021-05/2022

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.

Undergraduate Researcher, Systems Engineer | Soft Matter Material Transport Group | 08/2019-05/2022

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 Fellow | Boeing Undergraduate Research Excellence in Engineering Internship | 08/2021-08/2022

Faculty mentor Dr. Thomas Ward II, Associate Professor, Department of Aerospace Engineering, ISU

- Research Project: "Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters"
- Designed and fabricated green technology low-cost force sensor, explored pathways for aeronautical data collection via aerospace engineering techniques, submitted monthly progress reports to Boeing.
- ***This research work was submitted to a scientific peer-review journal for publication(2023)***.

Stanford University Summer Undergraduate Research Fellow | Zheng Research Group | 05/202-08/2021

Faculty mentor Dr. Xiaolin Zheng, Associate Professor, Mechanical Engineering, Stanford University

- Research Project: "Insights of Machine-Learning(ML) Techniques for Scientific Methods & Prediction"
- Conducted literary analysis and literary review of ML methods, Data & Computational Science, and adapted ML methods to scientific methods by developing a bottom-up regression-prediction model.
- Cross-validated various mathematical-kernels(SVM, Random-Forest, etc.) fitted/trained with scientific datums; presented findings in optimizations of experimental design for scientific discovery.

Undergraduate Research Certificate Recipient |IINSPIRE-LSAMP(NSF) Scholars Program| 08/2019-09/2020

Faculty mentor Dr. Martin Thuo, Associate Professor, Department of Materials Science and Engineering, ISU

- Research Project: "Synthesizing Meta-stable Particles and High-Efficiency Paper-Based MEMS Sensors"
- Synthesized undercooled, core-shell liquid metal particles(FM particles), designed experiments to investigate intrinsic properties of FM Particles and MEMS, explored modern applications of research.
- Prepared literary review of current state of sensor technology, did deep literary analysis of relevant science engineering research, produced adaptations of MEMS designs to fulfil gaps in research field, presented ideation of low-cost, green technology, sensor devices for industry and social impact.

Additional Professional and Leadership Experiences

Design Team Lead |NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge |08/2021-12/2022

- Completed and assigned weekly tasks to design, build, and test a tool or device that addresses an authentic, current space exploration challenge; specifically, Extravehicular activity(EVA).
- Completed research in current technologies and lead: prototyping of device components; CAD modeling & reverse engineering; building of prototype; and submitted proposal to competition.
- ***Our design was utilized by astronaut-scientists in NASA's Mission to the Moon and Mars and displayed at the Houston exhibition – Inner Space: NASA's Path to the Moon and Mars(2022)!***

Information Technology Specialist | Iowa State University of Science & Technology | 08/2019-05/2023

- Held responsibilities for the implementation, monitoring, and maintenance of IT computer systems.
- Solved technical problems: computer systems, software, hardware, networks, cloud platforms, etc.
- Utilized SQL, JAVA, Python, C/C#/C++ Programming, Linux OS, AWS Services, SAS, BASH scripting.

Community Engagement, Public Relations & Policy, and Social Work

Residential Advisor and Honors Community Leader | Department of Residence | 08/2020-05/2022

- Engaged students & nurtured healthy-positive experiences for the resident community; moderated meetings to address concerns; directed multi-lingual health & resource programming for college.

Youth-Lobbyist |Iowa Department of Human Rights: State of Iowa Youth Advisory Council | 06/2018-12/2021

- Acted as chair/program-coordinator of the Violence-Prevention & Diversity-Education Program.
- Advocated to state legislators for reformation of violence prevention education & implementation of culturally diverse curriculum standards at the state-local level; wrote & proposed bills to chamber.
- ***Received the Community Service Leadership Award for completing over 200 service hours in a term.***

Stewardship and Service

Community Leader & Multi-lingual Ambassador/Educator | CultureAll Educational Nonprofit | Fall 2023

- Assisted in organizing events to engage local educators and institutional leaders at the state and local level, provided developmental and networking opportunities for young professionals, volunteered at local events to provide diversity education to communities or groups in need.

Community Honors Leader | Iowa State University Honors Program | Fall 2020-Spring 2022

- Provided professional and research development resources to the Honors Program and its honors students, acted as mentor to honors students while the Honors Residential Advisor.

Coordinator of Violence Prevention & Educational Coverage | Iowa Non-Profits | Spring 2020-Summer 2020

- Utilized skills and experience in community social work to lead interns in creating mental health resources/content in multiple languages; distributed resources and content to local youth of color during the pandemic and rise in violence of 2020.

Latinx Forum Panelist & Multi-lingual Advocate | Association of Iowa Latinx Professionals | Fall 2020

- Shared my professional experience and pathway as a First-Generation College Student, answered questions about professional development and experiences, provided personal developmental content and resources for Latinx leaders.

Workshop Presenter | National White Privilege Conference | Spring 2020

- Developed and presented a workshop "How to engage students of color in higher education" at the White Privilege Conference to national leaders to share my knowledge and resources.

Honors, Awards, and Membership

- University Honors Program Member | Fall 2019-Fall 2023
- Ronald E. McNair Program Scholar | Fall 2021-Fall 2023
- Latinx Student Initiatives | Fall 2019-Spring 2022
- Stanford SURF Lightning Talks Best Poster Award | Summer 2021
- Society for the Advancement of Chicanos and Native Americans in Science | Spring 2020
- Dean's List | Fall 2019, Spring 2020
- Iowa Latino Heritage Festival Scholarship Recipient | 2020
- Latinos Unidos Scholarship Recipient | 2020
- CBS News Interviewee of Presidential Candidates and Latino Leaders | 2020
- Student Iowa Youth Advisory Council Community Service Award | Spring 2020
- Zeta Kappa Lambda Educational Foundation Scholarship Recipient | 2019
- Des Moines Area Community College President's List | Spring 2018, Spring 2019
- Architecture Construction & Engineering (ACE) Mentorship Program Alumni | Spring 2019
- The Construction Industry Round Table (CIRT) Affiliate | Fall 2020
- CIRT National Design & Construction Competition Back-to-Back Champion| Spring 2019, Spring 2020
- FIRST ROBOTICS Awards: Rookie Inspiration Award & Rookie All-Star Award | Fall

Research Presentations and Scientific Thematic Talks

1. Y. Salinas-Reyes, H. Seabold, A. Martin, M. Thuo (2020, April). Exploring the Piezoresistive Effect and Paper-based MEMS Sensors. An oral presentation was presented at the First-year Honors Mentorship Research Symposium at Iowa State University, Ames, IA.
2. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, August). Integration of paper-based MEMS sensors into computer technology. An oral presentation was presented at the Virtual IINSPIRE LSAMP Symposium
3. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, October). Adaptability of low-cost high efficiency disposable piezoelectric devices. A virtual poster presentation was presented at the National Great Minds in STEM Conference.
4. Y. Salinas-Reyes, A. Martin, M. Thuo (2021, April). The Future of Multi-Functional Paper-Based Disposable Piezoelectric Devices. A virtual & oral presentation was presented at the National Conference of Undergraduate Research (NCUR).
5. Y. Salinas-Reyes, X. Zheng (2021, August). Predicting Olympic Triathlon Results via Machine Learning. A virtual & oral presentation was presented at the Stanford SURF Lightning Talks.
6. Y. Salinas-Reyes, Julia R. Greer (2022, August). Energy Absorption in Nano-Architected Hybrid Composites. A virtual & oral presentation was presented at the Caltech SURF Research Consortium.
7. Y. Salinas-Reyes, Ivaldi Co. (2022, May). Conceptual Design Review (CDR): Modern Design Methodology with Aerospace Application. A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.
8. Y. Salinas-Reyes, T. Ward III (2022, May). Shear-Sensing Principals of Interfacial Viscous-Shear Flow and Piezomobility—strain-induced mobility—at The Wall (Thermal Boundary). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA.
9. Y. Salinas-Reyes, T. Ward III (2023, July). Advances & Opportunities in Paper-Based Piezoresistors (QTC's): Navier-Stokes Equations with Analytical-Geometrical Monte-Carlo Method. A virtual & oral presentation was presented at the Annual ISU Aerospace Engineering Research Conference.
10. Y. Salinas-Reyes, T. Ward III (2023, August). Interfacial Transition Zones of Piezomobility and Mathematical Modeling of Dynamic & Kinematic Viscosity Towards Viscoelastics (Continuum Mechanics). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA.
11. Y. Salinas-Reyes, Ivaldi Co. (2023, September). Executive and Granter Design Sign-Off: Design of Aerospace Systems (i.e., sUAS). A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.

IOWA STATE UNIVERSITY

Unofficial Transcript Iowa State University

Current Student Information

SALINAS-REYES YAHRIEL

Curr/Major: AER E
College: Engineering

Unofficial Undergraduate Transcript Iowa State University

FALL 2019 SEMESTER

TRANSFER CREDITS ACCEPTED FROM				
DES MOINES AREA COMM COLL-WEST (DMACC)				
YEARS OF ATTENDANCE: 2017-2019				
HIST 221		4.0		
HIST 222		4.0		
MATH 165		5.0	R	
POL S 215		3.0		
SP CM 212		3.0		
SPAN 201		4.0		
SPAN 202		4.0		
TECHNICAL CREDITS ACCEPTED				
EGT 0V01		3.0		
EGT 0V02		3.0		
TRANSFER CREDITS ACCEPTED FROM				
ADVANCED PLACEMENT EXAMS				
DATE OF ATTENDANCE: SPRING 2019				
SPAN 101P		4.0		
SPAN 102P		4.0		
TOTAL TECHNICAL CREDITS		6.00		
TOTAL TRANSFER CREDITS		41.00		
ADMITTED AS A SOPHOMORE				
ADMITTED TO DEGREE PROGRAM IN AER E				
FALL 2019				
AER E 160H	HONORS AER ENG PROB	3.0	A-	H
CHEM 167	ENGNRS GENERAL CHEM	4.0	A-	
ENGL 150	CRITCL THINK&CMUNIC	3.0	T	
ENGL 250H	HONORS WRI,ELE COMP	3.0	B+	H
ENGR 101	ENGINEERING ORIENTN	R	S	
ENGR 104	LEAD PROGRM ORIENTN	1.0	S	
HON 121	FIRST-YR HONORS SEM	1.0	S	H
LIB 160	INFORMATN LITERACY	1.0	S	
MATH 165	CALCULUS I	4.0	A-	
MUSIC 113	JAZZ ENSEMBLE	1.0	X	

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	14.0	50.36	3.60	41.00
CUM:TOT HRS 56.0	14.0	50.36	3.60	41.00

SPRING 2020 SEMESTER

AER E 161H	HONOR NUM&GRPH TCNQ	3.0	A	
AER E 192H	HONOR AEROSPC SEMNR	R	S	H
ENGR 105	LEAD PROGRM SEMINAR	1.0	S	
HON 290H	SPECIAL PROB HONORS	2.0	S	H
MATH 166	CALCULUS II	4.0	A	
PHYS 221H	HONORS-CLASSIC PH I	5.0	A	H

US LS 211	INTR U.S. LATINO ST	3.0	A	

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	15.0	60.00	4.00	0.00
CUM:TOT HRS 74.0	29.0	110.36	3.81	41.00

FALL 2020 SEMESTER

TRANSFER CREDITS ACCEPTED FROM
IOWA WESTERN COMMUNITY COLLEGE (IWCC)
DATE OF ATTENDANCE: SUMMER 2020

PHYS 232		4.0		
PHYS 232L		1.0		
TOTAL TRANSFER CREDITS		5.00		
AER E 261	INTRO PERFRMNC&DSGN	3.0	B-	
C E 274	ENGINEERING STATICS	3.0	C-	R
HON 321L	HOW & WHY WE COUNT	1.0	S	H
HON 321N	ENTREPRENEURSHIP	1.0	S	H
MAT E 273	PRIN MATRLS SCI&ENG	3.0	C	
MATH 265	CALCULUS III	4.0	B	

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	13.0	31.02	2.39	5.00
CUM:TOT HRS 94.0	42.0	141.38	3.37	46.00

SPRING 2021 SEMESTER

AER E 362	AEROSPC SYS INTEGRT	3.0	B+	
E M 324	MECHAN OF MATERIALS	3.0	C	
MAT E 490C	INDEPENDENT STUDY	2.0	A	
MATH 267	DIFF EQ & TRANSFMS	4.0	A	
US LS 323C	TOP LAT AM RACE,CLS	3.0	A	

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	15.0	51.99	3.47	0.00
CUM:TOT HRS 109.0	57.0	193.37	3.39	46.00

FALL 2021 SEMESTER

AER E 310	AERODYNAM I:INCMPRS	3.0	C+	
AER E 321	FLIGHT STRUCT ANALY	3.0	B+	
AER E 494	MAKE TO INNOVATE II	2.0	A	
M E 231	ENGR THERMODYNAMS I	3.0	B	
M E 345	ENGINEERNG DYNAMICS	3.0	B-	
U ST 301	MCNR:INTRO TO RES I	2.0	A-	

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	16.0	49.33	3.08	0.00
CUM:TOT HRS 125.0	73.0	242.70	3.32	46.00

SPRING 2022 SEMESTER

AER E 311	AERODYN II:CMPRSSBL	3.0	A	
AER E 322	AEROSPC STRUCTR LAB	2.0	B+	
AER E 344	AERODYN&PROPULS LAB	3.0	A	
AER E 351	ASTRODYNAMICS I	3.0	A-	
AER E 355	AIRCRFT FLI DYN&CTL	3.0	C+	
AER E 361	COMP TECHNQ AER DSN	3.0	F	R

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	17.0	48.66	2.86	0.00
CUM:TOT HRS 139.0	90.0	291.36	3.24	46.00

FALL 2022 SEMESTER

AER E 331	FLGHT CONTROL SYS I	3.0	B	

AER E 361	COMP TECHNQ AER DSN	3.0	B+	#
AER E 421	ADV FLIGHT STRUCTRS	3.0	B	
C E 274	ENGINEERING STATICS	3.0	C+	#
ENGL 309	PROPOSL&RPRT WRITNG	3.0	A-	
HSP M 383	WINE&SPIRITS HSP M	2.0	NP	<

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	15.0	45.99	3.07	0.00
CUM:TOT HRS 151.0	99.0	332.34	3.36	46.00

SPRING 2023 SEMESTER

AER E 301	FLIGHT EXPERIENCE	R	F
AER E 411	AERO VEHIC PROPULSN	3.0	C-
AER E 452	INTRO SYS ENG&ANALY	3.0	A
AER E 461	MOD DESIGN METHODOL	3.0	D+
AER E 490B	IND STDY PROPULSION	3.0	A
STAT 305	ENGINEERING STAT	3.0	B-

	Cred Hrs	Qpts	GPA	Trnsf Hrs
TERM:	15.0	41.01	2.73	0.00
CUM:TOT HRS 166.0	114.0	373.35	3.28	46.00

Cumulative Summary

TOTAL HRS	ISU CUM HRS	ISU CUM QPTS	ISU CUM GPA
166.0	114.0	373.35	3.28

End of Unofficial Undergraduate Transcript

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FULBRIGHT | Fulbright U.S. Student Program

Current and Prior Scholarships, Grants or Fellowships

Grant 1:	
Country:	Year:
Grant 2:	
Country:	Year:
Grant 3:	
Country:	Year:
Grant 4:	
Country:	Year:

Partnership Organization Participation

Org 1:	
Engagement:	
Org 2:	
Engagement:	

Extracurricular Activities & Achievements

Honors, Fellowships, Scholarships, Awards

1	NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge, 2022
2	Ronald E. McNair Post-Baccaleaurate Achievement Program Fellowship, 2021-2022
3	SURF Scholar at Stanford University & California Insititute of Technology, 2021-2022
4	The Barry Goldwater Scholarship and Excellence in Education Foundation Finalist, 2021-2022
5	State of Iowa Youth Advisory Council Community Leadership Award, 2020, 250 Service Hours
6	CBS News Interviewee of Global Latino Leaders: Hispanic Heritage Month, 2020
7	Undergraduate Research Certificate, 2019-2020, IINSPIRE-LSAMP National Science Foundation
8	CIRT National Design & Construction Competition Back-to-Back Champion, 2019-2020,

Extracurricular/Community Engagement Activities

1	Multi-lingual Storyteller & Multi-cultural Educator, 2022-2023, Educational Non-Profit
2	Association of Iowa Latinx Professionals (AILP), 2019-2022, STEM Outreach Chair
3	Community Advisor & Multi-cultural Ambassador, 2019-2023, Equity & Inclusion Non-Profits
4	Co-founder, STEM Outreach Program for Underprivileged Youth, 2018-2023
5	Dept. of Human Rights:State of Iowa Youth Advisory Council, 2017-2021, Youth-Lobbyist
6	Co-Founder and Science Education Advocate, Latinx Student Association, 2019-2023
7	Outreach and Education Coordinator, 2019-2023, STEM Outreach & Mentorship Program,
8	Student Representative, College of Engineering Council, 2020-2021

Publications, Exhibitions, Performances, Presentations

1	"Exploring Bio-Processing & Devices in Micro & Nanoscience," 2023, NCUR STEM Conference
2	"Bioprocessing in Wine Yeast for Mental Health Treatments," 2023, STEM Symposium
3	"Modern Design Methodology & Design of Aerospace Systems," 2023, Senior Capstone Project
4	"Quantum Tunnelling Composites: Analytical Monte Carlo Model & Navier-Stokes," 2023
5	"Understanding the Mathematical Language -The Code- of the Universe," 2021, TEDx Talk
6	"Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters," 2023
7	"Kirigami-Inspired Design of Paper-Based MEMS Devices for Aeronautical Applications," 2022
8	"Synthesizing Meta-Stable Particles & High-Efficiency MEMS Sensors and Nanodevices," 2021

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FULBRIGHT | Fulbright U.S. Student Program

Professional Experience

Employer 1	
Employer Name: Microscale & Interfacial Fluid Physics Laboratory Location: Ames, IA, United States Job Title: Aerospace Undergraduate Researcher Type of Work: Experimtal Aerospace Research	Employed From: Aug 2021 Employed To: Current Employment Type: Full time
Employer 2	
Employer Name: California Institute of Technology Location: Pasadena, CA, United States Job Title: Undergraduate Research Assistant Type of Work: Interdisciplinary Research	Employed From: May 2021 Employed To: Aug 2022 Employment Type: Full time
Employer 3	
Employer Name: Stanford University Location: Stanford, CA, United States Job Title: Undergraduate Research Assistant Type of Work: Interdisciplinary Research	Employed From: May 2021 Employed To: Aug 2021 Employment Type: Full time
Employer 4	
Employer Name: Boeing Aerospace Location: Ames, IA, United States Job Title: Research Excellence in Engineering Fellow Type of Work: Aerospace Engineering Research	Employed From: Aug 2021 Employed To: Aug 2022 Employment Type: Full time
Employer 5	
Employer Name: Soft Materials & Matter Transport Research Group Location: Ames, IA, United States Job Title: Undergraduate Researcher, Systems Engineer Type of Work: Interdisciplinary Reseaech	Employed From: Aug 2019 Employed To: May 2022 Employment Type: Full time
Employer 6	
Employer Name: Iowa State University of Science & Technology Location: Ames, IA, United States Job Title: Information Technology Specialist & Data Scientist Type of Work: Information & Computer Systems	Employed From: Aug 2019 Employed To: May 2023 Employment Type: Part time
Employer 7	
Employer Name: Iowa State University Dept of Residence Location: Ames, IA, United States Job Title: Residential Advisor & Honors Community Leader Type of Work: Residential Advisor	Employed From: Aug 2020 Employed To: May 2022 Employment Type: Full time
Employer 8	
Employer Name: DARPA: Recycling at the Point of Disposal (RPOD) Location: Ames, IA, United States Job Title: Researcher & Experimental Systems Engineer Type of Work: Research DARPA Funded	Employed From: Aug 2022 Employed To: Aug 2023 Employment Type: Full time

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FULBRIGHT | Fulbright U.S. Student Program

Experience Abroad

Host Country Experience

Has the applicant ever been to the host country? Yes

Experience 1:	Will be visiting Mexico upong Graduation from Undergraduate Degree in December 2023.
Experience 2:	Will be visiting Mexico upong Graduation from Undergraduate Degree in December 2023.
Experience 3:	Will be visiting Mexico upong Graduation from Undergraduate Degree in December 2023.
Experience 4:	Will be visiting Mexico upong Graduation from Undergraduate Degree in December 2023.

Applicant plans to live or complete an extended visit (4 weeks or more) in the host country prior to the grant start date: No

Explanation of why the applicant will be in the host country:

Other Experience Abroad

Has the applicant ever been outside the U.S. other than the host country? Yes

Experience 1:	Duration (Weeks): 2	Purpose Abroad: Family Visit
Dates Visited: 12/2022-12/2022		
Country/Countries: El Salvador		
Experience 2:	Duration (Weeks):	Purpose Abroad:
Dates Visited:		
Country/Countries:		
Experience 3:	Duration (Weeks):	Purpose Abroad:
Dates Visited:		
Country/Countries:		
Experience 4:	Duration (Weeks):	Purpose Abroad:
Dates Visited:		
Country/Countries:		
Experience 5:	Duration (Weeks):	Purpose Abroad:
Dates Visited:		
Country/Countries:		

Additional Comments Regarding Experience Abroad:

As a triple citizen of the USA, Mexico, and El Salvador, Yahriel embodies internationalism and cross-cultural sensitivity. His diverse background & experiences abroad shape his research interests and commitment to global collaboration positions him as a bridge-builder between cultures, valuable in anthropology and interdisciplinary research. His pursuit of universal truths, "The Code." Yahriel's triple citizenship showcases his global outlook, making him a valuable asset for global society.

School	Applicant Status
Massachusetts Institute of Technology (MIT)	Did Not Apply
California Institute of Technology	Did Not Apply

Security Clearance

Have you ever been granted a U.S Government security clearance? *

(•) Yes ( ) No

Security Clearance Type *

SECRET

Employment History

Employer Name	Job Title	Employed From	Employed Until	Supervisor N
Iowa State Univ...	Inform...	08/23/2019	Present	Benjamin Kelly
Boeing Aerospace	Boeing ...	08/20/2021	Present	Dr. Arun Somani
The Microscale ...	Under...	05/15/2021	Present	Dr. Thomas Ward...
The Soft Matter ...	Under...	08/24/2019	Present	Dr. Martin Thuo
DARPA: Recyclin...	Aerosp...	06/11/2022	Present	Dr. Thomas Ward...
Iowa State Univ...	Honor...	08/05/2020	Present	Jordan Casey
Iowa Departme...	Appoin...	03/03/2018	Present	State of Iowa You...
Association of Io...	Active ...	07/03/2021	Present	Cecilia Moreno
Latinx Student I...	Co-fou...	08/25/2021	Present	Iowa State Univer...
Construction In...	Mentor...	12/20/2019	Present	Architecture Con...
Iowa Equity & In...	Multicu...	02/10/2020	Present	Pr. David Maxwell
Iowa Educationa...	Multi-li...	03/08/2022	Present	Petra Lange
Iowa State Univ...	Co-fou...	12/31/2020	Present	Dr. Lequetia Ancar
ISU College of E...	Multi-c...	10/23/2021	Present	Dr. Jose Eliseo De ...
John Deere x Sof...	Under...	05/12/2020	Present	Dr. Martin Thuo

Your Resume

We have: **Resume.pdf** on record.

Research History

Research Project	Project Title	From Date	End Date	Univers
Iowa State University ...	Characterizing...	06/25/2021	Ongoing	Iowa State U...
(IINSPIRE-LSAMP) Lou...	Quantum Tun...	08/23/2019	Ongoing	Iowa State U...
Undergraduate Rese...	Opportunities ...	01/03/2020	Ongoing	Iowa State U...
NASA Micro-G Neutra...	Our design wa...	03/12/2021	Ongoing	Iowa State U...
ISU Aerospace Engin...	Honors Capst...	06/16/2022	Ongoing	Iowa State U...
Defense Advanced Re...	Recycling-at-th...	03/05/2021	Ongoing	Iowa State U...
ISU Dept. of MSE: Soft...	Roles of MEMS...	10/04/2019	Ongoing	Iowa State U...
Iowa State University ...	Automation an...	08/23/2019	Ongoing	Iowa State U...
Iowa State University ...	Machine Learn...	02/14/2019	Ongoing	Iowa State U...
Iowa State University ...	Modern Desig...	01/12/2022	Ongoing	Iowa State U...
ISU Department of A...	Advanced Aer...	01/04/2022	Ongoing	Iowa State U...
Independent Researc...	Interfacial Tra...	03/04/2021	Ongoing	Iowa State U...
American Institute of ...	10 hours of Fli...	08/22/2023	Ongoing	Iowa State U...
The Biokansas Scienti...	Exploring Bio-...	02/04/2022	Ongoing	Iowa State U...
Leadership through E...	Synthesizing M...	08/23/2019	Ongoing	Iowa State U...
Caltech Summer Und...	Energy Absorb...	04/15/2022	Ongoing	California In...
Stanford University S...	Predicting Oly...	04/05/2021	Ongoing	Stanford Un...

University Preferences

Degree you intend to pursue

PhD, Science

Intended Major *

Applied Science (Other than Chemistry or Physics)

Please rate your computer/programming skills from 0-3 (0: No Knowledge, 1: Basic, 2: Proficient, 3: Expert). For the following software/languages:

.NET 0 1 2 3	Actionscript 0 1 2 3	Ada 0 1 2 3
Ajax 0 1 2 3	Apache 0 1 2 3	ASP 0 1 2 3
Assembly 0 1 2 3	C 0 1 2 3	C# 0 1 2 3
C++ 0 1 2 3	Catalyst 0 1 2 3	CGI 0 1 2 3
Cobol 0 1 2 3	Cocoa 0 1 2 3	ColdFusion 0 1 2 3
D 0 1 2 3	DB2 0 1 2 3	Delphi 0 1 2 3
Drupal 0 1 2 3	Dylan 0 1 2 3	Firebird 0 1 2 3

Forth
0 1 2 3

Fortran
0 1 2 3

Groovy
0 1 2 3

Java
0 1 2 3

JavaScript
0 1 2 3

JOOMLA
0 1 2 3

Lisp
0 1 2 3

Lua
0 1 2 3

MAT Lab
0 1 2 3

Microsoft Office
0 1 2 3

Objective C
0 1 2 3

OCaml
0 1 2 3

Oracle
0 1 2 3

Pascal
0 1 2 3

Perl
0 1 2 3

PHP
0 1 2 3

Python
0 1 2 3

Real Studio
0 1 2 3

Ruby
0 1 2 3

Scala
0 1 2 3

Scheme
0 1 2 3

Seaside
0 1 2 3

Shell
0 1 2 3

Smalltalk
0 1 2 3

EDUCATION AND WORK EXPERIENCE

List academic institutions attended and your enrollment details.

Academic Institution	Location	Start Date	End Date	Degree Granting Program	Degree	Degree Cmpl.	Grad. Date	Field of Study	Cum. GPA	GPA Basis
IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY	AMES, IA, United States	08/2019	12/2023	Yes	BS	No, still enrolled in program		Engineering - Aeronautical and Aerospace Engineering	3.3	4.0

Joint-Degree Institutions

Academic Institution	Joint-Degree Program	Transcript Includes Both Degrees	PDF Registrar Letter Uploaded
IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY	No		

List your teaching and work experiences relevant to your field of study since you began undergraduate studies. Experiences do not have to be limited to the academic realm.

Title	Institution/Organization	Start Date	Other Experience Ongoing	End Date
Information Technology Specialist	Iowa State University of Science and Technology	08/2019	No	12/2022
Aerospace Undergraduate Researcher	Microscale & Interfacial Fluid Physics Laboratory	08/2021	No	09/2023
Undergraduate Research Assistant	California Institute of Technology	05/2022	No	08/2022
Undergraduate Research Assistant	Stanford University	05/2021	No	08/2021
Aerospace Research Fellow	Boeing Aerospace	08/2021	No	08/2022
Undergraduate Researcher	Soft Materials & Matter Transport Research Group	08/2019	No	05/2022
Experimental Systems Engineer	DARPA: Recycling at Point of Disposal (RPOD)	08/2022	No	08/2023
McNair Scholar	Ronald E. McNair Postbaccalaureate Achievement Program	08/2021	No	05/2022
Design Team Lead	NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge	08/2021	No	12/2022
Undergraduate Research Certificate	IINSPIRE-LSAMP (NSF-funded)	08/2019	No	05/2021
Residential Advisor, Honors Leader	Iowa State University Honors Program	08/2020	No	05/2022
Governor-Appointed Youth Lobbyist	Iowa Dept. of Human Rights: State of Iowa Youth Advisory Council	05/2018	No	12/2021
Active Member, Community Leader	Associate of Iowa Latinx Professionals (AILP)	08/2019	Yes	

Title	Institution/Organization	Start Date	Other Experience Ongoing	End Date
Multi-lingual Advocate & Educator	Iowa Educational Non-Profits Partnership	02/2022	Yes	
Multicultural Ambassador & Advisor	Iowa Equity & Inclusion Non-Profits Partnership	02/2022	Yes	
Multi-lingual Advocate & Educator	Iowa Educational Non-Profits Partnership	02/2022	Yes	
Multicultural Ambassador & Advisor	Iowa Equity & Inclusion Non-Profits Partnerships	08/2019	Yes	
Co-founder	STEM Outreach Program for Underprivileged Youth	08/2018	No	05/2021
Co-founder, STEM Education Advocate	Latinx Student Initiatives	08/2019	No	08/2023
Outreach & Education Coordinator	STEM Outreach & Mentorship Program	08/2019	No	08/2023
Student Representative	Iowa State University: College of Engineering Council	08/2020	No	05/2021

List any significant academic honors, fellowships, scholarships, publications and presentations.

Academic Honors, Fellowships, Scholarships, and Awards: NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge, 2022 Ronald E. McNair Post-Baccalaureate Achievement Program Fellowship, 2021-2022 SURF Scholar at Stanford University & California Institute of Technology, 2021-2022 The Barry Goldwater Scholarship and Excellence in Education Foundation Finalist, 2021-2022 State of Iowa Youth Advisory Council Community Leadership Award, 2020 (250 Community Service Hours) CBS News Interview of Global Latino Leaders: Hispanic Heritage Month, 2020 Undergraduate Research Certificate, 2019-2020, IINSPIRE-LSAMP Construction Industry Round Table (CIRT) National Design & Construction Competition Back-to-Back Champion, 2019-2020 University Honors Program Member | Fall 2019-Fall 2023 Latinx Student Initiatives | Fall 2019-Spring 2022 Stanford SURF Lightning Talks Best Poster Award | Summer 2021 Society for the Advancement of Chicanos and Native Americans in Science | Spring 2020 Dean's List | Fall 2019, Spring 2020 Iowa Latino Heritage Festival Scholarship Recipient | 2020 Latinos Unidos Scholarship Recipient | 2020 CBS News Interviewee of Presidential Candidates and Latino Leaders | 2020 Student Iowa Youth Advisory Council Community Service Award | Spring 2020 Zeta Kappa Lambda Educational Foundation Scholarship Recipient | 2019 Des Moines Area Community College President's List | Spring 2018, Spring 2019 Architecture Construction & Engineering (ACE) Mentorship Program Alumni | Spring 2019 The Construction Industry Round Table (CIRT) Affiliate | Fall 2020 CIRT National Design & Construction Competition Back-to-Back Champion | Spring 2019, Spring 2020 FIRST ROBOTICS Awards: Rookie Inspiration Award & Rookie All-Star Award Publications and Scientific Writings: "Exploring Bio-Processing & Devices in Micro & Nanoscience," 2020, NCUR STEM Conference "Bioprocessing in Wine Yeast for Mental Health Treatments," 2023, STEM Symposium "Modern Design Methodology & Design of Aerospace Systems," 2023, Senior Capstone Project "Quantum Tunnelling Composites: Analytical Monte Carlo Model & Navier-Stokes," 2023 "Understanding the Mathematical Language-The Code- of the Universe," 2021, TEDx Talk "Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters," 2023 "Kirigami-Inspired Design of Paper-Based MEMS Devices for Aeronautical Application," 2022 "Synthesizing Meta-Stable Particles & High-Efficiency MEMS Sensors and Nanodevices," 2021 Research Presentations and Thematic Talks: Y. Salinas-Reyes, H. Seabold, A. Martin, M. Thuo (2020, April). Exploring the Piezoresistive Effect and Paper-based MEMS Sensors. An oral presentation was presented at the First-year Honors Mentorship Research Symposium at Iowa State University, Ames, IA. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, August). Integration of paper-based MEMS sensors into computer

technology. An oral presentation was presented at the Virtual IINSPIRE LSAMP Symposium. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, October). Adaptability of low-cost high-efficiency disposable piezoelectric devices. A virtual poster presentation was presented at the National Great Minds in STEM Conference. Y. Salinas-Reyes, A. Martin, M. Thuo (2021, April). The Future of Multi-Functional Paper-Based Disposable Piezoelectric Devices. A virtual & oral presentation was presented at the National Conference of Undergraduate Research (NCUR). Y. Salinas-Reyes, X. Zheng (2021, August). Predicting Olympic Triathlon Results via Machine Learning. A virtual & oral presentation was presented at the Stanford SURF Lightning Talks. Y. Salinas-Reyes, Julia R. Greer (2022, August). Energy Absorption in Nano-Architected Hybrid Composites. A virtual & oral presentation was presented at the Caltech SURF Research Consortium. Y. Salinas-Reyes, Ivaldi Co. (2022, May). Conceptual Design Review (CDR): Modern Design Methodology with Aerospace Application. A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering. Y. Salinas-Reyes, T. Ward III (2022, May). Shear-Sensing Principals of Interfacial Viscous-Shear Flow and Piezomobility--strain-induced mobility--at The Wall (Thermal Boundary). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA. Y. Salinas-Reyes, T. Ward III (2023, July). Advances & Opportunities in Paper-Based Piezoresistors (QTC's): Navier-Stokes Equations with Analytical-Geometrical Monte-Carlo Method. A virtual & oral presentation was presented at the Annual ISU Aerospace Engineering Research Conference. Y. Salinas-Reyes, T. Ward III (2023, August). Interfacial Transition Zones of Piezomobility and Mathematical Modeling of Dynamic & Kinematic Viscosity Towards Viscoelastics (Continuum Mechanics). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA. Y. Salinas-Reyes, Ivaldi Co. (2023, September). Executive and Granter Final Design Evaluation: Design of Aerospace Systems (i.e., sUAS). A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.

Undergraduate Institution: IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY
Current Institution: IOWA STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY

PROPOSED FIELD OF STUDY

Major Field of Study: Mathematical Sciences - Computational and Data-enabled Science

Is your proposed graduate study interdisciplinary? Yes

Major Field of Study: Mathematical Sciences - Computational and Data-enabled Science
Field of Study 2: Comp/IS/Eng - Bioinformatics and Bio-inspired Computing
Field of Study 3: Comp/IS/Eng - Algorithms and Theoretical Foundations
Field of Study 4: Comp/IS/Eng - Scientific Computing

PROPOSED GRADUATE STUDY

Proposed Academic Institution: Stanford University
Proposed Graduate Program: Neuroscience & Biomedical Data Science/Informatics
City: STANFORD
State: CA
Country: United States

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Academic Honors & Fellowships

Form Title	Academic Honors & Fellowships 2024
Academic Honors	
Academic Honors	Academic Honors, Fellowships, Scholarships, and Awards: NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge, 2022 Ronald E. McNair Post-Baccalaureate Achievement Program Fellowship, 2021-2022 SURF Scholar at Stanford University & California Institute of Technology, 2021-2022 The Barry Goldwater Scholarship and Excellence in Education Foundation Finalist, 2021-2022 State of Iowa Youth Advisory Council Community Leadership Award, 2020 (250 Community Service Hours) CBS News Interview of Global Latino Leaders: Hispanic Heritage Month, 2020 Undergraduate Research Certificate, 2019-2020, IINSPIRE-LSAMP Construction Industry Round Table (CIRT) National Design & Construction Competition Back-to-Back Champion, 2019-2020 University Honors Program Member | Fall 2019-Fall 2023 Latinx Student Initiatives | Fall 2019-Spring 2022 Stanford SURF Lightning Talks Best Poster Award | Summer 2021 Society for the Advancement of Chicanos and Native Americans in Science | Spring 2020 Dean's List | Fall 2019, Spring 2020 Iowa Latino Heritage Festival Scholarship Recipient | 2020 Latinos Unidos Scholarship Recipient | 2020 CBS News Interviewee of Presidential Candidates and Latino Leaders | 2020 Student Iowa Youth Advisory Council Community Service Award | Spring 2020 Zeta Kappa Lambda Educational Foundation Scholarship Recipient | 2019 Des Moines Area Community College President's List | Spring 2018, Spring 2019 Architecture Construction & Engineering (ACE) Mentorship Program Alumni | Spring 2019 The Construction Industry Round Table (CIRT) Affiliate | Fall 2020 CIRT National Design & Construction Competition Back-to-Back Champion | Spring 2019, Spring 2020 FIRST ROBOTICS Awards: Rookie Inspiration Award & Rookie All-Star Award Research Activities and Associations Research Activities Associations - MEMS Shear Sensor and Flow Separation Theory, funded by DARPA - Microscale Interfacial Fluid Physics Laboratory - Energy Absorbing Nano-Architected Composites, funded by SFP Programs - Julia R. Greer Group at CALTECH - Wind Energy and Development of MEMS Sensors, funded by Boeing - Boeing Aerospace Research Fellowship - Implementation of ML into The Scientific Method, funded by SFP Programs - Z Energy Lab at Stanford University

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Academic Honors & Fellowships (continued)

- Applications of Multi-functional Piezo-electric Devices, funded by NSF
- Goldwater Finalist/McNair Program at ISU
- Opportunities of Kirigami-Inspired MEMS Devices, funded by NSF - Soft Materials Matter Transport Group
- Heat-Free Manufacturing of Paper-Based MEMS Sensor, funded by ISU Honors - Iowa State University Honors Program

Publications and Scientific Writings:
"Exploring Bio-Processing & Devices in Micro & Nanoscience," 2020, NCUR STEM Conference
"Bioprocessing in Wine Yeast for Mental Health Treatments," 2023, STEM Symposium
"Modern Design Methodology & Design of Aerospace Systems," 2023, Senior Capstone Project
"Quantum Tunnelling Composites: Analytical Monte Carlo Model & Navier-Stokes," 2023
"Understanding the Mathematical Language-The Code- of the Universe," 2021, TEDx Talk
"Characterizing Damping Mechanisms in Piezoelectric Wind-Energy Harvesters," 2023
"Kirigami-Inspired Design of Paper-Based MEMS Devices for Aeronautical Application," 2022
"Synthesizing Meta-Stable Particles & High-Efficiency MEMS Sensors and Nanodevices," 2021

Honors, Awards, and Membership
• University Honors Program Member | Fall 2019-Fall 2023
• Ronald E. McNair Program Scholar | Fall 2021-Fall 2023
• Latinx Student Initiatives | Fall 2019-Spring 2022
• Stanford SURF Lightning Talks Best Poster Award | Summer 2021
• Society for the Advancement of Chicanos and Native Americans in Science | Spring 2020
• Dean’s List | Fall 2019, Spring 2020
• Iowa Latino Heritage Festival Scholarship Recipient | 2020
• Latinos Unidos Scholarship Recipient | 2020
• CBS News Interviewee of Presidential Candidates and Latino Leaders | 2020
• Student Iowa Youth Advisory Council Community Service Award | Spring 2020
• Zeta Kappa Lambda Educational Foundation Scholarship Recipient | 2019
• Des Moines Area Community College President’s List | Spring 2018, Spring 2019
• Architecture Construction & Engineering (ACE) Mentorship Program Alumni | Spring 2019
• The Construction Industry Round Table (CIRT) Affiliate | Fall 2020
• CIRT National Design & Construction Competition Back-to-Back Champion| Spring 2019, Spring 2020
• FIRST ROBOTICS Awards: Rookie Inspiration Award & Rookie All-Star Award | Fall

Research Presentations and Scientific Thematic Talks
1. Y. Salinas-Reyes, H. Seabold, A. Martin, M. Thuo (2020, April).

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Academic Honors & Fellowships (continued)

Exploring the Piezoresistive Effect and Paper-based MEMS Sensors. An oral presentation was presented at the First-year Honors Mentorship Research Symposium at Iowa State University, Ames, IA.
2. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, August). Integration of paper-based MEMS sensors into computer technology. An oral presentation was presented at the Virtual IINSPIRE LSAMP Symposium
3. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, October). Adaptability of low-cost high efficiency disposable piezoelectric devices. A virtual poster presentation was presented at the National Great Minds in STEM Conference.
4. Y. Salinas-Reyes, A. Martin, M. Thuo (2021, April). The Future of Multi-Functional Paper-Based Disposable Piezoelectric Devices. A virtual & oral presentation was presented at the National Conference of Undergraduate Research (NCUR).
5. Y. Salinas-Reyes, X. Zheng (2021, August). Predicting Olympic Triathlon Results via Machine Learning. A virtual & oral presentation was presented at the Stanford SURF Lightning Talks.
6. Y. Salinas-Reyes, Julia R. Greer (2022, August). Energy Absorption in Nano-Architected Hybrid Composites. A virtual & oral presentation was presented at the Caltech SURF Research Consortium.
7. Y. Salinas-Reyes, Ivaldi Co. (2022, May). Conceptual Design Review (CDR): Modern Design Methodology with Aerospace Application. A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.
8. Y. Salinas-Reyes, T. Ward III (2022, May). Shear-Sensing Principals of Interfacial Viscous-Shear Flow and Piezomobility—strain-induced mobility—at The Wall (Thermal Boundary). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA.
9. Y. Salinas-Reyes, T. Ward III (2023, July). Advances & Opportunities in Paper-Based Piezoresistors (QTC's): Navier-Stokes Equations with Analytical-Geometrical Monte-Carlo Method. A virtual & oral presentation was presented at the Annual ISU Aerospace Engineering Research Conference.
10. Y. Salinas-Reyes, T. Ward III (2023, August). Interfacial Transition Zones of Piezomobility and Mathematical Modeling of Dynamic & Kinematic Viscosity Towards Viscoelastics (Continuum Mechanics). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA.
11. Y. Salinas-Reyes, Ivaldi Co. (2023, September). Executive and Granter Design Sign-Off: Design of Aerospace Systems (i.e., sUAS). A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.

Were you a Goldwater Scholar or Nominee? Choose one of the following: Nominee

Fellowships, Scholarships, etc.

Fellowships/Scholarships RESPONSE 2 - Fellowships/Scholarships, Limit of 1000 words
My journey through higher education has been enriched by a series of fellowships, scholarships, and teaching appointments that have

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Academic Honors & Fellowships (continued)

supported my academic pursuits and research endeavors. In chronological order, I present the fellowships and scholarships that have shaped my academic path and allowed me to explore my passion for aerospace engineering, data science, and computational sciences.

Undergraduate Education:

• Iowa State University Presidential Scholarship (Year - Year): During my undergraduate years at Iowa State University, I was honored to receive the Presidential Scholarship. This prestigious scholarship recognized my academic achievements and provided crucial financial support. It marked the beginning of my exploration in aerospace and aeronautical engineering, fueling my passion for the field.

• Iowa State University Aerospace Engineering Scholar Awar (Year - Year): In recognition of my dedication to aerospace engineering, I was honored with the Aerospace Engineering Scholar Award by Iowa State University. This award highlighted my contributions to the aerospace engineering community and encouraged me to continue my pursuit of knowledge in this domain.

• National Action Council for Minorities in Engineering (NACME) Scholar (Year - Year): My commitment to promoting diversity and inclusion in STEM fields led to my selection as an NACME Scholar during my undergraduate years. This honor underscored my efforts to encourage underrepresented minorities to pursue careers in aerospace engineering and related fields.

Teaching Appointments:

• Teaching Assistant, Iowa State University (Year - Year): Serving as a teaching assistant at Iowa State University allowed me to share my knowledge and passion for aerospace engineering with fellow students. It was a fulfilling experience that reinforced my commitment to mentorship and education in STEM.

These fellowships, scholarships, and teaching appointments have not only supported my academic and research pursuits but have also empowered me to explore innovative research, promote diversity and inclusion, and inspire the next generation of scientists and engineers. They have played a pivotal role in shaping my academic path and have been instrumental in my journey to excel in the aerospace and aeronautical engineering field.

Fellowships and Scholarships

Throughout my academic journey, I have been fortunate to receive various fellowships, scholarships, and appointments that have not only supported my education but have also enriched my research experiences. I outline these achievements below, divided into my undergraduate and graduate studies.

Undergraduate Studies (B.S. in Aerospace and Aeronautical Engineering)

• Undergraduate Research Fellowship

• Iowa State University, 20XX

• This fellowship provided me with the opportunity to engage in cutting-edge research on propulsion systems. It was instrumental in deepening my understanding of aerospace engineering principles and fueling my passion for research.

• College of Engineering Scholarship

• Iowa State University, 20XX

• This scholarship recognized my academic excellence and dedication

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Academic Honors & Fellowships (continued)

to the field of engineering. It not only provided financial support but also served as a validation of my commitment to aerospace engineering.

• Engineering Scholar
• Iowa State University, 20XX
• Being designated as an Engineering Scholar was an acknowledgment of my contributions to the college. It encouraged me to continue excelling in my studies and research.
• Presentation at XYZ Conference
• XYZ Conference, 20XX
• Invited to present my research on MEMS technology at a prestigious conference, this opportunity allowed me to share my findings with the broader scientific community and gain valuable insights and feedback.

These fellowships, scholarships, and appointments have played a pivotal role in my academic and research journey. They have not only provided financial support but also served as affirmations of my dedication to aerospace engineering and my ability to contribute meaningfully to the field.

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Previous Research & Projects

Form Title	Previous Research & Projects 2024

Previous Research

Previous Research	Research Presentations and Scientific Thematic Talks 1. Y. Salinas-Reyes, H. Seabold, A. Martin, M. Thuo (2020, April). Exploring the Piezoresistive Effect and Paper-based MEMS Sensors. An oral presentation was presented at the First-year Honors Mentorship Research Symposium at Iowa State University, Ames, IA. 2. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, August). Integration of paper-based MEMS sensors into computer technology. An oral presentation was presented at the Virtual IINSPIRE LSAMP Symposium 3. Y. Salinas-Reyes, A. Martin, M. Thuo (2020, October). Adaptability of low-cost high efficiency disposable piezoelectric devices. A virtual poster presentation was presented at the National Great Minds in STEM Conference. 4. Y. Salinas-Reyes, A. Martin, M. Thuo (2021, April). The Future of Multi-Functional Paper-Based Disposable Piezoelectric Devices. A virtual & oral presentation was presented at the National Conference of Undergraduate Research (NCUR). 5. Y. Salinas-Reyes, X. Zheng (2021, August). Predicting Olympic Triathlon Results via Machine Learning. A virtual & oral presentation was presented at the Stanford SURF Lightning Talks. 6. Y. Salinas-Reyes, Julia R. Greer (2022, August). Energy Absorption in Nano-Architected Hybrid Composites. A virtual & oral presentation was presented at the Caltech SURF Research Consortium. 7. Y. Salinas-Reyes, Ivaldi Co. (2022, May). Conceptual Design Review (CDR): Modern Design Methodology with Aerospace Application. A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering. 8. Y. Salinas-Reyes, T. Ward III (2022, May). Shear-Sensing Principals of Interfacial Viscous-Shear Flow and Piezomobility—strain-induced mobility—at The Wall (Thermal Boundary). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA. 9. Y. Salinas-Reyes, T. Ward III (2023, July). Advances & Opportunities in Paper-Based Piezoresistors (QTC's): Navier-Stokes Equations with Analytical-Geometrical Monte-Carlo Method. A virtual & oral presentation was presented at the Annual ISU Aerospace Engineering Research Conference. 10. Y. Salinas-Reyes, T. Ward III (2023, August). Interfacial Transition Zones of Piezomobility and Mathematical Modeling of Dynamic & Kinematic Viscosity Towards Viscoelastics (Continuum Mechanics). A virtual & oral presentation was presented in a quarterly project update to the executives of Recycling at the Point of Disposal (RPOD) program at DARPA. 11. Y. Salinas-Reyes, Ivaldi Co. (2023, September). Executive and Granter Design Sign-Off: Design of Aerospace Systems (i.e., sUAS). A virtual & oral presentation was presented to the Department of ISU Aerospace Engineering.

B.S. Researches

Pursued	25
Documented	15

Work Experience

1

Organization Name	Location	Sector
Microscale & Interfacial Fluid Physics Laboratory (DARPA func	Des Moines, IA	Private

Position/Title	Dates of Employment	Hours/Week	Job Type
Undergraduate Aerospace Researcher & Experimental Engine	09/2021 - 08/2023	40	Part-time

Organization's Activities

Conducted cutting-edge research in microscale and interfacial fluid physics with a focus on DARPA-funded projects.

Your Responsibilities

Manufactured MEMS nanocomposite and developed computations to model shear-viscosity at the thermal boundary for the Navier-Stokes Equations.

Your Accomplishments

Contributed to experimental design, setup, and data analysis. Assisted in developing innovative solutions for fluid dynamics challenges.

Your Challenges

Contributed to experimental design, setup, and data analysis. Assisted in developing innovative solutions for fluid dynamics challenges.

Reason for Leaving

The Principal Investigator of the lab left the university to pursue other professional opportunities

2

Organization Name	Location	Sector
Iowa State University of Science & Technology	Ames, IA	Public

Position/Title	Dates of Employment	Hours/Week	Job Type
Information Technology Specialist and Research Data Scientis	08/2019 - 05/2023	24	Part-time

Organization's Activities

Yahriel contributed to cutting-edge research at ISU, focusing on the intersection of information technology and scientific data analysis informatics.

Your Responsibilities

Yahriel's role encompassed the management of IT systems and leveraging data science techniques to support research endeavors in various disciplines.

Your Accomplishments

implemented advanced data analysis methods, enhancing research outcomes & played a pivotal role in optimizing IT systems to support innovations.

Your Challenges

Balancing work with academic responsibilities, ensuring the security & integrity of research data, & adapting to evolving software/technology trends.

Reason for Leaving

Left position to pursue other professional opportunities and to focus on academic/scholarly activity

Work Experience

3

Organization Name	Location	Sector
California Institute of Technology Summer Undergraduate Res	Pasadena, IA	Public

Position/Title	Dates of Employment	Hours/Week	Job Type
Undergraduate Research Assistant at Greer Group	05/2022 - 08/2022	4	Internship

Organization's Activities

Principal Investigator Julia R. Greer is a Ruben F. and Donna Mettler Professor of Materials Science, Applied Mechanics, and Medical Engineering

Your Responsibilities

Conducted experiments, collected and analyzed data, and contributed to the development of innovative materials and technologies. DMA & SEM certified.

Your Accomplishments

Contributed to a research paper on nanoscale materials, presented findings at a research symposium, and deepened understanding of materials science.

Your Challenges

Navigated complex experimental setups, worked with precision at the nanoscale, and managed time effectively in a fast-paced research environment.

Reason for Leaving

Completion of summer research program.

4

Organization Name	Location	Sector
Boeing Aerospace Research Excellence in Engineering Interns	Ames, IA	Private

Position/Title	Dates of Employment	Hours/Week	Job Type
Research Fellow	08/2021 - 08/2022	20	Internship

Organization's Activities

Engaged in cutting-edge aerospace research, focused on advancing technology and engineering in the aviation industry.

Your Responsibilities

Conducted in-depth research on advanced aerospace technologies, including Micro-Electro-Mechanical Systems (MEMS) and experimental systems engineering

Your Accomplishments

Contributed to the development of innovative aerospace solutions, including MEMS-based sensors for improved flight control systems. Presented research

Your Challenges

Navigated vast aerospace research, with a deep understanding of physics, engineering principles, & precision in experimental design & data analysis.

Reason for Leaving

Completion of internship term and pursuit of further academic endeavors.

Work Experience

5

Organization Name: Soft Materials & Matter Transport Research Group

Location:

Sector: Public

Position/Title: Independent Undergraduate Researcher & Systems Engineer

Dates of Employment: 08/2019 - 08/2022

Hours/Week: 40

Job Type: Full-time

Organization's Activities

Functional soft matter, surface/interface thermodynamics, metastable materials for manufacturing/technology development, and experiential learning.

Your Responsibilities

Synthesizing Meta-stable Particles and High-Efficiency Paper-Based MEMS Sensors. Assisted graduate students with CAD modeling & systems engineering.

Your Accomplishments

Created self-automated calibration & data capture system. Designed multi-function 3D piezo-electric devices for aeronautical applications.

Your Challenges

Communicating findings through scientific storytelling & literature review. Academic Manuscript Writing & Technical Writing skills; Public Speaking.

Reason for Leaving

The Principal Investigator Dr. Thuo left the university to pursue other professional opportunities.

6

Organization Name: Stanford University Summer Undergraduate Research Fellow

Location: Des, IA

Sector: Private

Position/Title: Undergraduate Research Assistant at Z-Energy Lab

Dates of Employment: 05/2021 - 08/2021

Hours/Week: 40

Job Type: Internship

Organization's Activities

Contributed to cutting-edge research at Stanford University's Z-Energy Lab, focusing on advanced energy systems and sustainability.

Your Responsibilities

Conducted literary analysis and literary review of ML methods, Data & Computational Science, and adapted ML methods to scientific methods.

Your Accomplishments

Cross-validated various models fitted with scientific datums; presented findings in optimizations of experimental design for scientific discovery.

Your Challenges

The program this year was virtual and I needed to take initiative for my own research & scholarly development in a disciplinary field foreign to me.

Reason for Leaving

The end of the Summer Undergraduate Research Fellowship (SURF) program.

Activities and Interests

1

Organization or Activity
Pursuit of Universal Truths in Interdisciplinary Explorations

Role(s)
Scholar, Researcher

Location
Des Moines, IA

Dates of Participation	Hours/Week	Weeks/Year	During or After College
08/2019 - present	45	52	During college

Why did you get involved?
My intellectual curiosity and commitment to uncovering the fundamental truths of the universe have led me to engage in interdisciplinary exploration. I believe that by combining insights from various fields, we can decipher the code of the universe and gain a deeper understanding of our existence.

What did you achieve and/or learn?
I have expanded my knowledge across diverse disciplines, including nature physics, anthropology of science, and systems engineering. I honed my ability to bridge gaps between disparate areas of study, fostering a holistic perspective and promote the advancement of global health & human ingenuity.

2

Organization or Activity
Multicultural Engagement/Advocacy of Science, Tech., & Society

Role(s)
Youth-Lobbyist, Program Coordinator, Multicutural Advocate

Location
Des Moines, IA

Dates of Participation	Hours/Week	Weeks/Year	During or After College
08/2018 - 08/2023	15	40	During college

Why did you get involved?
I am deeply passionate about the intersection of STS in multicultural perspectives to promoting diversity, inclusion, and social justice. I built a platform to explore and promote the fusion of these fields actively engage in advocacy efforts and lobbying for non-profit educational initiatives.

What did you achieve and/or learn?
I spearheaded initiatives that promoted cross-cultural understanding within the engineering community. Encouraged peers to incorporate anthropological insights into their work. collaborated with diverse groups to advocate for underrepresented voices in engineering, fostering more equity justice.

3

Organization or Activity
Association of Iowa Latinx Professionals (AILP)

Role(s)
Active Member, Volunteer, Youth-Community Leader

Location
Ames, IA

Dates of Participation	Hours/Week	Weeks/Year	During or After College
08/2019 - 08/2023	12	40	During college

Why did you get involved?
To connect & support the Latinx community in Iowa & engage in initiatives that promote diversity and inclusion. I expanded my cultural horizons, developed effective advocacy skills, and contributed to the creation of more inclusive communities by promoting cultural understanding and social equity.

What did you achieve and/or learn?
Through my involvement, I've witnessed the profound impact of mentorship on young learners' lives. I have contributed to fostering a love for STEM & bridging the gap between academic knowledge and real-world applications. This experience has reinforced the importance of mentorship in future leaders.

Awards and Honors

1

Award or Honor Received: NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge

Date Received: 04/2022

Basis of Selection

The Challenge is a highly competitive and prestigious competition organized by NASA. It selects teams of exceptional students who propose innovative experiments to be conducted in the unique microgravity environment (ISS & EVA) based on the scientific merit, creativity, and feasibility of experiment

Why is this award or honor meaningful to you?

Finalist of this competition, NASA not only validated my dedication to aerospace and experimental systems engineering but also provided me with an opportunity to contribute to space research at the highest level. My team and I designed a groundbreaking experiment to advance global human ingenuity.

2

Award or Honor Received: Ronald E. McNair Postbaccalaureate Program Fellowship

Date Received: 08/2021

Basis of Selection

Fellowship is awarded to exceptionally talented & underrepresented undergraduates who demonstrate a strong commitment to pursuing advanced degrees & engaging in research. Recipients are selected based on their academic achievements, research potential, & dedication to overcoming educational barriers

Why is this award or honor meaningful to you?

This award holds great significance to Yahriel as it not only recognizes his academic excellence but also his resilience in overcoming challenges. This award has provided him with invaluable research opportunities, mentorship, and a platform to pursue his passion for interdisciplinary research.

3

Award or Honor Received: State of Iowa Youth Advisory Council Community Service Award

Date Received: 04/2020

Basis of Selection

The State of Iowa Youth Advisory Council Community Service Award is a recognition of exceptional commitment and contributions to community service and advocacy (250 volunteer hours for term) . Recipients are chosen based on their outstanding dedication to addressing critical issues in the community.

Why is this award or honor meaningful to you?

The award acknowledges his tireless efforts in promoting positive change and social justice within the community. It underscores his commitment to making a tangible impact on the lives of those he serves, aligning perfectly with his overarching goals of using science and research to benefit society.