Yahriel Salinas-Reyes

The GEM Consortium, Ph.D. Engineering and Science Fellowship

Polk: Des Moines, 50316, Iowa, United States
515-314-4160 • yahrielsreyes@gmail.com
//www.linkedin.com/in/yahriel-salinas-reyes-89ab38179
www.github.com/yahriels

Education

Iowa State University of Science & Technology **Ames**
Bachelor of Aerospace Engineering, *GPA: 3.3* *2023*
Specialized in Nanoscience/materials, Computational & Mathematical Sciences, Controls/Dynamical Systems, Soft Matter Physics

Work Experience

Bayer Crop Science, Seeds & Traits Safety: R & D Regulatory Science Toxicology Group **St Louis, MO**
Scientist I & Data Engineer *05/2024- Present*

- Engage in cutting-edge research in agricultural science and biotechnology in the Seeds & Traits Regulatory Science Group at Bayer, assist the Toxicology team with an automation system for regulatory reponses and data inpit for global clients. Responsible for data mining pipeline, and general knowledge transfer of bioinformatic data.

DARPA: Recovering Rare-Earth Elements from E-Waste **Ames, IA**
Research Assistant & Lab Technician *05/2022- 12/2023*

- Executed pivotal roles in DARPA's mission to recover rare-earth elements from electronic waste, employing innovative research techniques and laboratory methodologies to address critical environmental and technological challenges.

The Microscale & Interfacial Fluid Physics Laboratory **Ames, IA**
Experimental Systems & Automation Engineer *08/2021- 12/2023*

- Demonstrated expertise in experimental systems and automation engineering at the Microscale & Interfacial Fluid Physics Laboratory, contributing to groundbreaking research in fluid dynamics and interfacial phenomena.

The Soft Matter Material Transport Group **Ames, IA**
Undergraduate Researcher & Systems Engineer *08/2019- 05/2022*

- Played a key role in the Soft Matter Material Transport Group's research initiatives, focusing on the design and optimization of multi-functional piezoelectric devices for aeronautical applications, showcasing skills in systems engineering and materials science.

Caltech The Kavli Nanoscience Institute: The Julia R. Greer Group **Pasadena, CA**
Undergraduate Research Assistant *05/2022- 08/2022*

- Contributed to research efforts at Caltech's Kavli Nanoscience Institute, collaborating with the Julia R. Greer Group on the development of hybrid nanocomposites and the investigation of viscoelastic behavior, highlighting capabilities in nanomaterials synthesis and characterization.

Boeing: Wind Energy & Development **Ames, IA**
Boeing Aerospace Research Fellow *08/2021- 08/2022*

- Served as a Boeing Aerospace Research Fellow, spearheading projects in wind energy research and development, with a focus on characterizing damping mechanisms in piezoelectric wind-energy harvesters, demonstrating expertise in aerospace engineering and renewable energy technologies.

Stanford University: Xiaolin Zheng Z-Energy Group **Stanford, CA**
Undergraduate Research Assistant *05/2021- 08/2021*

- Engaged in research endeavors at Stanford University's Z-Energy Group, investigating the application of machine learning techniques in scientific methodologies and prediction, showcasing proficiency in data-driven research and computational modeling.

Iowa State University of Science & Technology **Ames, IA**
Information Technology Specialist & Data Scientist *08/2019- 05/2023*

- Provided technical expertise as an Information Technology Specialist and Data Scientist at Iowa State University of Science & Technology, contributing to the implementation, monitoring, and maintenance of IT systems while leveraging data science techniques for analysis and decision-making.

Key Projects

1. *Risk Characterization of Toxicological, Hazardous, and Nutritional Bioinformatic Data* **May 2024 - Present**
Regulatory Science Group in Seeds and Traits Safety Division / (Mentor: Dr. Kimberly Hodge-Bell) *Bayer Crop Science*

- Analyzed and interpreted bioinformatic data to assess toxicological, hazardous, and nutritional risks.
- Ensured compliance with global regulatory safety guidance such as the European Food and Safety Agency (EFSA).
- Developed risk characterization models to predict potential safety concerns.
- Collaborated with interdisciplinary teams to enhance data accuracy and reliability.
- *Keywords: Toxicology, Hazard Assessment, Nutritional Data, Regulatory Compliance, Bioinformatics*

2. *Automation of Procedural Systems and Experimental Bioinformatic Data* **May 2024 - Present**
GEM Fellow / Crop Field Protection Digital Solutions Automation & Pipeline Design *Bayer Crop Science*

- Implemented automation systems for procedural and experimental bioinformatic data management.
- Managed toxicological information and hazardous exposure assessments from field tests and trials.
- Integrated data from internal and external studies to support global clients.
- Enhanced efficiency and accuracy in data collection and processing.
- *Keywords: Automation, Bioinformatic Data, Toxicological Information, Exposure Assessments, Data Integration*

3. *Data Mining and Automation Pipeline Design for Historical Regulatory Responses* **May 2024 - Present**
GEM Fellow / R & D Regulatory Science Group Digital Solutions Automation & Pipeline Design *Bayer Crop Science*

- Designed data mining and automation pipelines to ensure data integrity.
- Analyzed historical regulatory response data for global scientific and food safety agencies.
- Developed systems to support the assembly of dossiers before product launch.
- Improved the accuracy and reliability of regulatory data submissions.
- *Keywords: Data Mining, Automation, Data Integrity, Regulatory Responses, Pipeline Design*

4. *Development Operations (DevOps) for Historical Data Transfer and Compliance* **May 2024 - Present**
GEM Fellow / Software & Data Engineering, Regulatory Macromolecular Toxicology Team *Bayer Crop Science*

- Managed the transference of historical data related to search query data of regulatory responses and submissions.
- Ensured compliance with strict global guidelines and document version management.
- Implemented cybersecurity measures to protect controlled data.
- Streamlined document management processes to enhance efficiency and security.
- *Keywords: DevOps, Data Transfer, Compliance, Document Management, Cybersecurity*

Relevant Scholarly Projects and Experience

1. *Synthesis of Phase-change Particles and Applications of MEMS* **April 2020 - August 2021**
(Research Assistant / Mentor: Dr. Martin Thuo) *NSF Award No. 1757393, Iowa State University*

- Collaborated closely with Dr. Martin Thuo to develop novel materials with unique properties, focusing on phase-change materials and their applications in MEMS technology an integrative systems including flexible biomedical devices.

2. *Predictive Modeling of Bioinformatics Data to Inform Olympic Performance* **August 2021 - January 2022**
(Research Assistant / Mentor: Dr. Xiaolin Zheng) *Stanford University, Z-Energy Lab*

- Investigated predictive models using machine learning techniques to forecast performance of olympic athletes results based on data collection, model training, and result interpretation, showcasing expertise in data-driven research.

3. *Energy Absorption in Nano-Architected Hybrid Composites* **August 2022 - January 2023**
(Research Assistant / Mentor: Dr. Julia R. Greer) *The Greer Group, The Kavli Nanoscience Institute*

- Investigated energy absorption mechanisms in nano-architected hybrid composites and contributed to experimental designs, conducted mechanical tests, and analyzed data, demonstrating proficiency in scientific instrumentation.

4. *Sociological Diff. in Motivation of Diverse Identities* **July 2021-May 2022**
(McNair Scholar / Mentor: Dr. Ashley Garrin) *Ronald E. McNair Post-Bacc Achievement Program*

- Constructed an experimental framework, analyzed scientific literature, and carried out a scientific investigation.
- Analyzed and interpreted results in a technical manner in preparation courses and experiences for doctoral studies.

Fellowship Awards

Program	Institution/Board	Year
*GEM Ph.D. Fellowship** (Sci.&Eng.)	The National GEM Consortium*	2024-2029*
P.B.C. (McNair Scholars)	Ronald E. McNair Postbaccalaureate Achievement Program	2021-2023
P.B.C. (Research Certificate)	Louis Stokes Alliances for Minority Participation (LSAMP)	2019-2021
Cert.(Order of The Engineer)	Engineering Accreditation Commission of ABET	2023

Research and Development Projects

1. *Experimental Techniques: Flow Separation & Chemical Sintering* **August 2019 - August 2023**

B.Tech / (Prof: Dr. Martin Thuo, Dr. Thomas Ward) *Iowa State University of Science & Technology*

- Developed hardware-software components and signal processing circuits for detecting flow instabilities in paper-based MEMS devices.
- Conducted experiments to manufacture MEMS nanocomposites and modeled shear viscosity.
- Aimed to simulate viscosity measurements at the thermal boundary for potential applications in aerospace.
- *Keywords: Systems Analysis, Interfacial Phenomena, Computational Modeling & Analysis, Navier Stokes Equations*

2. *Damping Mechanisms in Piezoelectric Wind-Energy Harvesters* **August 2021 - August 2022**

Research Fellow / Mentor -(Prof: Dr. Thomas Ward Dept. of Aerospace Engineering, ISU) *Boeing Aerospace*

- Implemented automation systems for procedural and experimental bioinformatic data management.
- Managed toxicological information and hazardous exposure assessments from field tests and trials.
- Integrated data from internal and external studies to support global clients.
- Enhanced efficiency and accuracy in data collection and processing.
- *Keywords: Automation, Bioinformatic Data, Toxicological Information, Exposure Assessments, Data Integration*

3. *Energy Absoption in Nano-Architected Hybrid Composites* **May 2022 - August 2022**

Prof: Dr. Julia R. Greer of Materials Science, A. Mechanics, & Medical Sciences Caltech, Kavli Nanoscience Institute

- Designed data mining and automation pipelines to ensure data integrity.
- Analyzed historical regulatory response data for global scientific and food safety agencies.
- Developed systems to support the assembly of dossiers before product launch.
- Improved the accuracy and reliability of regulatory data submissions.
- *Keywords: Data Mining, Automation, Data Integrity, Regulatory Responses, Pipeline Design*

4. *Meta-stable Particles: Phase-change Materials and their Applications* **August 2019 - May 2022**

Prof: Dr. Martin Thuo Dept. of Materials Science and Engineering, ISU *NSF-LSAMP*

- Managed the transference of historical data related to search query data of regulatory responses and submissions.
- Ensured compliance with strict global guidelines and document version management.
- Implemented cybersecurity measures to protect controlled data.
- Streamlined document management processes to enhance efficiency and security.
- *Keywords: DevOps, Data Transfer, Compliance, Document Management, Cybersecurity*

Industrial Training

1. *Boeing Undergraduate Research Excellence in Engineering Internship* **Dec 2020 - Dec 2021**

(B.Tech / Intern / Mentor: Dr. Thomas Ward)

- Engaged in an intensive internship program at Boeing, gaining hands-on experience focused on wind energy harvesting, green technologies, & enhancing engineering excellence in aerospace applications. Collaborated with industry professionals on cutting-edge projects aimed at advancing aerospace technology and innovation.

2. *NASA Micro-G Neutral Buoyancy Experiment Design Teams Challenge* **Oct 2021-Nov 2022**

(B.Tech / Design Team Lead / Mentor: Dr. Tomas Gonzalez-Torres)

- Took part in a challenging design competition organized by NASA, focusing on developing innovative solutions for space exploration challenges. Worked in a multidisciplinary team environment to design, build, and test a prototype device, gaining valuable practical experience in problem-solving and teamwork

Online Courses

- Deep Learning: *Data Structures and Algorithms in Python* (May 2021), *Deep Learning with PyTorch: Zero to GANs* (Jan 2021), *Data Analysis with Python: Zero to Pandas* (Oct 2020)
- MathWorks: *Machine Learning with Matlab (June 2020)*, *Matlab Onramp* (May 2022), *Deep Learning Onramp* (May 2021), *Machine Learning Onramp* (May 2021), *Deep Learning with Matlab (May 2022)*

Course Work

1. Key Courses **August 2019-December 2023**

(Core and electives) *Iowa State University: College of Engineering*

- Courses: Applied Mechanics & Physics, Materials Science & Engineering, Engineering & Polymeric Chemistry, Engineering Statistics, Machine-Learning/Data-Science, Finite Element Method, Bayesian Methods, Systems Engineering
- Lab: Numerical & Graphical Techniques, Advanced Computing, Advanced Programming Languages in Linux, C++

Technical Skills

- Programming: C, C++, Java, Python, CAD & FEA, ANSYS/ABAQUS, MATLAB & Simulink, SAS, R, CFD
- Other: SQL, Windows OS, Linux OS, AWS Services, Statistical Methods, Iot, Computational Modeling, ML

Achievements/Awards

- Finalist of The Fulbright-National Geographic Award, Open Study/Research Award
- Complete funding confirmed upon admission to Ph.D. Program*.The GEM Ph.D. Engineering & Science Fellowship*.

Declaration

I do hereby declare that all the details furnished above are true to the best of my knowledge and belief.

References

Reference I: Dr. Martin Thuo
Professor of Materials Science and Engineering
North Carolina State University
911 Partners Way, Room 3002
Engineering Building I Raleigh NC 27695-7907
Email: mthuo@ncsu.edu
Phone: (617)458-2363
Web:https://www.mse.ncsu.edu/thuo/

Reference II: Dr Thomas Ward
Professor of Mechanical and Aerospace Engineering
University of Virginia Engineering
Thornton Hall, 351
McCormick Road,
Charlottesville, VA 22904
Email: hgw8rs@virginia.edu
Phone: (434) 924-3072

Reference III: Dr. Lequetia Ancar
Director of Multicultural Student Success, Assistant Director of Engineering Student Services
Iowa State University of Science and Technology
1300 Marston
533 Morrill Rd.
Ames, IA 50011-2103
Email: lancar@iastate.edu
Phone: (515)294-0690