Zachary Hansen

Student At The University Of Arizona

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Computer Science with a passion for problem solving and data analysis. Meticulous and detail-oriented, with a willingness to take on added responsibilities to meet team goals.

Skills

Languages:	Java, Python, JavaScript, MIPS instruction set architecture, HTML/CSS, R, C, bash shell for linux
Frameworks:	React, Node.js, JUnit, JavaFX
Developer Tools:	Git, GitHub, Maven, MongoDB, Visual Studio, PyCharm, IntelliJ, Eclipse, Scrum, Jupiter Notebooks, Obsidian, SQLite, SQL, JDSM for Oracle, Unity
Libraries:	Pandas, NumPy, MatPlotLib, SciPy, d3.js
Collaboration & Productivity Tools:	Google Docs, Google Drive, Excel
Design Software:	Adobe Photoshop, Adobe Illustrator, Adobe Express, Adobe Premiere Pro, Maya, Affinity
Relevant Courses:	Calculus (I & II), Discrete Math for CompSci (I & II), Analysis of Discrete Structures, Objected Oriented Programming, Human Computer Interaction, Algorithms, Computer Organization, System programming & Unix, Principles of Data Science, Statistical Foundations, Web Programming, Operating systems, Database Management, Text Retrieval, Data Visualization, Advanced Algorithms, Computer Graphics, Natural Language Processing Algorithms, Software Engineering

Education

08/2025 – Current **Master of Science: Computer Science**

University of Arizona - Tucson, AZ

- **Unweighted GPA**: 3.667

08/2021 – 05/2025 **Bachelor of Science: Computer Science**

University of Arizona - Tucson, AZ

- Minors in Studio Art
- Minor in Information Science, Technology and The Arts (ISTA)
- **Unweighted GPA**: 3.74

08/2012 – 05/2020 **High School Diploma**

BASIS Flagstaff - Flagstaff, AZ

- **Unweighted GPA**: 3.95

Certifications

08/2026 – 08/2029

Responsible Conduct of Research (RCR) – Basic

CITI Program – University of Arizona

- Completed 18-Aug-2026, valid through 18-Aug-2029 (Record ID 74463330)

Work History

05/2026- Present

Senior Market Research Analyst

Tech Launch Arizona, University of Arizona, Tucson, AZ

Tech Launch Arizona is the University of Arizona's technology commercialization office. It works with faculty, staff, and student inventors to move university research into the marketplace through patenting, licensing, and startup formation.

- Research patents, publications, and market data to support Commercialization Assessment Reports for technologies disclosed to Tech Launch Arizona
- Summarize competing products, prior art, and industry statistics to evaluate the commercialization potential of disclosed university inventions
- Write non-confidential technology summaries used by licensing managers and inventors to guide business decisions

08/2025- 12/2025

StellarScape immersive multimedia project

University Of Arizona, Tucson, AZ

- Developed real-time, interactive visuals in TouchDesigner for Stellarscape, a one-hour immersive multimedia stage performance integrating music, dance, light, and science.
- Implemented AI image-processing pipelines to capture and respond to audience and performer engagement, enabling dynamic visual adaptation during live performance.
- Collaborated in a large interdisciplinary team across astronomy, music, dance, and information science to translate scientific and narrative concepts into responsive visual systems.

01/2026- Present

Edge Of The Desert MultiMedia Project

University Of Arizona, Tucson, AZ

- Supported the development of The Edge of the Desert, an immersive multimedia project translating climate, hydrological, and water policy data into interactive visual, sonic, and sensor-driven experiences focused on the Sonoran Desert.

- Performed data processing and technical implementation for interactive systems, integrating real-time environmental datasets with visualization, and sonification,
- Collaborated with artists, hydrologists, and computer scientists to prototype multisensory installations and community workshops, bridging environmental policy research with public engagement through creative technology.

08/2021– 05/2025 **Senior Teaching Assistant - Computer Science Department**

University Of Arizona, Tucson, AZ

- Assumed additional responsibilities and leadership roles in 2024, further enhancing student learning and engagement.
- Supported classroom activities, tutoring, and reviewing work.
- Tutored struggling students individually and in small groups to reinforce learning concepts.
- Checked assignments, proctored tests and provided grades according to university standards.
- Met with students 1-on-1 biweekly to ensure their understanding of course contents and discuss improvements to their work.

Research Experience

05/2023 – 08/2023
05/2024 – 08/2024 **ADVANCE Kidney Internship**

University of Arizona - Tucson, AZ

- Conducted comprehensive data analysis for multiple studies focused on innovative technologies for improving renal disease management.
- Analyzed data from ongoing research involving diverse biomedical wearables and devices, including the FDA approved BioStamp, laptop cameras, and Texas Instruments millimeter wave radar boards, to contribute to the lab's mission of advancing healthcare technologies.
- Collaborated with interdisciplinary teams of undergraduate medical and engineer students, as well as medical professionals to evaluate technology effectiveness and extract actionable insights.
- Engaged in real world renal medicine during shadowing visits at the nephrology wing of Banner - University Medicine North

01/2023 – Present **The Arizona Center for Accelerated Biomedical Innovation (ACABI)| Data Analyst**

University of Arizona - Tucson, AZ

Supervised by Dr. Marvin J. Slepian, MD

- Translated complex data findings into accessible formats, and created reports for internal and collaborative research purpose
- Designed and executed large-scale GenAI safety evaluation across 5 LLMs using 180 medical misinformation prompts (45,000 API queries), coordinating physician expert

panels to establish first-of-its-kind safety benchmarks for clinical AI applications (NIH-funded)
- Engineered a prompt-specificity framework and 11 custom NLP tools to quantify AI memorization of copyrighted works, demonstrating statistically significant correlation ($p<0.05$) between prompt design and copyright infringement risk across ChatGPT and Llama models

Publications

09/2026 **Fallibility, Persuadability, and Correctability of Large Language Models Under Sustained Conversational Misinformation Pressure**

Rodriguez J, **Hansen Z**, De Anda L, Rohrer K, Grubb C, Noriega-Atala E, Surdeanu M, Slepian MJ.

Published to Scientific Reports|Nature Portfolio (2026) | *https://doi.org/10.1038/s41598-026-68231-0*

- Evaluated seven large language models across three dimensions of conversational susceptibility using 100 misinformation prompts presented over 50-repetition conversations.
- Identified conversational reverberation, a novel failure mode in which models oscillate between accepting and rejecting the same false statement across successive turns.
- Demonstrated a greater than 150-fold difference in misinformation affirmation rates across architectures, significantly modulated by informational obscurity ($\chi^2 = 11.13$, $p = 0.0038$).

11/2024 **Around-Body Versus On-Body Motion Sensing: A Comparison of Efficacy Across a Range of Body Movements and Scales**

Rohrer K, De Anda L, Grubb C, **Hansen Z**, et al.

Published to Bioengineering|MDPI, 11(11), 1163 | *https://doi.org/10.3390/bioengineering11111163*

- Conducted a comparative study of motion detection systems, demonstrating comparable efficacy between non-contact visual marker detection (MoCa) and on-body stretchable sensors (BioStamp) for analyzing human motion.
- Quantitatively assessed six predefined motions across multiple metrics, identifying system-specific strengths to guide clinical applications in motion analysis.

Oral Presentations

- **Comparative Analysis of Large Language Models' Susceptibility to Medical Misinformation**
  - Presented at the BMES Annual Meeting 2025

Abstracts

- **Generative AI and Medical Misinformation: Medical Specialist Numbers and Information Obscurity Have Impact**
    - investigated the differences in susceptibility of large language models on medical misinformation against Physician count and google obscurity metrics
- **Generative Artificial Intelligence Models Are Not Equivalent: A Comparative Evaluation of Medical Misinformation Susceptibility**
    - Investigated the difference is susceptibility of large language models on medical misinformation and the comparison of different medical specialties
- **Evaluation of Artificial Intelligence Misinformation Response: A Medicine /Cardiovascular Risk**
    - Investigates the susceptibility of various LLMs to persistent medical misinformation with an emphasis on cardiovascular misinformation
- **Comparative Analysis of Large Language Model's Susceptibility to Medical Misinformation: Evaluating Accuracy and Reliability Across Multiple AI Platforms**
    - Investigates the susceptibility of various LLMs to persistent misinformation and compares their performance in handling medical information
- **Digital Hoodwinking: The Effect of Increasing Argumentation Intensity on Persuasion Susceptibility of AI Large Language Models**
    - Explored the susceptibility of large language models to persuasion through increased argumentation intensity, highlighting the importance of refining LLMs against misinformation.
- **The Motion Envelope: A New Digital Biomarker for Assessing the Range of Human Motion Using Wearable Sensors**
    - Developed a novel digital biomarker for quantitative assessment of human mobility using wearable sensors, aiding in monitoring disease progression and therapy effects.
- **The Reliability of AI Large Language Models to Affirm Truth in Information: Susceptibility to Misinformation with Repetitive Engagement**
    - Investigated the impact of repetitive misinformation on ChatGPT 3.5, emphasizing the need for robust safeguards in LLMs against misinformation in critical context.
- **Comparative Analysis of On-Body and Around-Body Motion Detection for Quantitation of Movement Abnormalities Across Excursion Length Ranges with Applicability to Renal Disease**
    - Studied the efficacy of two motion detection methods in assessing renal disease-related movement abnormalities, contributing to the selection of appropriate motion detection systems based on motion range.

- **Python Computational Methods Advance Video Motion Capture for Telehealth and In-Person Diagnostic Accuracy for Advanced Renal Patients**
    - Developed and enhanced MOCA 2.0, a Python-based motion capture system for improved diagnostic accuracy for chronic kidney disease patients for clinical use at the University of Arizona College of Medicine
- **Quality not Quantity: Development and Use of a Novel AI Tool to Determine Biomedical Publication Trustworthiness, Impact and Value**
    - Developed and applied a novel AI tool to assess the trustworthiness, impact, and value of biomedical publications beyond citation counts and journal-level metrics

Conferences

06/2026 **American Society for Artificial Internal Organs 72nd Annual Conference**

Fort Lauderdale, FL

- *Presented poster "Generative AI and Medical Misinformation: Medical Specialist Numbers and Information Obscurity Have Impact"*
- *Presented poster "Quality not Quantity: Development and Use of a Novel AI Tool to Determine Biomedical Publication Trustworthiness, Impact and Value"*

08/2025 **Biomedical Engineering Society(BMES) 2025 Annual Meeting**

San Diego, CA

- Accepted the Oral Presentation "Comparative Analysis of Large Language Models' Susceptibility to Medical Misinformation"

02/2025 **2025 Sarver Heart Center Cardiovascular Research Symposium**

Tucson, AZ

- Accepted to present poster "Evaluation of Artificial Intelligence Misinformation Response: A Medicine /Cardiovascular Risk"

09/2024 **BIO5 Institute Research & Innovation Showcase**

Tucson, AZ

- Presented poster "Comparative Analysis of Large Language Model's Susceptibility to Medical Misinformation: Evaluating Accuracy and Reliability Across Multiple AI Platforms"

08/2024 **24th Annual Intellectual Property Scholars Conference**

Berkeley, CA

- Work was presented in the talk "Copyright in the Accelerating World of Generational AI: Where, How and What?"
- Dr. Marvin J. Slepian gave the talk on behalf of the University of Arizona
- Demonstrated cutting edge research on how large Language Models will affect copyright law

05/2024 **American Society for Artificial Internal Organs 70th Annual Conference**

Baltimore, MD

- Presented poster "The Reliability of AI Large Language Models to Affirm Truth in Information: Susceptibility to Misinformation with Repetitive Engagement"

- Demonstrated expertise in the workings of Large Language Models

08/2024 **KUH Undergraduate Research Symposium**

Madison, WI

- Presented poster “The Motion Envelope: A New Digital Biomarker for Assessing the Range of Human Motion Using Wearable Sensors"
- Engaged with a diverse audience of scholars, providing insights and answering questions regarding motion abnormalities in relation to advanced kidney disease (ADK).
- Demonstrated strong communication skills and expertise in data science.

Projects

Java GUI & JDBC/SQL Application

- Full-stack Java application with a desktop GUI, backend logic, and JDBC-based SQL storage
- Implemented prepared statements and batch inserts to improve performance on 10K records
- All tables were properly partitioned and compatible with 4NF.

360° Immersive Video — Dusk Music Festival (11/2024)

- Produced a 360° immersive video screened at the 8th annual Dusk Music Festival at Já-come Plaza, Tucson, AZ, created for a University of Arizona immersive art course.
- Edited and finished the piece in Adobe Premiere Pro for headset playback.
- Festival coverage: https://www.kgun9.com/news/local-news/university-of-arizona-news/u-of-a-students-bringing-vr-to-dusk

Awards

- Awarded HSF scholar (2026)
- Awarded Galileo Circle Scholarship (2026)
- Awarded HSF scholar (2025)
- Awarded Nike HSF scholarship (2025)
- Awarded Galileo Circle Scholarship (2024)
- Awarded Dean's List with Distinction (2021-2022)
- Awarded Wildcat Dean's Exemplary Award (2020)
- Awarded National Hispanic Scholar (2019)
- Member of the National Honors Society(2018-present)
- Awarded AP Scholar (2017, *with honors* in 2018, *with distinction* in 2019)

References

- **Marvin J. Slepian, MD**

-Regents' Professor of Medicine and Biomedical Engineering (Associate Department Head).
-Phone: (520) 661-8241
-Email: chairman.syns@gmail.com
-Relationship: worked under him in the ACABI lab

- **Anne Garnder**
  -Market Research Manager at Tech Launch Arizona
  -Phone: (520) 621-5511
  -Email: AnneG@tla.arizona.edu
  -Relationship: Worked under her for the Senior Market Analyst position for Tech Launch Arizona.
- **Yuanyuan (Kay) He**
  -Assistant Professor of Music at the Fred Fox School of Music at the University of Arizona.
  -Phone: (520) 626-9521
  -Email:kayhecomposer@arizona.edu
  -Relationship:Worked under her direction in my position in the Vertical Integrated Projects for multiple multimedia projects.
- **Janalee O'Bagy, PhD**
  -Professor of Computer Science at the University of Arizona.
  -Email: jobagy@arizona.edu
  -Relationship: worked as a teaching assistant for her CSC120 course.