

SARA AVILA

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EDUCATION

Creighton University

Aug 2023 – May 2027

B.S. in Computer Science, B.S. in Data Science, B.A. in Spanish and Hispanic Studies

GPA: 4.0/4.0

Related courses: Machine Learning, Introduction to Artificial Intelligence, Building Generative AI Applications, Data Structures, Algorithm Design and Analysis, Computer Organization, Programming Languages

RESEARCH EXPERIENCE

Fine-Tuning YOLO26 for Outer and Inner Cochlear Hair Cell Detection

2026

Advisor: Dr. Steven Fernandes

Creighton University

- Evaluates newer YOLO architectures for improving automated inner and outer cochlear hair cell detection in densely packed confocal microscopy images.
- Prepared and validated annotated datasets, fine-tuned multiple YOLO architectures, and compared model performance to identify the most effective detection approach.

Advanced Deep Learning for Automated Cochlear Hair Cell Detection

2024 - 2026

Advisor: Dr. Steven Fernandes

Creighton University

- Cochlear hair cell quantification is traditionally performed through manual microscopy, limiting the speed and scalability of hearing loss research. This project develops deep learning methods for automated detection and classification of cochlear hair cells.
- Collected and annotated confocal microscopy images, trained YOLO-based object detection models, and contributed to GAN-based synthetic image generation for data augmentation.

SCRIBE: Transformer-Based Evaluation of Medical School Personal Statements

2025 – 2026

Advisors: Dr. Steven Fernandes, Dr. Faith Kurtyka

Creighton University

- Medical school personal statements are often evaluated subjectively, creating inconsistent feedback for applicants. This project develops an offline NLP system that segments essays, classifies rubric-aligned content, and generates structured feedback.
- Organized and annotated training essays, evaluated transformer embedding models, and refined semantic segmentation and rubric-based classification to improve feedback aligned with medical school admissions criteria.

Enhancing Pharmacy Skills Through AI-Driven Patient Counseling Simulations

2024 – 2025

Advisors: Dr. Steven Fernandes, Dr. Jessica Cumber, Dr. Kevin Fuji

Creighton University

- Pharmacy students have limited opportunities to practice patient counseling with consistent feedback.
- Fine-tuned and evaluated LLM options to generate realistic, rubric-aligned patient responses, and designed the simulated patient's profile to support standardized counseling practice.

PUBLICATIONS

Fernandes, S., Borgmeier, B., Krudwig, C., Nielsen, I., Magara, D., **Avila, S.**, et al. "Fine-Tuning YOLO26 for Outer and Inner Cochlear Hair Cell Detection." *11th International Digital Public Health Conference (DPH)*, 2026.

Krudwig, C., **Avila, S.**, Mondiri, A., Dhuler, A., Phillips, S., Viereck, A., Handel, K. V., and Fernandes, S. L. "GANs and YOLOv11 for Automated Cochlear Hair Cell Detection." *Thirteenth Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA)*, 2025. **Best Paper Award.**

INDUSTRY EXPERIENCE

Quality Assurance Engineer, Hudl

Lincoln, NE

Youth Club High School Coaches Department

May 2026 – Aug 2026

- Drove quality engineering across Hudl's American football platform through .NET modernization, repository-wide automated test coverage, code-level failure investigation, and cross-functional product decisions supporting releases used by hundreds of thousands of coaches and athletes

Software Engineer Intern, Aerostar International

Sioux Falls, SD

Stratospheric Balloon Team

May 2025 – June 2025

- Designed and built full-stack simulators for stratospheric balloon launches, developing front-end interfaces and backend services to model balloon performance and launch scenarios

MacBook Technician, Apple

Omaha, NE

Computer Repair Team

Dec 2023 – Jan 2025

- Received Apple MacBook Technician Certification, diagnosing and repairing Apple hardware and software, including component replacements, troubleshooting, and system restorations.

PRESENTATIONS & TALKS

Advanced Deep Learning Integration for Detection of Missing Cochlear Hair Cells

Frontiers of Intelligent Computing: Theory and Applications (FICTA)

2025

National Conference on Undergraduate Research (NCUR)

2025

Women in Machine Learning (WiML) Workshop at NeurIPS

2025

Women in Machine Learning (WiML) Workshop at NeurIPS

2024

Evaluating Medical School Personal Statements with SCRIBE: A Fine-Tuned Transformer System

Women in Machine Learning (WiML) Workshop at ICCV

2025

Women in Machine Learning (WiML) Workshop at NeurIPS

2025

Nebraska Academy of Sciences

2025

Enhancing Pharmacy Student Skills Through AI-Driven Patient Counseling

Rush University AI Symposium on Healthcare Education

2025

Nebraska Academy of Sciences

2025

Interpretable Deepfake Detection

28th NSF EPSCoR National Conference

2024

AWARDS

Barry Goldwater Scholar

2026

Best Paper Award, FICTA

2025

Best Undergraduate Humanities Poster Presentation, Creighton University

2025

Alpha Sigma Nu Jesuit Honor Society

2025

S.J. Bucko Scholarship

2023 – 2024

Next Generation Leaders Program Scholar

2023 – 2027

Dean's List, Creighton University

2023 – 2027

TEACHING EXPERIENCE

Teaching Assistant (CSC121)

Spring 25', Spring 26', Fall 26', Fall 27'

Instructors: David Reed, Catherine Baker, Sherri Weitz-Harms

- Teaching assistant for Computers and Scientific Thinking
- Hosted office hours, attended lab sessions, mentored course projects, and graded assignments

1:1 Tutor

Fall 24', Spring 25'

Office of Academic Success, Creighton University

- Hosted and taught 1:1 meetings across a wide range of CS classes, spanning both lower and higher level coursework

Leader of the Computer Repair Program

Fall 2024

iJay Practicum, Creighton University

- Taught and mentored new technicians on hardware repairs and diagnostics, helping them earn their Apple certification

LEADERSHIP & SERVICE

Peer2Peer Mentor , TRiO Student Support Services (SSS)	2026 – 2027
Volunteer , DREAM Scholars Service Program	2024 – 2027
Member , Next Generation Leaders Applicant Review Committee	2024 – 2027
Decurion , Creighton University Ratio Studiorum Program	2025 – 2026
Peer Mentor , Creighton First-Generation Student Support Team	2024 – 2025
Volunteer , NeurIPS	2024

SKILLS

Programming	C/C++, Python, Java, HTML/CSS, JavaScript/TypeScript, R, C#
Machine Learning	PyTorch, Hugging Face, Pandas, NumPy, Scikit-learn, TensorFlow, Transformers
Frameworks & Tools	FastAPI, Vue.js, GraphQL, Docker/Rancher, Git, Github/Gitlab
Languages	English (Native), Spanish (Native)