

# Oscar Manuel Arenas

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## About

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Computer Science graduate student with experience in data science, statistics, AI agents, and software engineering. At NNSA, I developed ontology visualization tool for the Data Science portfolio to identify gaps in AI research. At USC ICT, I researched multiple LLMs performance on K-12 science English text translation into Spanish, building agents for dataset curation, conducting statistical analysis, and grade-level readability.

## Education

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**M.S. in Computer Science**, California State University, Long Beach

Expected: May 2026

**B.S. in Computer Science**, California State University, Long Beach

May 2024

## Experience

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### AI Research Intern

*Los Angeles, California*

*USC Institute for Creative Technologies*

*2025 – Present*

- Curated K-12 English science text datasets and performed statistical analyses on random samples, demonstrating that meaningful insights can be achieved without relying on large datasets.
- Developed python scripts to evaluated untargeted LLMs translations outputs, then introduced grade-specific targeting, and finally implemented a retry AI agent that iteratively re-translated up to five times to achieve the target grade.
- Evaluated ChatGPT 4o, Gemini, Cohere, and LLaMA 3.x models using NGSS-aligned prompts and Spanish readability metrics (e.g., Szigriszt-Pazos, Fernández-Huerta)

### Data Science Intern

*Remote*

*National Nuclear Security Administration*

*2024 – 2025*

- Interned at the NNSA Defense Nuclear Nonproliferation R&D office supporting the Data Science portfolio
- Created an ontology focused on Trustworthy, Effective, and Deployable AI (TED-AI) using Python to better characterize current focus areas, opportunities, and potential gaps for DNN R&D
- Developed a general-purpose VS Code extension for uploading and visualizing structured datasets using D3.js to explore the TED-AI ontology; implemented using Test-Driven Development (TDD)
- Built an AI agent utilizing an AI ontology to evaluate research documents related to DNN R&D, leveraging Python LangChain libraries and various LLM models to assess ontology effectiveness

### Physics Tutor

*Remote*

*Cerritos College*

*2019 – 2020*

- Provided individual and group physics tutoring to undergraduates at Cerritos College, primarily focusing on PHYS 101 and PHYS 201, to strengthen students' understanding of fundamental and advanced physics concepts
- Assisted students in preparing for exams by offering problem-solving techniques, conducting thorough reviews of key concepts, and providing practice problems to build confidence
- Enhance comprehension, making complex topics like mechanics and thermodynamics easier to understand

## Personal Projects

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### AI-Agents Pong Game (*Python, Typescript, Flask*)

*Mar–Apr 2024*

- Built a VS Code WebView Pong game with both paddles autonomously controlled by AutoGen agents.
- Managed real-time canvas rendering and agent messaging with Pydantic schemas.
- Wrote Playwright tests for launch, gameplay, and scoring to ensure functionality.

## Skills

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**Languages:** Python | JavaScript | Java | R | Typescript

**Coursework:** Machine Learning | AI | Algorithms

**Tools:** Git | Jira | Docker | Flask | Azure (AI Foundry)

**Libraries:** TensorFlow | SciPy | Scikit-Learn | NumPy | Pandas

## Scholarships

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- James D. Woolever CIS Scholarship**, Cerritos College Foundation
- Nega Family Scholarship for Students in Technology**, Cerritos College Foundation
- STEAM Scholarship Award**, presented by Neudesic