Francisco Jesús Ramírez-Reyna

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Education

University of Nebraska-Omaha: BS in Computer Science, Concentration in Artificial Intelligence — August 2021 - May 2025

- **Coursework:** Data Structures, Software Engineering, Machine Learning, Artificial Intelligence, Data Analytics, Database Management Systems

Competencies

Languages and Frameworks: Python, JavaScript, C, Java, React, Django

Technologies: Git, Tomcat Apache, SQL Lite, MySQL, Firebase, AWS, Docker, Ubuntu, Unix, Linux, ASP

Work Experience

Natural Language Processing Knowledge Representation Lab — 2024- currently
University of Nebraska-Omaha

Position: Undergraduate Research Assistant

- Conducted research in natural language processing (NLP) and knowledge representation to improve understanding and reasoning in AI systems.
- Assisted in benchmarking and evaluating Large Language Models(LLMs), focusing on text parsing, reasoning, and knowledge capabilitites.
- Collaborated with a team to design and implement experiments for evaluating model performance and accuracy.
- Utilized Python, TensorFlow, and Hugging Face for model development and deployment.

Projects

Full-Stack Web Application for SEB Matching

- Developed a **scalable, full-stack web application** to streamline SEB (Small & Emerging Business) matching for MCL, a local construction company.
- Engineered a **Django backend** with RESTful APIs to facilitate seamless communication between the database and frontend.
- Developed an intuitive **JavaScript-based frontend**, prioritizing ease of use for construction professionals with varying levels of technical expertise.
- Enhanced cross-department collaboration by consolidating workflows into a centralized web platform.
- Tools used: Python, Django, PostgreSQL, JavaScript, HTML/CSS,

Text-to-Speech Voice Model

- Implemented a neural network-based voice model based on HAL-9000 from *2001: A Space Odyssey* for use with the open-source PiperTTS system.
- Processed and curated audio datasets, trained and fine-tuned the model to produce natural and expressive speech synthesis.
- Published the model Hugging Face, enabling community access and reproducibility.
- Tools Used: Python, CUDA, TensorFlow, PyTorch, Audacity, Ubuntu

Automated Classroom Assignment System
College of IS&T

- Developed an automated scheduling system to assign in-person course sections to classrooms, taking into account room capacity, room type, and conflicting instructor/room schedules.
- Leveraged Clingo Answer Set Programming (ASP) to model and solve complex constraints, enabling both initial assignments and minimal-impact reassignments when enrollment exceeded room capacity.
- Collaborated using web development best practices and version control, gaining hands-on experience in educational timetabling, constraint optimization, and incremental scheduling.