Christian Lopez

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Education

University of Central Florida Aug 2020 – Current
M.S. Computer Science | ***Expected Grad**: July 2026* *Orlando, Fl*
B.S. Computer Science | ***Grad**: Dec 2024*

Technical Skills

Languages: Python, Java, C, C++, SQL, JavaScript, HTML, CSS
Frameworks: PyTorch, Scikit-Learn, OpenCV, NumPy, Pandas, Matplotlib, HuggingFace, Flask, ReactJS
Tools: AWS (Gateway, Lambda, S3, DyanmoDB), Docker, MongoDB, Jira, Linux, Git

Publications

Aparcedo, A., **Lopez, C**., Kotta, A., & Li, M. (2024). Multimodal Power Outage Prediction for Rapid Disaster Response and Resource Allocation. DOI: 10.48550/arXiv.2410.00017

Experience

Sonovance Oct 2024 – Current
Software Engineer Intern *Orlando, Fl*

- Wrote high-quality, maintainable code to automate data extraction from 3D medical images using **Python**, **NumPy**, **Pandas**, and **OpenCV**, successfully generating a dataset of 200 human subjects.
- Developed a medical imaging software in **C#** and **OpenGL** using **object oriented programming (OOP)** principles, providing real-time 3D visualizations of CT scans for radiologists.

Brattain Research Group Oct 2024 – Dec 2024
Undergraduate Researcher *Orlando, Fl*

- Deployed an evolving MIT Lincoln Lab codebase on a **high-performance compute (HPC) cluster** to generate segmentation predictions with **deep learning models**, such as 3D UNET, on a **distributed system** at scale.
- Utilized the Segment Anything Model (SAM) to segment mouse videos, **automating** the identification and tracking of regions of interest for high-throughput biological analysis.

Davis Research Group June 2024 – Dec 2024
Undergraduate Researcher *Orlando, Fl*

- Trained a custom 1,000,000-parameter **graph neural network** on 3,000 NASA satellite images through **parallel programming** strategies across multiple GPU's.
- Utilized **PyTorch** to create **deep learning models** capable of predicting power outages throughout Florida; presented at the **52nd IEEE Photovoltaic Specialists Conference**.

AVT Simulation May 2023 – Feb 2024
Software Engineer Intern *Orlando, Fl*

- Used **C++** and **object oriented programming (OOP)** principles to design communication and navigation software for military aircraft simulators.
- Developed a scalable framework to host a network of simulators by applying **multi-threaded programming** principles to handle **server-client interactions** asynchronously.

Projects

DON 4.3 | *NASA* Jan 2024 - Dec 2024

- Implemented a **robust server-client architecture** to develop a **low latency** trainer/trainee simulator, enabling **real-time data exchange** between participants.
- Utilized **event-driven systems** in Unreal Engine 5 to enable users to interact with and control multiple objects within the simulator, offering **real-time feedback** and customization of object paths and spatial relationships.

Custom NLP Transformer | *Research Project* Jan 2024 - May 2024

- Implemented the **scaled dot-product** and **multi-head attention mechanisms** with **Python**, **PyTorch**, and **NumPy** to capture contextual relationships between input tokens.
- Integrated a **softmax function** to compute token probability distributions over a vocabulary, enabling the model to generate contextually appropriate predictions by selecting the most likely token at each step.