

Anna Sims

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EXPERIENCE

Intel

AI Ambassador

Remote

Oct 2024 – Present

- Developed a real-time AI DJ system that analyzes live video feeds to assess crowd energy, danceability, and tempo using pose estimation and vision models.
- Modified OpenVINO's pre-trained video-to-text model by replacing the classification layer with a regression layer to output key musical metrics for Spotify's recommendation system.
- Integrated OpenVINO for video processing, MongoDB for efficient song retrieval, and Spotify's API for dynamic track playback, ensuring a seamless user experience.
- Engineered a pipeline to process live video streams, extract crowd movement data, and translate behavioral metrics into actionable music selections in real-time.
- Initiated the integration of multiple encoders to enhance model robustness in varying conditions, such as low-light environments and dynamic lighting effects.

ByteDance

Innovator Fellow

San Jose, CA

May 2024 – Present

- Led the deployment of a multimodal data masking system, capable of processing text, images, audio, and video for comprehensive PII identification and replacement.
- Optimized video processing performance via parallel processing and distributed computing using the Babit Multimedia Framework.
- Deployed a self-hosted, fine-tuned open-source LLM onto the cloud.
- Integrated advanced computer vision algorithms to improve accuracy in facial recognition and object detection within video frames by 27%.
- Implemented sophisticated audio processing techniques, including voice modulation and speech synthesis, to enhance audio PII masking.
- Developed customizable PII detection and replacement rules, allowing end-users to define specific PII types for enhanced data privacy.
- Engineered secure data handling protocols to align with GDPR and CCPA standards, ensuring compliance in global data protection.
- Launched the full-stack web application and API into production.

Emerging Technologies Group

XR Developer and Lab Manager

Ann Arbor, MI

Oct 2022 – Present

- Trained and mentored two new hires, significantly boosting lab productivity and accommodating a surge in demand for XR resources.
- Taught faculty and PhD students to leverage Motion Capture technology, resulting in higher-quality research data and substantial time savings.
- Managed and maintained the lab's XR systems and equipment, implementing troubleshooting measures that reduced technical issues.
- Collaborated with interdisciplinary teams across academic departments to conceptualize, design, and deploy VR games and simulations.
- Developed and implemented best practices for XR project development, including planning, execution, and evaluation.
- Contributed to positioning the lab as a national leader in academic XR technology by hosting educators from universities across the country.

Strategic Reasoning Group

Research Assistant

Ann Arbor, MI

Sept 2022 – Aug 2023

- Redesigned and modernized a trading market simulator used to test trading strategies, transitioning it from Java to Python. This update improved the efficiency and functionality of the simulator, allowing for more accurate testing and analysis.

Digital Currency Group

Quantitative Trading Intern

New York, NY

June 2022 – Aug 2022

- Built three parameter estimation models: MoM and MLE fitted to a variance-gamma distribution, and a Bayesian parameter estimation model.
- Remodeled Bühler's Deep Hedging framework using Imaki's no-transaction band network to identify optimal hedging strategies in incomplete markets using neural network architecture.
- Built a gamma volatility backtesting model using the Ornstein-Uhlenbeck model under risk neutral measures to capture realized volatility and Heston (adjusted to Girsanov's theorem), Variance-Gamma, and Ornstein-Uhlenbeck process simulations to predict future volatility.
- Optimized portfolio performance by comparing the four different models using Sharpe's ratio.

ASSET Lab

Ann Arbor, MI

Research Assistant

June 2020 – Feb 2022

- Analyzed large emissions datasets. Built emission comparison models to compare performance of diesel and solar powered motorcycles.
- Co-authored academic publication "Emissions impacts of electrifying motorcycle taxis in Kampala, Uganda."

Nexamp

Boston, MA

Design Engineer Intern

Jan 2021 – June 2021

- Created and optimized conceptual design layouts and schematics for grid-tied photovoltaic power plants and battery storage systems.
- Designed 36 AC and DC electrical single-line diagrams for solar power plants using AutoCAD.
- Performed medium voltage design work in support of utility interconnection and permitting application processes.

University of Michigan

Ann Arbor, MI

Instructional Aide

June 2018 – Aug 2018

- Taught weekly workshops and tutoring sessions for a calculus-based undergraduate course.

University of Michigan, Department of Astronomy

Ann Arbor, MI

Research Assistant

Sept 2017 – Apr 2018

- Engineered a computational model using Python and VPython to process and analyze large-scale datasets for exoplanet property prediction.
- Collaborated with faculty and graduate students to refine the model, resulting in more accurate predictions of exoplanet characteristics.

EDUCATION

University of Michigan

Ann Arbor, MI

Bachelor of Engineering in Data Science, Minor in Business

- Coursework: Data Structures & Algorithms, Probability & Statistics for Engineers, Machine Learning, Numerical Analysis, Integrated Product Development

SKILLS

Programming Languages: C++, Python, SQL

Libraries: TensorFlow, PyTorch, HF Transformers, vLLM, CUDA

Processing Data: Pandas, NumPy, SciPy, Apache Spark, Airflow, PostgreSQL

Cloud & DevOps: AWS, Flask, Docker

Data Science Skills: Regression Analysis, Feature Engineering, Deep Learning, Time Series Analysis, Model Fine-Tuning, Synthetic Data Generation, Pose Estimation

AWARDS AND RECOGNITION

LocalHost Fellow, *Present* Founder University, *2023* Willie Hobbs Moore: Aspire - Advance, Achieve, *2019*

MLK Student Spirit Award, *2019* Leadership Engagement Scholar, *2019*