Anna Sims

tesims@umich.edu | www.meetinganna.com

EDUCATION

University of Michigan **Ann Arbor, MI**
Bachelor of Engineering in Data Science, Minor in Business May 2025
Coursework: Data Structures & Algorithms, Probability & Statistics for Engineers, Machine Learning, Numerical Analysis, Integrated Product Development

SKILLS

Languages: C++, Python, R, SQL (SQLite, PostgreSQL), UNIX
Big Data: Pandas, NumPy, SciPy, Apache Kafka, Spark, Airflow
ML & AI: TensorFlow, PyTorch, HF Transformers, vLLM, Whisper, Tacotron2
Cloud & DevOps: AWS, Runpod, Model Deployment (Flask, Docke

WORK EXPERIENCE

ByteDance **San Jose, CA**
Innovator Fellow *May 2024 - Present*
- Led the deployment of a cutting-edge 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 25%.
- 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 **Ann Arbor, MI**
XR Developer and Lab Manager Oct. 2022 - Present
- 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

Strategic Reasoning Group **Ann Arbor, MI**
Research Assistant *June 2022 - Aug 2022*
- 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 **New York, NY**
Quantitative Trading Intern *June 2022 - Aug 2022*
- Identified a solution framework to achieve lower latency in the trading system architecture by addressing hybrid-cloud connectivity requirements
- 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"

LEADERSHIP EXPERIENCE

National Society of Black Engineers
- ***President*** - Oversaw the professional development of over 120 engineers and led 9 executive board members, ensuring the collective goals of the board were achieved. Resulted in our chapter being selected as the best in the region

B3
- ***President, Co-founder*** - Coordinated campus-wide career programs, bringing over 40 local high school students from underrepresented communities to the university to learn about academic majors and resources

PROJECTS

AI Party DJ | HackMIT*, In-progress*
- Developed an AI party DJ system that uses computer vision and sentiment analysis to curate personalized playlists and optimize party atmosphere.
- Designed a real-time video processing system using BMF framework and WebSocket streaming from ESP32 cameras for crowd analysis.
- Trained a custom YOLOv9 model for crowd density detection and tracking, incorporating deep sort for object tracking to analyze crowd movements.
- Developed machine learning models for body language and facial expression analysis, enhancing the system's ability to gauge crowd sentiment.
- Engineered a music recommendation system that adjusts playlists based on real-time crowd sentiment analysis and host-defined atmosphere goals.