Ishan Sinha

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ishansinha5.github.io/ishan-sinha-portfolio/

Education

Michigan State University East Lansing, MI
Bachelor of Science in Computer Science | Concentration: Artificial Intelligence *Aug. 2024 – Dec. 2027*
- Minors: Data Science; Computational Math, Science & Engineering; Mathematics | **Michigander Scholar**

Experience

Auto-Owners Insurance Lansing, MI
Software Development Intern *May 2026 – Aug. 2026*
- Optimized enterprise Guidewire Claim Center configurations to ensure high availability and reduce latency for large-scale claims.
- Enhanced backend user update workflows to aggregate relevant data, streamlining the visual presentation of user profiles for internal review.

Facility for Rare Isotope Beams (FRIB) East Lansing, MI
Undergraduate Researcher *Jan. 2026 – Present*
- Engineered a 3D sparse neural network framework, accelerating rare event detection in high-dimensional physical datasets.
- Optimized sparse tensor operations, significantly reducing compute latency for 3D structural analysis.

MSU Unmanned Systems East Lansing, MI
Software Team Lead (C-UASC Campaign) *Nov. 2025 – Present*
- Directed the software execution for autonomous drone missions, deploying an edge-compute stack on an NVIDIA Jetson Orin Nano to actuate payloads via MAVLink telemetry.
- Programmed autonomous flight paths and engineered a post-flight forensics parser to ingest binary DataFlash logs, securing 3rd place in both Package Delivery and Circuit Time Trial.
- Developed custom spherical math algorithms to process geospatial data, resolving waypoint navigation errors down to a 0.55-meter accuracy to secure 4th place in Waypoint Navigation.

Projects

OpticHash | *Java (Spring Boot), C++, PyTorch, FastAPI, Docker, Nginx*
- Architected a decoupled B2B microservices network using a Java Spring Boot API Gateway and Nginx proxy to stream multi-part payloads across multi-stage Docker containers.
- Authored a native C++ microservice utilizing OpenCV to evaluate structural geometry, generating O(1) Perceptual Hashes (pHash) that shield downstream ML nodes from redundant processing.
- Compressed an edge-focused PyTorch MobileNetV3 model via INT8 dynamic quantization, slashing VRAM footprint by 75% while achieving low-latency inference profiled at 58.6M FLOPs.

NBA Finals NLP Predictor | *Python, PyTorch, Hugging Face (RoBERTa, Whisper), ChromaDB, Scikit-Learn*
- Built an end-to-end RAG pipeline utilizing ChromaDB and semantic chunking to parse 1000+ media transcript snippets, achieving zero-error accuracy predicting the outright series champion and exact final game length.
- Processed post-game media transcripts through a custom RoBERTa pipeline to map 7-dimensional emotional feature vectors, tracking team momentum and coaching anxiety profiles.
- Deployed a lightweight Random Forest architecture to optimize tabular text features, ensuring full model explainability and low-compute local inference while preventing overfitting.

Technical Skills

Languages: Python, Java, C/C++, C#, JavaScript, SQL, HTML/CSS
Frameworks: PyTorch, Scikit-Learn, Hugging Face (RoBERTa, Whisper), Spring Boot, FastAPI, ChromaDB, OpenCV, TensorRT
Proficiencies: RAG pipelines, Microservices Architecture, Compute Optimization, Unsupervised Learning
Tools: Git, GitHub, Docker, Nginx, CI/CD, MAVLink, REST APIs, Linux/Unix