

# Ernesto Ibanez Jr.

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## EDUCATION

<b>Arizona State University</b> <i>M.S. Robotics and Autonomous Systems (AI)</i>	Tempe, AZ Aug. 2026 – Dec 2027
<b>Arizona State University</b> <i>Bachelor of Science in Computer Science</i>	Tempe, AZ Jan. 2024 – Dec. 2025

• **Grades:** 4.0 GPA

• **Scholarships:** Graduate College Accelerated Master's Scholarship

• **Grades:** 3.97 GPA, Dean's List

## EXPERIENCE

<b>Rubitection Inc.</b> <i>AI/ML Intern</i>	September 2024 – December 2024 Remote
• Developed a <b>Selenium-based web scraping tool</b> , <b>expanding the companies dataset by 2x</b> for future machine learning applications.	
• Designed and implemented a high-accuracy image classification model using <b>PyTorch</b> and <b>transfer learning</b> , achieving <b>95.83% accuracy, 94.03% precision, recall, and F1-scores</b> to effectively distinguish between clean and invalid images.	
• Collaborated on building a <b>Flask web application</b> integrated with <b>AWS SageMaker</b> , facilitating image uploads and laying the groundwork for an advanced image segmentation model, while gaining proficiency in cloud services and deployment.	

## PROJECTS

<b>ASU Capstone Management Platform</b>   <i>Next.js, MySQL, Docker, Node.js, TypeScript</i>	
• Collaborated with a team of 6 students and a faculty member to develop and deploy a CS/CSE Capstone platform <b>used by 400+ students, 50+ sponsors, and faculty</b> to manage project proposals, seminar submissions, and student assignments.	
• Built admin dashboards for reviewing and approving proposals, managing assignments, and tracking unassigned students — <b>cutting faculty manual workload by about 86%</b> .	
• Containerized the application using Docker and <b>deployed it for real-world use on ASU's infrastructure</b> , achieving stable performance and smooth live testing feedback.	
<b>MiniGPT</b>   <i>Python, PyTorch</i>	
• <b>Architected</b> a decoder-only <b>Transformer</b> language model from scratch in <b>PyTorch</b> , implementing core components including <b>Multi-Head Self-Attention, Layer Normalization, and Positional Embeddings</b> .	
• <b>Engineered</b> a custom <b>Byte-Pair Encoding (BPE)</b> tokenizer with <b>GPT-4 style regex splitting</b> , optimizing vocabulary generation and compression ratios for efficient text processing.	
• Created a high-performance training loop with batch processing and <b>GPU acceleration (MPS/CUDA)</b> , optimizing data throughput for large-scale text datasets.	
<b>Distributed AI Training Platform</b>   <i>Python, PyTorch, Flask, JavaScript</i>	
• <b>Architected and developed</b> a distributed machine learning training platform using PyTorch DistributedDataParallel (DDP), enabling parallel processing across 3 worker nodes to <b>accelerate model training by up to 60%</b> compared to non-distributed approaches.	
• <b>Engineered RESTful API with Flask</b> backend featuring real-time training status polling, parameter validation, and comprehensive error handling for robust client-server communication.	
• <b>Implemented neural network architecture</b> from scratch using <b>PyTorch</b> , achieving <b>95%+ accuracy</b> on MNIST digit recognition with configurable hidden layers and ReLU activation functions	

## TECHNICAL SKILLS

**Languages:** Java, Python, C/C++, SQL, JavaScript/TypeScript, HTML/CSS

**Frameworks:** React, Node.js, PyTorch

**Developer Tools:** Git, Postman, Google Colab, Jupyter Notebook, Linux, Docker