

Jeremy Acheampong

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Education

University of Michigan - Ann Arbor

Master of Science in Robotics

Ann Arbor, MI

August 2024 - December 2025

Relevant Coursework: Math for Robotics, Programming for Robotics, 3D Robot Perception, Robotic Systems Laboratory, Artificial Intelligence Foundations, Advanced Computer Vision, Self Driving Cars

Capital University

Bachelor of Arts in Mathematics

Bexley, OH

August 2020 - May 2024

Relevant Coursework: Intro to Computer Science, Algorithms and Data Structures, Intermediate Statistics, Introduction to Data Science, Linear Algebra, Calculus I-III, Differential Equations and Dynamical Systems

Work Experience

Graduate Research Assistant – Mapping and Motion Lab

Jan 2025 - Dec 2025

University of Michigan

Ann Arbor, MI

- Built a semantic grasping pipeline for the Boston Dynamics Spot robot by integrating Grounding DINO for detection and LGD/GraspAnything++ for grasp pose generation.
- Implemented routines for manipulating rigid and deformable objects (including wire harnesses), with a VQA-based check to verify placement and trigger re-grasping.
- Built a grasping system for Spot in NVIDIA Isaac Sim using AnyGrasp as part of an Interactive Object Search framework.

Software Development Engineer Intern

May 2025 - July 2025

Amazon AWS

Arlington, VA

- Built a scalable policy validation system using Apache Spark on AWS EMR to process authorization policies, ensuring data integrity during system upgrades.
- Designed a distributed pipeline with DynamoDB, S3, and Step Functions to validate policies against evolving schema versions, enabling early detection of issues.
- Collaborated with product managers to deliver validation infrastructure that supports upcoming customer-facing features, improving system reliability.

AI/ML Research Intern

May 2024 - August 2024

Air Force Research Laboratory

Dayton, OH

- Developed an algorithm for augmenting real, small-scale, and synthetic datasets for CNN training.
- Evaluated models trained on various data combinations to study generalization and classifier performance.
- Built a model assessment tool for evaluating and optimizing a classifier's accuracy.

Research and Development Intern

July 2023 - August 2023

U.S. Army DEVCOM C5ISR Center

Fort Belvoir, VA

- Trained a YOLOv5 model on 1,000+ annotated LWIR images from FLIR Boson and DVE Wide sensors to detect anti-tank mines and personnel.
- Deployed model inference using PyTorch on Spot's onboard Jetson Orin, enabling near real-time detection with 85% precision and 66% recall.

Selected Projects

A Vision-Language Approach for Zero-Shot Door Handle Detection | Report

- Integrated Grounding DINO for zero-shot detection and ViLT for VQA to interpret door state and handle location.
- Used Boston Dynamics Spot SDK to execute autonomous manipulation, achieving 62.6% detection accuracy within 1 meter without task-specific training.
- Implemented fallback strategies to generalize across multiple door types and partially open door states.

Technical Skills & Other

Languages: Python, C++, R, Kotlin

Tools: Git, Docker, Singularity, Conda, Jupyter, AWS, NVIDIA Isaac Sim

Concepts: Robotics, Computer Vision, Deep Learning, Reinforcement Learning

Security Clearance: Active TS/SCI