Mahmoud Alhihi

Minneapolis,MN • Mahmoudalhihi7@gmail.com • (612)-919-5747 • LinkedIn: [Mahmoud Alhihi](#) • [Portfolio](#) • Github: [MahmoudAlhihi](#)

EDUCATION

Bachelor of Science in Computer Science   Expected Graduation: May 2026
GPA:3.9

Associate of Science in Computer Science
GPA:3.8   August 2022 –August 2024

RELEVANT COURSEWORK

Graduate Level Courses:
CSCI 5521: Machine Learning Fundamentals - Supervised & unsupervised learning, optimization, model selection
CSCI 5527 : Deep learning: Models & Applications - CNNs, RNNs, generative models, reinforcement learning
CSCI 5551: Intelligent Robotic Systems - forward & inverse kinematics, sample based motion planning

SKILLS

Programming Languages: Python, C++

Frameworks & Libraries: Tensorflow, PyTorch, OpenCV, YOLOv8, Scikit-learn, ROS2, Gazebo, FastAPI, MLflow, Numpy, pandas

Concepts: Deep Learning, Transfer Learning, Hyperparameter Tuning, Overfitting & Regularization, End-to-End ML pipelines, Object Detection, Semantic Segmentation, Data Augmentation, Vision Transformers, Model Evaluation , Kinematics, Motion Planning

Tools & Platforms: Docker, Git, GitHub Actions (CI/CD), Google Colab, AWS (EC2, S3), Linux/Bash

PROJECT EXPERIENCE

Medguard Vision   Dec 2025 – Ongoing

- Designing a hospital-focused computer vision system for real-time safety and threat detection
- Scoping datasets, model architectures, and deployment strategy for a medical AI pipeline

Skin Cancer Segmentation   Aug 2025 – Ongoing
- Preprocessed medical imaging datasets and applied data augmentation for skin lesion segmentation..
- Designed and trained U-Net-based deep learning models, evaluating performance using segmentation metrics.

Stationary Object Detection (YOLO)   Jul 2025 – Aug 2025
- Collected and annotated a dataset of 226 images to build a custom YOLO object detection dataset.
- Trained and evaluated a YOLOv11s model with automated splitting and deployment-ready export.

Mazebot Autonomous Maze Navigation, CSCI 4551   Nov 2025 – Dec 2025
- Implemented a ROS2 autonomous robot using Sense-Plan-Act architecture in Gazebo simulation
- Designed Bug2-based planning and LiDAR-driven safety nodes for real-time obstacle avoidance

Autonomous Drone Delivery Simulation,   Feb 2025 – May 2025
- Built a C++ drone delivery simulation with real-time navigation and dynamic entity interactions.
- Implemented a SkyReaper module enabling probabilistic drone interception and package theft scenarios.

WORK EXPERIENCE

Tech Assistant for HYflex Classes   Jan 2023 – May 2024
- Provided technical support for hybrid (HyFlex) learning environments, maintaining 100% system uptime.
- Assisted faculty and students with Zoom, Microsoft Teams, and Canvas LMS, streamlining hybrid learning.

Peer Mentor for First Year Students   Aug 2023 – May 2024
- Mentored 20+ first-year students, guiding them on course selection, study strategies, and academic planning.
- Supported student integration through campus tours, networking sessions, and peer guidance activities.

Teaching Assistant (CSCI 3923: Ethics in Computing) , (CSCI 4511W: Introduction to Artificial Intelligence)   Sep 2025 – Present
- Assisting professors with grading, discussion sections, and evaluation of student coursework.
- Explaining complex AI concepts and supporting students during office hours with structured problem-solving guidance.

RESEARCH EXPERIENCE

Comparative Analysis of CNNs and Vision Transformers for Medical Imaging,   Sep 2025 – Dec 2025
- Preprocessed X-ray, lung cancer, and colon cancer imaging datasets, applying normalization, resizing and augmentation
- Implemented and trained CNN, ResNet18, and ViT-B/16 models using PyTorch with controlled training protocols.
- Evaluated model performance and generalization using accuracy, precision, and confusion matrices.