MD ABU SAYED

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OBJECTIVE

Seeking a machine learning engineer internship to apply advanced research experience and technical expertise in ML/DL to solve real-world challenges and contribute to innovative solutions.

EDUCATION

University of Nevada, Reno Expected: Dec '25
Doctor of Philosophy in Computer Science and Engineering
- *Major Courses:* Introduction to Machine Learning, Fundamentals of Deep Learning, Stochastic Deep Learning, Mass Detection in Mammograms, Advanced Bioinformatics, Autonomous Mobile Manipulation, etc.

University of Nevada, Reno '21 - '23
Master of Science in Computer Science and Engineering
- ***Thesis:*** Threatmap: A Framework for Enhancing Security Awareness and Decision-Making for Naval Agents

SKILLS

Programming	Python, C/C++ (Proficient), Java, C#
Machine Learning and Computer Vision	OpenCV, Keras (Proficient), Tensorflow, Pytorch, MATLAB
Simulation/Game	Unity, C#, Python
Web Development	PHP, MySQL, JavaScript, SQL

RESEARCH AND PROJECTS

Threatmap: Framework for Enhanced Naval Security Awareness *Unity, Shader, Python*
- Designed and implemented a real-time framework to enhance situational awareness and threat prediction for naval agents using machine learning algorithms.
- Designed realistic agent models that include systems for sensing and defense and their structured coverage areas.
- *Published* in *Proceedings of the Conference on Harbor, Maritime and Multimodal Logistic Modeling & Simulation.*

NavySim: Multi-Vessel Simulation and Analysis Engine *Unity, C#, Shader, Python*
- Created NavySim, a simulation engine for advanced naval research, enabling analysis and modeling of multiple vessels in complex scenarios.
- Utilized HMMs, LSTMs, Threatmap, and other intent recognition algorithms to provide real-time prediction of vessel intent in the presence of coordinated groups/swarms of adversarial ships/boats.
- *Published*: *IEEE Conference on Games '24* and under-review: *IEEE Transactions on Games*, *CASE'25.*

Retinal Blood Vessel Segmentation *Matlab*
- Implemented models integrating supervised and unsupervised learning techniques to increase segmentation precision.
- Designed Local Haar Pattern descriptor to extract features that can act to encode ad-hoc domain knowledge.
- *Published*: *IET Image Processing'20* jorunal and *AIME'19*, *IbPRIA'19* conferences.

Dynamic Resource Allocation and Risk Minimization in Maritime Environments *Unity, C#, Python*
- Developed a novel Genetic Algorithm based resource allocation framework for ship security focusing on visual analytics and multi-objective optimization.
- Conducted an extensive evaluation of resource allocation techniques in complex, real-world maritime scenarios.
- *Published*: *ICINCO'23*, Under Review: *ICINCO Lecture Note Series.*

Fusion of Multimodal Mammogram Views to Detect Breast Cancer *Tensorflow, Pytorch, GitHub*
- Used graph convolution to learn to reason bilateral and ipsilateral views of the breast and detect mass.
- Introduced a geometric architectural distortion data augmentation scheme to reason temporally to localize changes in breast mass and calcification.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant *Aug '21 – Present*
University of Nevada, Reno Reno, NV
- Developed a framework to: 1) design a more realistic agent model that includes systems for sensing and defense and their structured coverage areas, 2) recognize intent in the presence of coordinated groups/swarms of adversarial agents, 3) enable detection of both overt and deceptive intent, and 4) provide recommendations for actions that minimize/reduce potential threats.
- Developed a Unity-based naval simulator for generating complex scenarios, enabling preliminary testing of concepts and algorithms that can subsequently be applied to navy vessels.
- Worked closely with a naval security company to validate and deploy models in water boats.
- *Future Direction*: Intent Recognition in Human-Robot Collaboration space

Graduate Teaching Assistant Aug '21 – Present
University of Nevada, Reno Reno, NV
- CS 477/677: Analysis of Algorithms [Fall 2021, Spring 2022, Fall 2024]
- Grading and Assisting with homework, exams, and/or written assignments
- Holding office hours and meeting with students

Lecturer Jun '19 – Jul '21
The Millennium University Dhaka, Bangladesh
- *Instructed courses:* Structured Programming, Data Structure, Artificial Intelligence & Neural Networks, etc.
- *Responsibilities:* Lecture planning, taught and instructed courses, assessing students, holding office hours, invigilating examinations, supervising application development projects, etc.

RESEARCH INTEREST

Machine Learning, Deep Learning in Intent Recognition, Human-Robot Interaction, Medical Image Analysis, Computer Vision, etc.

EXTRACURRICULAR ACTIVITIES

Graduate Student Association | *Council Member* Feb '24 - Present
- **Chair** of the *GSA Awards Committee*
- Representing the College of Engineering at GSA as a council member
- Serving in the *Funding and Community Relation (FCRC)*, *Service Committee*

Intenational Students Club | *Vice President* May '23 - Present
- *Night of All Nations:* Arranged one of the biggest multicultural events at UNR facilitating 32 countries and attracting around 600 people
- *Monthly Meetup:* Arrange monthly fun events for international students to socialize
- *GSA Club:* Keeping the standard for a Graduate Student Association recognized club

Google Developer Group Campus | *Co-Lead* Aug '24 - Present
- Organized the DevFest in collaboration with GDG Reno in Nov '24.
- Around 30 students and developers signed up for our very first event.

MOOCS & TRAININGS

Deep Learning Specialization (5 Courses) by Andrew NG *DeepLearning.ai, Coursera*
Mathematics for Machine Learning Specialization *Imperial College, London; Coursera*
Generative Adversarial Networks (GANs) *DeepLearning.ai, Coursera*