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Eyad Gad

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Work & Relevant Experience

AI Research Assistant — **May 2025 — Present**
NORDIK Institute — *Sault Ste. Marie, Canada*
- My work focuses on constructing a Financial Stress Index based on unstructured data

Graduate Teaching & Research Assistant — **Sep 2023 — Dec 2024**
The University of Western Ontario — *London, Canada*
- **TA** for Computer Networks, Python, and Java courses.
- As a **TA**, developed automated testing frameworks in C++, improving grading efficiency by 60% for 200+ students.
- Reviewed Federated Learning challenges in IoT networks and developed a comparative approach in cybersecurity.
- Proposed a novel Deep Learning training optimization, reducing training time by 72% with only 1.6% accuracy loss.

Intern Researcher — **Feb 2022 — May 2023**
Centre for Informatics Sciences — *Giza, Egypt*
- Conducted two research studies on detection of Alzheimer's Disease (AD) and segmentation of Breast Cancer (BC).
- Improved the accuracy of a baseline published study on AD by 10% and published a paper at MEDI.
- Utilized a segmentation CNN model for BC ultrasound in FL by accuracy of 96%, and published a paper at MIUA.

Intern AI & Embedded Software Developer — **Jun 2021 — Sep 2021**
Delta Care — *Cairo, Egypt*
- Implemented a temperature controller in C to regulate sperm temperature.
- Optimized interprocess communication for Python with C, and C++ with C by reducing response delay by 78%.
- Utilized YoloV5 and DeepSort for detecting and tracking sperm movement in motility analysis by accuracy of 91%.
- Utilized MaskRCNN for performing instance segmentation on sperms in morphology analysis by accuracy of 87%.

Education

Master of Science in Computer Science, *The University of Western Ontario, Canada* (Grade: **87%**) — **Sep 2023 – Dec 2024**
Bachelor of Applied Science in Computer Engineering, *Nile University, Egypt* (GPA: **3.51**) — **Sep 2018 – May 2023**

Selected Publications

Explore more papers at scholar.google.com/citations?user=Vmjcp8gAAAAJ

REDUS: Adaptive Resampling for Efficient Deep Learning in Centralized and Federated IoT Networks	ICC2025
Communication-Efficient and Privacy-Preserving FL Via Joint Knowledge Distillation and Differential Privacy	TVT2024
A Robust Federated Learning Approach for Combating Attacks Against IoT Systems Under non-IID	SmartNets2024
A Novel Approach to Breast Cancer Segmentation using U-Net with Attention Mechanisms and FedProx	MIUA2023
Deep Learning-Based Context-Aware Video Content Analysis on IoT Devices	Electronics MDPI2022
A Novel Diagnostic Model for Early Detection of Alzheimer's Disease based on Clinical and Neuroimaging	MEDI2022

Selected Projects

Explore more projects at github.com/eyadgad

Computer Vision	Brain Tumor Segmentation via 3D UNet and Digital Image Processing
	Advanced Lane Detection Based on Digital Image Processing
	Detected Alzheimer's Disease Based on Clinical and Neuroimaging
Federated Learning & Data Science	Breast Cancer Segmentation Using UNet and FedProx
	Federated Learning Based IoT Attack Detection in IID and Non-IID
Computer Systems & Networking	GUI-Based Shopping System with Database Integration
	Designed IoT-Based Smart Home System with Cloud Interface
	Implemented IoT-Based LED Control System
	Multi-Node Messaging System Using Sockets and Threading

Skills

Programming Languages	Python, C/C++, Java, SQL
Data Science & AI	Data Science, Computer Vision, Federated Learning, LLM
Backend & Cloud	Flask, Django, FastAPI, PySpark, Git, GCP, AWS, Docker
Computer Systems	Embedded Systems, IoT, IC Digital Design
Computing & Networking	Socket Programming, Parallel Computing, Threading, Multiprocessing