

# Bahaa-Elden Ali Abd Elghany

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Teaching Assistant in Computer Science & Researcher in Artificial Intelligence Federated Learning  
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## Accomplishments & Achievements

1. **M.S.c Degree in Computer Science 2024** : Graduated with M.Sc. Degree in Computer Science: Excellent with Honours.
2. **Best Paper Award at ICCTA 2022** for publication on "Scheduling and Communication Schemes for Decentralized Federated Learning." Abstract
3. **Judge at ISEF 2024**: Evaluated innovative AI and embedded systems projects, showcasing your expertise in technology and innovation.

## Talks

- **2023**: Flower Monthly - Scheduling and Communication Schemes for Decentralized Federated Learning (Flower Monthly 2023-09 - YouTube)

## Work Experience

- **2019 - Present**: Graduate Teaching Assistant at AASTMT in College of Computing & Information Technology
  1. Teaching Experience in more than 9 Courses: Problem-Solving in C/C++, Python, Data Structures, Object-Oriented Programming (Java), Computing Algorithms, Embedded Systems, Computer Graphics, and Robotics Applications.
  2. The Coaching Team at Egyptian Collegiate Programming Contest , Africa & Arab Programming Championship 4 years
  3. Academic Advisor for Undergraduate Students
  4. Organizing Scientific Events and Workshops
  5. Providing Technical Support for Graduation Projects
- **2023** IoT Engineer / Freelancer / ROOT-Technologies (Startup)
  - WE-CARE: A system designed for parents to monitor and track school buses through mobile applications connected with Raspberry Pi, Camera, and GPS Module.
- **2021–2022**: Python Developer - Lavia Company
  - El-Wakeel Project: Ticketing system for clients to request services from el-Wakeel factory. Clients order windows and doors of different sizes, shapes, and models through an online system.

## Education

- **2020–2024**: Master Degree in College of Computing and Information Technology, Computer Science Department — AASTMT , Egypt
  - Thesis: Peer-to-Peer Federated Learning – Developed decentralized learning algorithms to improve scalability and efficiency in distributed AI systems.
- **2014 - 2018**: Bachelor of Computing and Information Technology ,Computer Science Department (**1st Class Honours**) - AASTMT , Egypt
  - Graduation Thesis: Smart Robotic Warehouse (Video — ROS & OpenCV)

## Internships & Training

- **2025:** Attending Winter School on Quantum Information and Quantum Computing by the Arab Physics Society (ArPs) and Hurghada University
- **2022 — Present:** Federated Learning Researcher — Atlantic UVigo, Spain
  1. Joint research with professors from the University of Vigo in Spain and AASTMT in Egypt on a project related to federated learning.
- **Sept 2024** China Aid-funded Training on Water Supply and Drainage Technology - Suzhou University of Science and Technology (SUST), China
  1. Provided in-depth knowledge on sustainable water systems.
  2. Enhanced environmental engineering practice expertise.
  3. Gained experience exploring AI's applications in real-world environmental challenges.

## Personal Skills

**Languages:** Arabic (Mother tongue), English (B2 — Duolingo Test Certified, Score: 105), Spanish (A2)

## Technical Skills

**Programming Languages & Frameworks:** Python, TensorFlow, TensorFlow Federated, PyTorch, FLWR, Django, FastAPI, ROS — Robotics Operating System, Raspberry Pi, Scratch, Arduino, PyGame, Java, Java Swing, JavaScript, P5.js, Node.js, C, Open-GL, Arduino C, C++, HTML & CSS, Linux, and PHP.

**Communication Skills:** Collaborative Working, Work under pressure, Effective Speaker and Presenter

## Volunteering Activities

1. Served as a judge at ISEF **2024** in Aswan, Egypt, evaluating innovative AI and embedded systems projects by talented young innovators tackling real-world challenges
2. Volunteer at IT Committee IEEE AAST Student Activity [2016]
3. Instructor for teaching robotics/programming to kids by Robotak Project [2022] — Arduino Robotak Workshop for Kids (AAST With Ministry of Communications and Information Technology)

## Presentations & Tutorials

1. Artificial Intelligence & Computational Reasoning (Theory of Complexity)
2. Medical Expert System Covid-19 Diagnosis (Source Code) - Documentation Presentation
3. Embedded System : ARM 32 Processor Introduction, instruction code and How it works !
4. Automated Detection of COVID-19 Cases Using Deep Neural Networks with X-ray images
5. Robotics Operating System as Robotics Research Tool
6. Data Security : RSA Encryption Algorithm
7. Advanced AI : Introduction to Neural Networks for Newbie
8. Distributed Systems : Introduction
9. Structure of Programming Languages : Prolog
10. Covid-19 & Penomunioia Detection Using Resnet-50

## Courses & Participation

1. Academic Information Seeking (Coursera).
2. First Place in Aswan Robotics Competition Phase 3 (ARC 3) & Third Place in Computer Programming Contest (CPC) hosted by Aswan University.