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# Asmaa Hammad Elsayed

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## **Affiliation:**

**Dr. Asmaa Hammad,**  
**Doctor of Computer Science,**  
**Faculty of Computers & Information,**  
**Minia University, Minia, Egypt.**

## **Personal Details:**

- **Nationality,** Egyptian
- **Marital Status,** Married
- **Languages,** Arabic and English
- **Address,** Egypt – El-Minia – New Minia City– Al-Motamayez District
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- **E-mail,** [asmaa.hammad@mu.edu.eg](mailto:asmaa.hammad@mu.edu.eg)
- **Last Job Title,** Assistant Professor
- **Academic specification:** Artificial Intelligence

## **Academic Degrees**

- **Ph.D. in Computer Science, June 2024.**  
Faculty of Computers and Information, Computer Science Dept., Minia University, Minia, Egypt.  
*Title: “Brain Computer Interface for Human Emotion Recognition based on Machine learning Techniques”.*
- **M. Sc. in Computer Science June 2018.**  
Faculty of Computers and Artificial Intelligence, Cairo University, Egypt  
*Title: “Application of Swarm Intelligence Optimization for Enhancing Detection of Epileptic Seizures in EEG Signals”.*
- **B. Sc. in Computer Science, June 2013.**
- Faculty of Computers and Information, Computer Science Dept., Minia University, Minia, Egypt.

## **Academic Experience**

- [June 2024 – Present], **Lecturer**, Computer Science Department, Faculty of Computers and Information, Minia University, Egypt.
- [June 2018 – June 2024], **Lecturer Assistant**, Computer Science Department, Faculty of Computers and Informatics, Minia University, Egypt.
- [2013 – 2018] **Teaching Assistant** in Computer Science Department, Faculty of Science, Minia University, Minia, Egypt.

## **Teaching Experience**

- **C# Programming:** Developed and delivered comprehensive coursework covering fundamentals, object-oriented programming concepts, and real-world applications.
- **C++ Programming:** Taught advanced topics including data structures, algorithms, and memory management.
- **Data Structures:** Provided in-depth instruction on linked lists, trees, graphs, and other core structures for efficient data management.
- **Algorithms:** Delivered theoretical and practical lessons on algorithm design, complexity analysis, and optimization techniques.
- **Object-Oriented Programming:** Designed interactive sessions emphasizing principles like inheritance, polymorphism, and encapsulation.
- **Software Engineering:** Guided students through software development lifecycle methodologies, project management, and design patterns.
- **Machine Learning:** Taught supervised and unsupervised learning models, neural networks, and practical applications of AI.
- **Web Development & JavaScript:** Provided instruction on web technologies, including HTML, CSS, JavaScript, and modern frameworks.

- **Fundamentals of Information Technology:** Delivered lectures on computer architecture, operating systems, networking basics, and IT security.
- **Computing Economics:** Explained the economic impact of computing, including cost-benefit analysis and computational resources management.
- **Interpersonal Communication:** Taught effective communication skills, teamwork strategies, and professional interaction techniques in tech environments.
- **Operations Research:** Covered optimization techniques, linear programming, and decision-making models for resource management.

## Research Description

### PhD Thesis description:

- April 2021 – June 2024, PhD degree in the field of "**Artificial Intelligence**" and it is titled "Brain Computer Interface for Human Emotion Recognition based on Machine learning Techniques", in Computer Science Department, Faculty of Science, Minia University, and El Minia, Egypt. This Research is preliminary aiming to:
  - ❑ The global aim of this thesis is to maximize the performance of an emotion recognition system using EEG signals.
  - ❑ Introduce a new feature selection method to identify the optimal subset of EEG features that maximize emotion recognition performance.
  - ❑ Develop a new end to end deep learning model for emotion identification that is able to learn the temporal features while capturing the spatial aspects of the EEG data.
  - ❑ Considering subject-independent EEG-based emotion identification in our proposed models.
  - ❑ Considering both binary and multi class for emotion states.

## Publications

- [1] Houssein, Essam H., Asmaa Hammad, and Abdelmgeid A. Ali. "**Human emotion recognition from EEG-based brain-computer interface using machine learning: a comprehensive review.**" *Neural Computing and Applications* 34, no. 15 (2022): 12527-12557.
- [2] Houssein, Essam H., Asmaa Hammad, Marwa M. Emam, and Abdelmgeid A. Ali. "**An enhanced Coati Optimization Algorithm for global optimization and feature selection in EEG emotion recognition.**" *Computers in Biology and Medicine* 173 (2024): 108329.
- [3] Houssein, Essam H., Asmaa Hammad, Nagwan Abdel Samee, Manal Abdullah Alohali, and Abdelmgeid A. Ali. "**TFCNN-BiGRU with self-attention mechanism for automatic human emotion recognition using multi-channel EEG data.**" *Cluster Computing* 27, no. 10 (2024): 14365-14385.
- [4] Houssein, Essam H., Asmaa Hamad, Aboul Ella Hassanien, and Aly A. Fahmy. "**Epileptic detection based on whale optimization enhanced support vector machine.**" *Journal of Information and Optimization Sciences* 40, no. 3 (2019): 699-723.
- [5] Asmaa Hamad, Essam Houssein, Aboul Ella Hassanien and Aly A. Fahmy, "**Hybrid grasshopper optimization algorithm and support vector machines for automatic seizure detection in EEG Signals**“, *3rd International Conference on Advanced Machine Learning Technologies and Applications (AMLTA2018)* to be held at Cairo, during November 22-24 February 2018.
- [6] Hamad, Asmaa, Essam H. Houssein, Aboul Ella Hassanien, Aly A. Fahmy, and Siddhartha Bhattacharyya. "**A Hybrid Gray Wolf Optimization and Support Vector Machines for Detection of Epileptic Seizure.**" *Hybrid Metaheuristics: Research And Applications* 84, pp. 197-225 (2018).
- [7] Hamad, Asmaa, Essam H. Houssein, Aboul Ella Hassanien, and Aly A. Fahmy. "**A Hybrid EEG Signals Classification Approach Based on Grey Wolf Optimizer Enhanced SVMs for Epileptic Detection.**" *In International Conference on Advanced Intelligent Systems and Informatics*, pp. 108-117. Springer, Cham, 2017.
- [8] Hamad, Asmaa, Essam H. Houssein, Aboul Ella Hassanien, and Aly A. Fahmy. "**Feature extraction of epilepsy EEG using discrete wavelet transform.**" *In 2016 12th international computer engineering conference (ICENCO)*, pp. 190-195. IEEE, 2016.

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**Bio:**

Asmaa Hammad received the M.Sc. degrees in Computer Science, in 2018 from the Faculty of Computers and Artificial Intelligence, Cairo University, Egypt. And received the Ph.D. degree in Artificial Intelligence, in 2024. She is currently a Professor Assistant of Artificial Intelligence at the Faculty of Computers and Information, Minia University, Minia, Egypt. Her research interests include Artificial Intelligence, Deep Learning, Machine Learning, Signal Processing, Brain Computer Interface, Meta-heuristics Optimization Algorithms, and Biomedical Computing.

**Important accounts**

[https://scholar.google.com/citations?hl=en&user=87R\\_YPAAAAAJ](https://scholar.google.com/citations?hl=en&user=87R_YPAAAAAJ)

<https://www.researchgate.net/profile/Asmaa-Hammad->