

Contact**Tel:** +2 (0100) 1172820**E-mail:** rehabfarouk@eng.psu.edu.eg
rehab.farouk@bue.edu.eg**Web Page:** <http://staff.psu.edu.eg/rehabfarouk>**Address**

Faculty of Engineering at Port-Said, Port-Said University, Port-Fouad 42523, Port-Said, Egypt

Education

Ph.D., Computer Science and Engineering, Auburn University, USA, 2003

M.S., Electrical Engineering, Tuskegee University, USA, 1999

B.S., Computer Engineering, Suez-Canal University, Egypt, 1996

Scholarly Ranking**H-Index Scopus (Author ID# 26532393000):** 7 (Access: 23 May 2021)**H-Index ISI Journal Citation Reports©:** 13 (Google Scholar Access: 23 May 2021)**Research Gate© Ranking:** 15.86 (RG Score Access: 23 May 2021)**Research Interests**

- Artificial intelligence
- Image Processing
- Computer Vision
- Big Data

Work Experience

- Working as a ***Part-time Professor*** in the Electrical Engineering Department - Computer Systems Engineering Program at the Faculty of Engineering, British University in Egypt (BUE), Cairo, Egypt, **February 2020- present**
- Working as a ***Professor*** of Electrical & Computer Engineering at the Faculty of Engineering at Port-Said, Port-Said University, Port-Said, Egypt, **September 2018- present**.
- Working as an ***Associate Professor*** of Electrical & Computer Engineering at the Faculty of Engineering at Port-Said, Port-Said University, Port-Said, Egypt, **September 2011 - 2018**.
- Working as an ***Assistant Professor*** of Electrical & Computer Engineering at the Faculty of Engineering at Port-Said, Port-Said University, Port-Said, Egypt, **July 2005 - Present**.
- Working as an ***Assistant Professor*** of Electrical Engineering at the School of Technology, Georgia Southern University, Statesboro Georgia USA, **July 2003 – June 2005**.
- Working as a ***Graduate Teaching Assistant*** at the Computer Science and Software Engineering Department, Auburn University, Alabama, **Aug 2003 - May 2003**.
- Working as an ***Instructor*** at the Electrical Engineering Department, Tuskegee University, Tuskegee, Alabama, **July 1999 – Dec 1999**.
- Working as a ***Graduate Teaching Assistant*** at the Electrical Engineering Department, Tuskegee University, Tuskegee, Alabama.
- Working as a ***Graduate Teaching Assistant*** at the Electrical Engineering Department, Suez-Canal University, Egypt.

Research Grants

- Principle investigator (PI) of Science & Technology Development Fund (STDF) *grant number 42554*, entitled “An AI end-to-end system for Multi-Sensor Pavement Distress Detection”, November 2020.
- Principle investigator (PI) of Master Sponsored Research project with Microsoft Corporation entitled “Adaptive profiling and personalized user/page matching in Community-Based Web Translation Systems” June 15, 2011.
- TEMPUS project Innovations in professional Training in Egypt. IB-JEP-3100-2003

Professional Community/ Editorial Activities

- Member of the certified Egyptian national arbitrators for the Faculty member’s promotion committees. Committee No. 120 “Computers and Systems Engineering”. (Thirteenth session *2020-2022*)
- Member of the Evaluation committee of the Engineering and technological Institutes of the Egyptian Supreme Council of Universities (Eighth session *2019*, ninth session *2020*)

Teaching Experience (In the order of most resent)

British University in Egypt (BUE):

Professor in the Department of Electrical Engineering (February 2020- present). Teaching the following courses:

- Digital image Processing (Spring 2020 - present)
- Human-Computer Interaction (Fall 2020 - present)
- Design/Research Graduation Projects

Port-Said University (Egypt):

Professor in the Department of Electrical Engineering (September 2018 – present). Teaching the following courses:

- Signals and Systems (Fall 2018 - present)
- Microprocessors (Fall 2018 - present)
- Computer Architecture (Spring 2019 - present)

Port-Said University (Egypt):

Assistant Professor in the Department of Electrical Engineering (May 2005 – 2018). Teaching the following courses:

- Algorithms and Data Structures (Fall 2005 - 2018)
- Microprocessors (Fall 2005 – 2018)
- Computer Architecture (Spring 2005 - 2018)
- Digital Signal Processing (Spring 2005 - 2018)

Georgia Southern University (USA):

Assistant Professor in the Engineering Studies Program, (July 2003 – June 2005). Teaching the following subjects including the preparation of online electronic courses:

- Computing for Engineers (Fall 2003-2004)
- Digital Signal Processing (Fall 2003-2004)
- Introduction to Logic Circuits (Fall 2003-2004)
- Digital Design Lab (Spring 2004-2005)
- Circuit Analysis (Spring 2004-2005)
- Served as a member on the ABET Accreditation Committee of the Engineering Studies Program, preparing documentation of evaluating and accrediting the program.

Tuskegee University (USA):

Instructor in the Electrical Engineering Department, (Fall 1999). Teaching the following subjects:

- Electromagnetic Fields I (Fall 1999)
- Communication Theory (Fall 1999)
- Linear Networks and Circuits I (Fall 1999)

Peer Reviewed Journal/Conference Publications

1. "Management of the Physical / Chemical Parameters of Solid Biomass Degradation Using a Data Acquisition System," Rehab F. Abdel-Kader, M. Calahoun, A. Trotman, and H. Aglan, *Society of Automotive Engineers, Technical Paper*, No. 2000-01-2470, July 2000.
2. "Concurrent Scheduling of Multiple Loops Using the Force-Directed Scheduling Algorithm," Rehab F. Abdel-Kader and R. Chapman, *Proc. of the 40th Annual Southeast ACM Conference*, No. 3, pp. 31-37, April 2002.
3. "Data Acquisition System Based Analysis of Damage Energy in CTFEs," Rehab F. Abdel-Kader, and M. El-Hadek, *IASTED Conference on Energy and Power Systems*, Orlando, FL. USA. Nov. 28 – Dec. 2, proceeding #448, paper# 448-097, pp 135 – 140, CD Proceedings, 2004.
4. "Resource-Constrained Loop Scheduling in High-level Synthesis," Rehab F. Abdel-Kader, *Proc. of the 43'rd Annual Southeast ACM Conference*, No. 2. pp. 195-200, March 2005.
5. "Rotation Invariant Face Recognition Based on Hybrid LPT/DCT Features," Rehab F. Abdel-Kader, Rabab M. Ramadan, and Rawya Y. Rizk, *International Journal of Computer Systems Science and Engineering*, Vol. 3, No. 3, pp. 188-193, 2008
6. "Particle Swarm Optimization for Constrained instruction scheduling," Rehab F. Abdel-Kader, *VLSI Design Journal*, Article ID 930610, 7 pages, DOI:10.1155/2008/930610, 2008.
7. "Adaptive Early Packet Discarding Policy Based on Two Traffic Classes," Rawya Rizk, Rehab Abdel-Kader, and Rabab Ramadan, *International Journal of Electrical, Computer, and Systems Engineering (IJECSE)*, Vol. 2, No. 4, pp. 250-257, 2008.
8. "Face Recognition Using Particle Swarm Optimization-Based Selected Features," Rehab F. Abdel-Kader, and Rabab M. Ramadan, *International Journal of Signal Processing, Image Processing and Pattern Recognition*, Vol. 2, No. 2, pp. 51 - 65, 2009.
9. "Particle Swarm Optimization for Human Face Recognition," Rabab M. Ramadan, and Rehab F. Abdel-Kader, *2009 IEEE International Symposium on Signal Processing and Information Technology*, pp. 579-584, December, 2009. DOI: 10.1109/ISSPIT.2009.5407518
10. "A Hybrid Rotation-Invariant Face Recognition System Using Log-Polar Transform," Rehab F. Abdel-Kader, Rabab M. Ramadan, and Rawya Y. Rizk, *2009 IEEE International Symposium on Signal Processing and Information Technology*, pp. 585-590, December, 2009. DOI: 10.1109/ISSPIT.2009.5407517
11. "Genetically Improved PSO Algorithm for Efficient Data Clustering," Rehab F. Abdel-Kader, *Proc 2010 Second International Conference on Machine Learning and Computing (ICMLC 2010)*, pp.71-75, February, 2010.
12. "Orientation of Multiple Principal Axes Shapes Using Efficient Averaging Method," Emad El-Sayed, Rehab F. Abdel-Kader, and Rabab M. Ramadan, *2010 IEEE International Symposium on Signal Processing and Information Technology*, pp.377-381 December, 2010. DOI. 10.1109/ISSPIT.2010.5711815
13. "Hybrid Discrete PSO with GA Operators for Efficient QoS-Multicast Routing," Rehab F. Abdel-Kader, *Ain Shams Engineering Journal*, Vol. 2, pp. 21-31, 2011. DOI:10.1016/j.asej.2011.05.002
14. "Fuzzy Particle Swarm Optimization with Simulated Annealing and Neighborhood Information Communication for Solving TSP," Rehab F. Abdel-Kader, *International Journal of Advanced Computer Science and Applications*, Volume 2, No. 5, pp. 15- 21, May 2011.
15. "QASYO: A Question Answering System for YAGO Ontology," Abdullah M. Moussa and Rehab F. Abdel-Kader, *International Journal of Database Theory and Application*, Vol. 4, No. 2, pp. 99-112, June, 2011.
16. "Rotation-Invariant Pattern Recognition Approach Using Extracted Descriptive Symmetrical Patterns," Rehab F. Abdel-Kader, Rabab M. Ramadan, Fayez W. Zaki, and Emad El-Sayed, *International Journal of Advanced Computer Science and Applications (IJACSA)*, Vol. 3, No. 5, pp. 151-158, 2012.
17. "3D Face Compression and Recognition using Spherical Wavelet Parametrization," Rabab M. Ramadan and Rehab F. Abdel-Kader, *International Journal of Advanced Computer Science and Applications (IJACSA)*, Vol. 3, No.9, pp. 1-11, 2012.
18. "A PSO-Based Subtractive Data Clustering Algorithm," Mariam El-Tarabily, Rehab Abdel-Kader, Mahmoud Marie, and Gamal Abdel-Azeem, *International Journal of Research in Computer Science*, Vol. 3, No. 2, pp. 1-9, 2013.
19. "An efficient eye detection and tracking system based on particle swarm optimization and adaptive block-matching search algorithm." Rehab F. Abdel-Kader, Randa Atta, and Sheren El-Shakhabe. *Engineering Applications of Artificial Intelligence*, Vol. 31, pp. 90-100, 2014.
20. "A boundary-based approach to shape Orientability using particle swarm optimization." Rehab Abdel-Kader, Rabab Ramadan, Fayiz W. Zaki, Emad El-Sayed, *Signal, Image and Video Processing*, Vol. 8, pp. 779-788, 2014.
21. "Single Pass Dependent Bit Allocation for Spatial Scalability coding of H.264/SVC." Randa Atta, Rehab Abdel-Kader, and Amara Abd-Al Rahem, *Proc. Of EUSIPCO 2014: 22'th European Signal Processing Conference*, pp. 251-255, 2014.
22. "A Hybrid Color Image Quantization Algorithm Based on k-Means and Harmony Search Algorithms." Asmaa Khaled, Rehab F. Abdel-Kader, and Mohamed S. Yasein. *Applied Artificial Intelligence*, Vol. 30, no. 4 (2016): pp. 331-351.
23. "Image Compression Using Advanced Optimization Algorithms." Mohamed E. Emara, Rehab F. Abdel-Kader, and Mohamed S. Yasein. *Journal of Communications* Vol. 12, No. 5, May 2017, pp. 271-278.

24. "Plane detection in 3D point cloud using Octree-balanced density down-sampling and iterative adaptive plane extraction." Emad El-Sayed, Rehab F. Abdel-Kader, Heba Nashaat, and Mahmoud Marei. *IET Image Processing*, Vol. 12, No. 9, pp. 1595 – 1605, 2018.
25. "An improved PSO algorithm with genetic and neighborhood-based diversity operators for the job shop scheduling problem." Rehab F. Abdel-Kader, *Applied Artificial Intelligence*, Vol. 32, No. 5, pp. 433-462, June 2018.
26. "Optimizing Dynamic Multi-Agent Performance in E-Learning Environment." Mariam M. Al-Tarabily, Rehab F. Abdel-Kader, Gamal Abdel-Azeem, and Mahmoud I. Marie, *IEEE ACCESS*, Vol. 6, pp. 35631-35645, June 2018.
27. "Efficient density-based down-sampling algorithm using two-level spatial partitioning technique Emad El-Sayed, Rehab F. Abdel-Kader, Heba Nashaat, Mahmoud Marei, *12th International Conference of the African Association of Remote Sensing of the Environment*, 25-29 October, 2018, Sensing
28. "Spatially-Varying Blur Estimation from a Single Image," El-Shekheby, Shereen, Rehab Abdel-Kader, and Fayez Wanis. *IET Image Processing*, Vol. 13, No. 5, pp. 746 - 753, 2019.
29. "Restoration of Spatially-Varying Motion-Blurred Images," El-Shekheby, Shereen, Rehab Abdel-Kader, and Fayez Wanis, *In proc. of 13th International Conference on Computer Engineering & Systems (ICCES)*, Dec. 2018, pp. 595-600.
30. "Restoration of Spatially Varying Defocus-Blurred Images," El-Shekheby, Shereen, Rehab Abdel-Kader, and Fayez Wanis, *IRACST - International Journal of Computer Science and Information Technology & Security (IJCSITS)*, ISSN: 2249-9555, Vol.9, No.3, May-June 2019, pp. 1-6.
31. "A Super-Learner Ensemble of Deep Networks for Vehicle-Type Classification," Mohamed A. Hedeya, Ahmad H. Eid, Rehab F. Abdel-Kader, *IEEE Access*, Vol. 8, 2020. doi: 10.1109/ACCESS.2020.2997286

Academic Reviewing Activities

Served on the following journals as an **Academic Peer Reviewer**:

Journal name, Publisher	Impact Factor JCR @ Clarivate Analytics (Formerly Thomson Reuters) 2019	Starting Date	Number of Reviewed Papers
<i>IET Image Processing</i> , IET	2.004	July, 2017	15
<i>Signal, Image and Video Processing</i> , Springer	1.794	July, 2013	14
<i>IET Intelligent Transport Systems</i> , IET	2.05	October, 2018	7
<i>IEEE Access</i> , IEEE	4.64	July, 2019	2
<i>Pattern Recognition</i> , Elsevier	7.196	August, 2019	2
<i>IEEE Transactions on Cybernetics</i> , IEEE	5.131	October, 2017	1
<i>Ain Shams Engineering Journal</i> , Elsevier	1.949	November, 2016	1
<i>Electronics Letters</i> , IET	1.343	September, 2018	1
<i>Machine Vision and Applications</i> , Springer	1.605	September, 2016	1
<i>IET Computer Vision</i> , IET	2.36	June, 2018	1
<i>Computational Intelligence</i> , Wiley	1.196	January, 2013	1

Academic Publications

List of Journals & Impact Factors

<u>No</u>	Journal Title, Publisher	Impact Factor of Journal (2019)	Sum of Impact Factors
1	<i>Engineering Applications of Artificial Intelligence</i> , Elsevier	4.201	4.201
2	<i>Signal, Image and Video Processing</i> , Springer	1.794	1.794
3, 4	<i>Applied Artificial Intelligence</i> Taylor & Francis	0.988	0.988 × 2 = 1.976
5	<i>Journal of Communications Engineering and Technology Publishing</i>	SJR= 0.15	SJR= 0.15
6, 7	<i>IET Image Processing</i> , IET	2.004	2.004 × 2 = 4.008
8, 9	<i>IEEE Access</i> , IEEE	4.64	4.64 × 2 = 9.28
10	<i>VLSI Design</i> , Hindawi Publishing Corporation	0.56	0.56
11	<i>Ain Shams Engineering Journal</i> , Elsevier	1.949	1.949
<u>Total Impact Factor</u>			JCR:23.768

Graduate Students Supervision and Research Topics

Doctor of Philosophy

- Eng. Shereen El-Shekheby, "Performance Enhancement of Image Restoration Algorithms in Blurred Images ", **June (2019)**.
- Eng. Emad El-Sayed, "Using data reduction techniques for solving point cloud segmentation problems ", **December (2018)**.
- Eng. Mariam Al-Tarabely, "Optimizing Intelligent Agent Performance in E-learning Environment", **August (2018)**.

Master of Science

- Eng. Mohamed Emara, "Image Compression using Advanced Optimization Algorithms", **October (2017)**.
- Eng. Asmaa Al-Sayed, "Optimization Techniques for Color Image Compression", **January (2016)**.
- Eng. Ahmed Sarkho, "Optimizing Lifetime Performance in Wireless Sensor Networks", **May (2016)**.
- Eng. Amara Abd-Al Rahem, "Rate Control Algorithm for Scalable Video Coding", **March (2015)**.
- Eng. Shereen El-Shekheby, "Eye Detection and Tracking using Optimization algorithms", **May (2013)**.
- Eng. Mohamed Tobel, "Optimization Algorithms for Wireless Computer Networks", **May (2013)**.
- Eng. Emad El-Sayed, "Rotation-Invariant Pattern Recognition Approach Using Extracted Descriptive Symmetrical Patterns", **September (2012)**.

Published Technical Reports, Dissertations, and Thesis

- Rehab F. Abdel-Kader, Ph.D. Dissertation, "***Concurrent Scheduling of Multiple Loops Using the Force-Directed Scheduling Algorithm*** ", Auburn University, AL, USA, (2003).
- Rehab F. Abdel-Kader, M.Sc. Thesis, "***Development of a Microprocessor Based Data Acquisition System (DAS) For the Management of the Physical and Chemical Parameters of an Aerobic Biodegradation Process***", Tuskegee University, AL, USA, (1999).

Professional Society Activities

- Member, Egyptian Engineering Syndicate, Electrical Engineering Branch since 1997.
- Member, Institute of Electrical and Electronic Engineers (IEEE) since 1999.
- Member, International Association of Computer Science and Information Technology (IACSIT)