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Affiliation:

Prof. Dr. Essam Halim Houssein,
Professor of Artificial Intelligence,
Dean of Faculty of Computers & Information,
Minia University, Minia 61519, Egypt.

Personal Details:

- Nationality: **Egyptian**
- Marital Status: **Married**
- Languages: **Arabic and English**
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- Last Job Title: **Full Professor**
- Academic specification: **Artificial Intelligence**

Awards:

- 2024, Highly Ranked Scholar - Prior Five Years, ScholarGPS
- 2023, Highly Cited Researcher in the field of Cross-Field
- 2024, Top 2%, researcher list of Stanford University, USA
- 2023, Top 2%, researcher list of Stanford University, USA
- 2022, Top 2%, researcher list of Stanford University, USA
- 2021, Top 2% researcher list of Stanford University, USA
- 2024, First rank in publishing Q1 (web od science) from Minia University
- 2023, First rank in publishing Q1 (web od science) from Minia University
- 2022, First rank in publishing Q1 (web od science) from Minia University
- 2021, First rank in publishing Q1 (web od science) from Minia University

Academic Accounts

Metrics	ID	H-index	Publications	Citations
Web of Science	https://www.webofscience.com/wos/author/record/C-8941-2016	52	247	9,600
Scopus	https://www.scopus.com/authid/detail.uri?authorId=43361385400	59	259	12,717
Google Scholar	https://scholar.google.com/citations?user=UScKJW4AAAAJ&hl=en	68	286	16266
ResearchGate	https://www.researchgate.net/profile/Essam-Houssein	66	319	15,376
Peer Review (Web of Science)	https://www.webofscience.com/wos/author/record/C-8941-2016		353	
ORCID	https://orcid.org/0000-0002-8127-7233		218	

Academic Degrees

- **Full Professor of Artificial Intelligence, Feb 2023.**
- Associate Professor, Computer science, Feb 2018.
Faculty of Computers and Information, Computer Science Dept., Minia University, Minia, Egypt.
- Ph.D. in Computer Science, Jan 2012.
Faculty of Science, Computer Science Dept, Minia University, Minia, Egypt.
Title: "Studying Some Routing Problems of Mobile Ad Hoc Networks using Artificial Ant Colony".
- M. Sc. in Computer Science, Oct 2004.
Faculty of Science, Computer Science Dept, Minia University, Minia, Egypt.
- B. Sc. in Computer Science, June 1997.
Faculty of Science, Computer Science Dept, Minia University, Minia, Egypt.

Academic Experience

- [Feb 2023 – Present], Full Professor of Artificial Intelligence, Computer Science Department, Faculty of Computers and Information, Minia University, Egypt.
- [Feb 2018 – Present], Associate Professor, Computer Science Department, Faculty of Computers and Information, Minia University, Egypt.
- [Sep 2015 – Feb 2018], Lecturer, Computer Science Department, Faculty of Computers and Information, Minia University, Egypt.
- [Jan 2012 – Sep 2015], Lecturer, Computer Science Department, Faculty of Computers and Informatics, Benha University, Egypt.
- [Feb 2010 - 2011], Lecturer Assistant, Computer Science Department, Faculty of Computers and Informatics, Benha University, Egypt.
- [Feb 2008 – Jan 2010], Lecturer Assistant in Computer Science Department, Thebes Higher Institute for Computer and Management Science, Thebes Academy, Cairo, Egypt.
- [1999 – 2007] Teaching Assistant in Computer Science Department, Faculty of Science, Minia University, Minia, Egypt.

Work Experience and Academic position

- **Dean of the Faculty**, [August 2023 – Present], Faculty of Computers and Information, Minia University.
- Department Chair, [August 2023 - Present], Computer Science Dept., Faculty of Computers and Information, Minia University.
- Department Chair, [August 2018- Present], Computer Science Dept., Faculty of Computers and Information, Minia University.
- Vice Dean of Postgraduate studies and research affairs, [Apr 2018 – July 2023], Faculty of Computers and Information, Minia University.
- Department Chair, [September 2018- Present], Computer Science Dept., Faculty of Computers and Information, Minia University.
- Director, Quality Assurance & Accreditation Unit, [April 2011 – September 2015], Faculty of Computers and Informatics, Benha University, Egypt.
- Director, IT Unit, [Sep 2012 - 2015], Faculty of Computers and Informatics, Benha University, Egypt.
- Executive director, Continuous Improvement and Quality for Accreditation Project (8th CIQAP), Faculty of Computers and Informatics, Benha University, Egypt.

Research Description

1- PhD Thesis description:

- May 2006 – Jan 2012, PhD degree in the field of "Artificial Intelligence" and it is titled "Study of Some Routing Algorithms for Ad Hoc Networks Using Ant Colony", in Computer Science Department, Faculty of Science, Minia University, Minia, Egypt.

Publications

A. Editing Books:

- [1] Dulhare, Uma N., and **Essam Halim Houssein**, eds. Deep Learning and Computer Vision: Models and Biomedical Applications. Springer Nature, 2025.
- [2] Dulhare, Uma N., and **Essam Halim Houssein**, eds. Machine Learning and Metaheuristics: Methods and Analysis. Springer Nature, 2023.
- [3] Oliva, Diego, **Essam H. Houssein**, and Salvador Hinojosa. "Metaheuristics in Machine Learning: Theory and Applications." (Studies in Computational Intelligence 967), 2022, Springer.
- [4] **Essam H. Houssein**, Abd Elaziz, M., Oliva, D., Abualigah, L. (eds) Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems. Studies in Computational Intelligence, vol 1038. 2021, Springer, Cham. <https://doi.org/10.1007/978-3-030-99079-4>

B. Published New Algorithms:

- [1] Hu, Gang, Mao Cheng, Essam H. Houssein, Abdelazim G. Hussien, and Laith Abualigah. "SDO: A novel sled dog-inspired optimizer for solving engineering problems." *Advanced Engineering Informatics* 62 (2024): 102783.
- [2] Houssein, Essam H., Diego Oliva, Nagwan Abdel Samee, Noha F. Mahmoud, and Marwa M. Emam. "Liver Cancer Algorithm: A novel bio-inspired optimizer." *Computers in Biology and Medicine* (2023): 107389.
- [3] Hashim, Fatma A., Essam H. Houssein, Kashif Hussain, Mai S. Mabrouk, and Walid Al-Atabany. "Honey Badger Algorithm: New metaheuristic algorithm for solving optimization problems." *Mathematics and Computers in Simulation* 192 (2022): 84-110.
- [4] Hashim, Fatma A., Kashif Hussain, Essam H. Houssein, Mai S. Mabrouk, and Walid Al-Atabany. "Archimedes optimization algorithm: a new metaheuristic algorithm for solving optimization problems." *Applied Intelligence* 51, no. 3 (2021): 1531-1551.
- [5] Houssein, Essam H., Mohammed R. Saad, Fatma A. Hashim, Hassan Shaban, and M. Hassaballah. "Lévy flight distribution: A new metaheuristic algorithm for solving engineering optimization problems." *Engineering Applications of Artificial Intelligence* 94 (2020): 103731.
- [6] Hashim, Fatma A., Essam H. Houssein, Mai S. Mabrouk, Walid Al-Atabany, and Seyedali Mirjalili. "Henry gas solubility optimization: a novel physics-based algorithm." *Future Generation Computer Systems* 101 (2019): 646-667.

C. Published publications:

2025

Journal Papers

- [7] Emam, Marwa M., Hoda Abd El-Sattar, Essam H. Houssein, and Salah Kamel. "Optimized design and integration of an off-grid solar PV-biomass-battery hybrid energy system using an enhanced educational competition algorithm for cost-effective rural electrification." *Journal of Energy Storage* 120 (2025): 116381.
- [8] Zhang, Yujun, Zihang Zhang, Rui Zhong, Jun Yu, Essam H. Houssein, Juan Zhao, and Zhengming Gao. "Under complex wind scenarios: Considering large-scale wind turbines in wind farm layout optimization via self-adaptive optimal fractional-order guided differential evolution." *Energy* 323 (2025): 135866.
- [9] Çelik, Emre, Essam H. Houssein, Mahmoud Abdel-Salam, Diego Oliva, Ghanshyam G. Tejani, Nihat Öztürk, Sunil Kumar Sharma, and Mohammed Baljon. "Novel distance-fitness learning scheme for ameliorating metaheuristic optimization." *Engineering Science and Technology, an International Journal* 65 (2025): 102053.
- [10] Sasmal, Buddhadev, Arunita Das, Krishna Gopal Dhal, Ramesh Saha, Rebika Rai, Totan Bharasa, and Essam H. Houssein. "Artificial hummingbird algorithm: Theory, variants, analysis, applications, and performance evaluation." *Computer Science Review* 56 (2025): 100727.
- [11] Zhong, Rui, Yang Cao, Essam H. Houssein, Jun Yu, and Masaharu Munetomo. "SFE-EANDS: a simple, normalized distance-based selectionfast, and efficient algorithm with external archive and normalized distance-based selection for high-dimensional feature selection." *Cluster Computing* 28, no. 5 (2025): 1-24.
- [12] Houssein, Essam H., Someya Mohsen, Marwa M. Emam, Nagwan Abdel Samee, Reem Ibrahim Alkanhel, and Eman MG Younis. "Leveraging explainable artificial intelligence for emotional label prediction through health sensor monitoring." *Cluster Computing* 28, no. 2 (2025): 86.
- [13] Zhang, Yujun, Zihang Zhang, Rui Zhong, Jun Yu, Essam H. Houssein, Juan Zhao, and Zhengming Gao. "Under Complex Wind Scenarios: Considering Large-scale Wind Turbines in Wind Farm Layout Optimization via Self-adaptive Optimal Fractional-order Guided Differential Evolution." *Energy* (2025): 135866.
- [14] Hu, Gang, Feng Zhao, and Essam H. Houssein. "Competitive dual-students using bi-level contrastive learning for semi-supervised medical image segmentation." *Engineering Applications of Artificial Intelligence* 144 (2025): 110082.
- [15] Houssein, Essam H., Meran Mohamed, Eman MG Younis, and Waleed M. Mohamed. "A hybrid Harris Hawks Optimization with Support Vector Regression for air quality forecasting." *Scientific Reports* 15, no. 1 (2025): 2275.
- [16] Houssein, Essam H., Mohamed Hossam Abdel Gafar, Naglaa Fawzy, and Ahmed Y. Sayed. "Recent metaheuristic algorithms for solving some civil engineering optimization problems." *Scientific Reports* 15, no. 1 (2025): 7929.
- [17] Saad, Mohammed R., Marwa M. Emam, and Essam H. Houssein. "An efficient multi-objective parrot optimizer for global and engineering optimization problems." *Scientific Reports* 15, no. 1 (2025): 5126.
- [18] Zhong, Rui, Zhongmin Wang, Abdelazim G. Hussien, Essam H. Houssein, Ibrahim Al-Shourbaji, Mohamed A. Elseify, and Jun Yu. "Success History Adaptive Competitive Swarm Optimizer with Linear Population Reduction: Performance benchmarking and application in eye disease detection." *Computers in Biology and Medicine* 186 (2025): 109587.
- [19] Wang, Zhongmin, Yujun Zhang, Jun Yu, YuanYuan Gao, Guangwei Zhao, Essam H. Houssein, and Rui Zhong. "Multi-strategy enhanced marine predator algorithm: performance investigation and application in intrusion detection." *Journal of Big Data* 12, no. 1 (2025): 38.
- [20] Hu, Gang, Mao Cheng, Essam H. Houssein, and Heming Jia. "CMPSO: A novel co-evolutionary multigroup particle swarm optimization for multi-mission UAVs path planning." *Advanced Engineering Informatics* 63 (2025): 102923.
- [21] Hu, Gang, Sa Wang, Jiulong Zhang, and Essam H. Houssein. "Particle swarm optimization for hybrid mutant slime mold: An efficient algorithm for solving the hyperparameters of adaptive Grey-Markov modified model." *Information Sciences* 689 (2025): 121417.
- [22] Van Thieu, Nguyen, Essam H. Houssein, Diego Oliva, and Nguyen Duy Hung. "IntelELM: A Python Framework for Intelligent Metaheuristic-based Extreme Learning Machine." *Neurocomputing* (2025): 129062.

2024

Journal Papers

- [23] Amdouni, Hamida, Ghaith Manita, Diego Oliva, Essam H. Houssein, Ouajdi Korbaa, and Saúl Zapotecas-Martínez. "Dynamic Social Particle Swarm Optimization For Automatic Clustering." *28th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2024), Procedia Computer Science* 246 (2024): 1409-1418.
- [24] Houssein, Essam H., Mosa E. Hosney, Marwa M. Emam, Diego Oliva, Eman MG Younis, Abdelmgeid A. Ali, and Waleed M. Mohamed. "Optimizing feedforward neural networks using a modified weighted mean of vectors: Case study chemical datasets." *Swarm and Evolutionary Computation* 89 (2024): 101656.
- [25] Hu, Gang, Yixuan Zheng, Essam H. Houssein, and Guo Wei. "GSRPSO: A multi-strategy integrated particle swarm algorithm for multi-threshold segmentation of real cervical cancer images." *Swarm and Evolutionary Computation* 91 (2024): 101766.
- [26] Houssein, Essam H., Mahmoud A. Othman, Waleed M. Mohamed, and Mina Younan. "Internet of Things in Smart Cities: Comprehensive Review, Open Issues and Challenges." *IEEE Internet of Things Journal* (2024).
- [27] Houssein, Essam H., Mahmoud Khalaf Saeed, Gang Hu, and Mustafa M. Al-Sayed. "Metaheuristics for Solving Global and Engineering Optimization Problems: Review, Applications, Open Issues and Challenges." *Archives of Computational Methods in Engineering* (2024): 1-35.
- [28] Houssein, Essam H., Mahmoud Khalaf Saeed, and Mustafa M. Al-Sayed. "Ewso: boosting white shark optimizer for solving engineering design and combinatorial problems." *Mathematics and Computers in Simulation* 225 (2024): 1124-1153.
- [29] Hu, Gang, Feng Zhao, Abdelazim G. Hussien, Jingyu Zhong, and Essam H. Houssein. "Ameliorated Fick's law algorithm based multi-threshold medical image segmentation." *Artificial Intelligence Review* 57, no. 11 (2024): 302.
- [30] Hu, Gang, Yuxuan Guo, Weiguo Zhao, and Essam H. Houssein. "An adaptive snow ablation-inspired particle swarm optimization with its application in geometric optimization." *Artificial Intelligence Review* 57, no. 12 (2024): 1-59.
- [31] Houssein, Essam H., Eman Saber, Abdelmgeid A. Ali, and Yaser M. Wazery. "Integrating metaheuristics and artificial intelligence for healthcare: basics, challenging and future directions." *Artificial Intelligence Review* 57, no. 8 (2024): 205.

- [32] Emam, Marwa M., Essam H. Houssein, Nagwan Abdel Samee, Manal Abdullah Alohal, and Mosa E. Hosney. "Breast cancer diagnosis using optimized deep convolutional neural network based on transfer learning technique and improved Coati optimization algorithm." *Expert Systems with Applications* (2024): 124581.
- [33] Houssein, Essam H., Nada Abdalkarim, Nagwan Abdel Samee, Maali Alabdulhafith, and Ebtsam Mohamed. "Improved Kepler Optimization Algorithm for enhanced feature selection in liver disease classification." *Knowledge-Based Systems* 297 (2024): 111960.
- [34] Rodríguez-Esparza, Erick, Bernardo Morales-Castañeda, Angel Casas-Ordaz, Diego Oliva, Mario A. Navarro, Arturo Valdivia, and Essam H. Houssein. "Handling the balance of operators in evolutionary algorithms through a weighted Hill Climbing approach." *Knowledge-Based Systems* 294 (2024): 111784.
- [35] Ismaeel, Alaa AK, Essam H. Houssein, Doaa Sami Khafaga, Eman Abdullah Aldakheel, and Mokhtar Said. "Performance of rime-ice algorithm for estimating the PEM fuel cell parameters." *Energy Reports* 11 (2024): 3641-3652.
- [36] Abd El-Sattar, Hoda, Essam H. Houssein, Fatma A. Hashim, and Salah Kamel. "Optimal design of hybrid renewable energy sources with battery storage using an efficient weighted mean of vectors algorithm." *Journal of Energy Storage* 87 (2024): 111387.
- [37] Houssein, Essam H., Marwa M. Emam, Waleed Alomoush, Nagwan Abdel Samee, Mona M. Jamjoom, Rui Zhong, and Krishna Gopal Dhal. "An efficient improved parrot optimizer for bladder cancer classification." *Computers in Biology and Medicine* 181 (2024): 109080.
- [38] Hosney, Mosa E., Essam H. Houssein, Mohammed R. Saad, Nagwan Abdel Samee, Mona M. Jamjoom, and Marwa M. Emam. "Efficient bladder cancer diagnosis using an improved RIME algorithm with Orthogonal Learning." *Computers in Biology and Medicine* 182 (2024): 109175.
- [39] Abdel-Salam, Mahmoud, Essam H. Houssein, Marwa M. Emam, Nagwan Abdel Samee, Mona M. Jamjoom, and Gang Hu. "An adaptive enhanced human memory algorithm for multi-level image segmentation for pathological lung cancer images." *Computers in Biology and Medicine* 183 (2024): 109272.
- [40] Emam, Marwa M., Essam H. Houssein, Nagwan Abdel Samee, Amal K. Alkhalifa, and Mosa E. Hosney. "Optimizing cancer diagnosis: A hybrid approach of genetic operators and Sinh Cosh Optimizer for tumor identification and feature gene selection." *Computers in Biology and Medicine* 180 (2024): 108984.
- [41] Hu, Gang, Yixuan Zheng, Essam H. Houssein, and Guo Wei. "DRPSO: A multi-strategy fusion particle swarm optimization algorithm with a replacement mechanisms for colon cancer pathology image segmentation." *Computers in Biology and Medicine* 178 (2024): 108780.
- [42] 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.
- [43] Houssein, Essam H., Nada Abdalkarim, Kashif Hussain, and Ebtsam Mohamed. "Accurate multilevel thresholding image segmentation via oppositional Snake Optimization algorithm: Real cases with liver disease." *Computers in Biology and Medicine* (2024): 107922.
- [44] Houssein, Essam H., Gaber M. Mohamed, Youcef Djenouri, Yaser M. Wazery, and Ibrahim A. Ibrahim. "Nature inspired optimization algorithms for medical image segmentation: a comprehensive review." *Cluster Computing* (2024): 1-22.
- [45] Houssein, Essam H., Asmaa Hammad, Nagwan Abdel Samee, Manal Abdullah Alohal, and Abdelmgeid A. Ali. "TFCNN-BiGRU with self-attention mechanism for automatic human emotion recognition using multi-channel EEG data." *Cluster Computing* (2024): 1-21.
- [46] Houssein, Essam H., Marwa M. Emam, Narinder Singh, Nagwan Abdel Samee, Maali Alabdulhafith, and Emre Çelik. "An improved honey badger algorithm for global optimization and multilevel thresholding segmentation: real case with brain tumor images." *Cluster Computing* (2024): 1-50.
- [47] Houssein, Essam H., Doaa A. Abdelkareem, Gang Hu, Mohamed Abdel Hameed, Ibrahim A. Ibrahim, and Mina Younan. "An effective multiclass skin cancer classification approach based on deep convolutional neural network." *Cluster Computing* (2024): 1-21.
- [48] Houssein, Essam H., Mohammed R. Saad, Youcef Djenouri, Gang Hu, Abdelmgeid A. Ali, and Hassan Shaban. "Metaheuristic algorithms and their applications in wireless sensor networks: review, open issues, and challenges." *Cluster Computing* (2024): 1-31.
- [49] Houssein, Essam H., Mahmoud Khalaf Saeed, Gang Hu, and Mustafa M. Al-Sayed. "An efficient improved exponential distribution optimizer: application to the global, engineering and combinatorial optimization problems." *Cluster Computing* (2024): 1-36.
- [50] Houssein, Essam H., Mohammed R. Saad, Emre Çelik, Gang Hu, Abdelmgeid A. Ali, and Hassan Shaban. "An enhanced sea-horse optimizer for solving global problems and cluster head selection in wireless sensor networks." *Cluster Computing* (2024): 1-28.
- [51] Sahoo, Saroj Kumar, Apu Kumar Saha, Essam H. Houssein, M. Premkumar, Salpa Reang, and Marwa M. Emam. "An arithmetic and geometric mean-based multi-objective moth-flame optimization algorithm." *Cluster Computing* (2024): 1-35.
- [52] Houssein, Essam H., Rehab E. Mohamed, Gang Hu, and Abdelmgeid A. Ali. "Adapting transformer-based language models for heart disease detection and risk factors extraction." *Journal of Big Data* 11, no. 1 (2024): 47.
- [53] Alomoush, Waleed, Essam H. Houssein, Ayat Alrosan, Alaa Abd-Alrazaq, Mohammed Alweshah, and Mohammad Alshinwan. "Joint opposite selection enhanced Mountain Gazelle Optimizer for brain stroke classification." *Evolutionary Intelligence* (2024): 1-19.
- [54] Houssein, Essam H., Nagwan Abdel Samee, Maali Alabdulhafith, and Mokhtar Said. "Extraction of PEM fuel cell parameters using Walrus Optimizer." *AIMS Mathematics* 9, no. 5 (2024): 12726-12750.
- [55] Said, Mokhtar, Essam H. Houssein, Eman Abdullah Aldakheel, Doaa Sami Khafaga, and Alaa AK Ismaeel. "Performance of the Walrus Optimizer for solving an economic load dispatch problem." *AIMS Mathematics* 9, no. 4 (2024): 10095-10120.
- [56] Legoui, Khaoula Zineb, Sofiane Maza, Abdelouahab Attia, and Essam H. Houssein. "Hybrid Henry gas solubility optimization and the equilibrium optimizer for feature selection: real cases with Twitter spam detection." *Knowledge and Information Systems* (2024): 1-30.
- [57] Ismaeel, Alaa AK, Essam H. Houssein, Doaa Sami Khafaga, Eman Abdullah Aldakheel, Ahmed S. AbdElrazek, and Mokhtar Said. "Performance of Snow Ablation Optimization for Solving Optimum Allocation of Generator Units." *IEEE Access* (2024).
- [58] Mostafa, Reham R., Essam H. Houssein, Abdelazim G. Hussien, Birmohan Singh, and Marwa M. Emam. "An enhanced

- chameleon swarm algorithm for global optimization and multi-level thresholding medical image segmentation." *Neural Computing and Applications* (2024): 1-49.
- [59] Younis, Eman MG, Someya Mohsen, Essam H. Houssein, and Osman Ali Sadek Ibrahim. "Machine learning for human emotion recognition: a comprehensive review." *Neural Computing and Applications* (2024): 1-47.
- [60] Çelik, Emre, Güngör Bal, Nihat Öztürk, Erdal Bekiroğlu, Essam H. Houssein, Cemil Ocak, and Gulshan Sharma. "Improving speed control characteristics of PMDC motor drives using nonlinear PI control." *Neural Computing and Applications* (2024): 1-12.
- [61] Sahoo, Saroj Kumar, M. Premkumar, Apu Kumar Saha, Essam H. Houssein, Saurabh Wanjari, and Marwa M. Emam. "Multi-objective quasi-reflection learning and weight strategy-based moth flame optimization algorithm." *Neural Computing and Applications* 36, no. 8 (2024): 4229-4261.
- [62] Tolba, Mohamed A., Essam H. Houssein, Mohammed Hamouda Ali, and Fatma A. Hashim. "A new robust modified capuchin search algorithm for the optimum amalgamation of DSTATCOM in power distribution networks." *Neural Computing and Applications* 36, no. 2 (2024): 843-881.
- [63] Selim, Ali, Salah Kamel, Essam H. Houssein, Francisco Jurado, and Fatma A. Hashim. "A modified Runge–Kutta optimization for optimal photovoltaic and battery storage allocation under uncertainty and load variation." *Soft Computing* (2024): 1-21.

2023

Journal Papers

- [64] Hashim, Fatma A., Essam H. Houssein, Reham R. Mostafa, Abdelazim G. Hussien, and Fatma Helmy. "An efficient adaptive-mutated Coati optimization algorithm for feature selection and global optimization." *Alexandria Engineering Journal* 85 (2023): 29-48.
- [65] Houssein, Essam H., Mosa E. Hosney, Marwa M. Emam, Eman MG Younis, Abdelmgeid A. Ali, and Waleed M. Mohamed. "Soft computing techniques for biomedical data analysis: open issues and challenges." *Artificial Intelligence Review* (2023): 1-51.
- [66] Hu, Gang, Wenlong Jing, and Essam H. Houssein. "Elite-based feedback boosted artificial rabbits-inspired optimizer with mutation and adaptive group: a case study of degree reduction for ball NURBS curves." *Soft Computing* (2023): 1-39.
- [67] Singh, Narinder, Essam H. Houssein, S. B. Singh, and Gaurav Dhiman. "HSSAHHO: a novel hybrid Salp swarm-Harris hawks optimization algorithm for complex engineering problems." *Journal of Ambient Intelligence and Humanized Computing* 14, no. 9 (2023): 11569-11605.
- [68] Gad, Ahmed G., Essam H. Houssein, MengChu Zhou, Ponnuthurai Nagarathnam Suganthan, and Yaser M. Wazery. "Damping-Assisted Evolutionary Swarm Intelligence for Industrial IoT Task Scheduling in Cloud Computing." *IEEE Internet of Things Journal* (2023).
- [69] Houssein, Essam H., Mosa E. Hosney, Diego Oliva, Eman MG Younis, Abdelmgeid A. Ali, and Waleed M. Mohamed. "An efficient discrete rat swarm optimizer for global optimization and feature selection in chemoinformatics." *Knowledge-Based Systems* (2023): 110697.
- [70] Emam, Marwa M., Essam H. Houssein, Mohamed A. Tolba, Magdy M. Zaky, and Mohammed Hamouda Ali. "Application of modified artificial hummingbird algorithm in optimal power flow and generation capacity in power networks considering renewable energy sources." *Scientific Reports* 13, no. 1 (2023): 21446.
- [71] Houssein, Essam H., Gaber M. Mohamed, Ibrahim A. Ibrahim, and Yaser M. Wazery. "An efficient multilevel image thresholding method based on improved heap-based optimizer." *Scientific Reports* 13, no. 1 (2023): 9094.
- [72] Houssein, Essam H., Rehab E. Mohamed, and Abdelmgeid A. Ali. "Heart disease risk factors detection from electronic health records using advanced NLP and deep learning techniques." *Scientific Reports* 13, no. 1 (2023): 7173.
- [73] Houssein, Essam H., Mohammed R. Saad, Abdelmgeid A. Ali, and Hassan Shaban. "Multiple Strategies Boosted Orca Predation Algorithm for Engineering Optimization Problems." *International Journal of Computational Intelligence Systems* 16, no. 1 (2023): 67.
- [74] Houssein, Essam H., Nagwan Abdel Samee, Noha F. Mahmoud, and Kashif Hussain. "Dynamic Coati Optimization Algorithm for Biomedical Classification Tasks." *Computers in Biology and Medicine* 164 (2023): 107237.
- [75] Houssein, Essam H., and Awny Sayed. "Boosted federated learning based on improved Particle Swarm Optimization for healthcare IoT devices." *Computers in Biology and Medicine* (2023): 107195.
- [76] Emam, Marwa M., Nagwan Abdel Samee, Mona M. Jamjoom, and Essam H. Houssein. "Optimized deep learning architecture for brain tumor classification using improved Hunger Games Search Algorithm." *Computers in Biology and Medicine* (2023): 106966.
- [77] Emam, Marwa M., Essam H. Houssein, and Rania M. Ghoniem. "A modified reptile search algorithm for global optimization and image segmentation: Case study brain MRI images." *Computers in Biology and Medicine* (2023): Vol: 152, 106404.
- [78] Houssein, Essam H., and Awny Sayed. "A modified weighted mean of vectors optimizer for Chronic Kidney Disease classification." *Computers in Biology and Medicine* (2023): 106691.
- [79] Afzali Ahmadabadi, Sanaz, Jafar Jafari-Asl, Elham Banifakhr, Essam H. Houssein, and Mohamed El Amine Ben Seghier. "Risk-Based Design Optimization of Contamination Detection Sensors in Water Distribution Systems: Application of an Improved Whale Optimization Algorithm." *Water* 15, no. 12 (2023): 2217.
- [80] Houssein, Essam H., Hager N. Hassan, Nagwan Abdel Samee, and Mona M. Jamjoom. "A Novel Hybrid Runge Kutta Optimizer with Support Vector Machine on Gene Expression Data for Cancer Classification." *Diagnostics* 13, no. 9 (2023): 1621.
- [81] Houssein, Essam H., Gaber M. Mohamed, Nagwan Abdel Samee, Reem Alkanhel, Ibrahim A. Ibrahim, and Yaser M. Wazery. "An Improved Search and Rescue Algorithm for Global Optimization and Blood Cell Image Segmentation." *Diagnostics* 13, no. 8 (2023): 1422.
- [82] Mafarja, Majdi, Thaer Thaher, Jingwei Too, Hamouda Chantar, Hamza Turabieh, Essam H. Houssein, and Marwa M. Emam. "An efficient high-dimensional feature selection approach driven by enhanced multi-strategy grey wolf optimizer for biological data classification." *Neural Computing and Applications* 35, no. 2 (2023): 1749-1775.
- [83] Houssein, Essam H., Mosa E. Hosney, Waleed M. Mohamed, Abdelmgeid A. Ali, and Eman MG Younis. "Fuzzy-based hunger games search algorithm for global optimization and feature selection using medical data." *Neural Computing and Applications* 35, no. 7 (2023): 5251-5275.
- [84] Emam, Marwa M., Hoda Abd El-Sattar, Essam H. Houssein, and Salah Kamel. "Modified orca predation algorithm: developments and perspectives on global optimization and hybrid energy systems." *Neural Computing and*

Applications (2023): 1-23.

- [85] Tolba, Mohamed A., Essam H. Houssein, Ayman A. Eisa, and Fatma A. Hashim. "Optimizing the distributed generators integration in electrical distribution networks: efficient modified forensic-based investigation." *Neural Computing and Applications* 35, no. 11 (2023): 8307-8342.
- [86] Maden, Dinçer, Emre Çelik, Essam H. Houssein, and Gulshan Sharma. "Squirrel search algorithm applied to effective estimation of solar PV model parameters: a real-world practice." *Neural Computing and Applications* (2023): 1-18.
- [87] Celik, Emre, Nihat Öztürk, and Essam H. Houssein. "Improved load frequency control of interconnected power systems using energy storage devices and a new cost function." *Neural Computing and Applications* 35, no. 1 (2023): 681-697.
- [88] Houssein, Essam H., Mohamed H. Hassan, Salah Kamel, Kashif Hussain, and Fatma A. Hashim. "Modified Lévy flight distribution algorithm for global optimization and parameters estimation of modified three-diode photovoltaic model." *Applied Intelligence* 53, no. 10 (2023): 11799-11819.
- [89] Houssein, Essam H., Mohamed H. Hassan, Mohamed A. Mahdy, and Salah Kamel. "Development and application of equilibrium optimizer for optimal power flow calculation of power system." *Applied Intelligence* 53, no. 6 (2023): 7232-7253.
- [90] Nassef, Ahmed M., Essam H. Houssein, Hegazy Rezk, and Ahmed Fathy. "Optimal Allocation of Biomass Distributed Generators Using Modified Hunger Games Search to Reduce CO2 Emissions." *Journal of Marine Science and Engineering* 11, no. 2 (2023): 308.
- [91] Ismaeel, Alaa AK, Essam H. Houssein, Doaa Sami Khafaga, Eman Abdullah Aldakheel, Ahmed S. AbdElrazek, and Mokhtar Said. "Performance of Osprey Optimization Algorithm for Solving Economic Load Dispatch Problem." *Mathematics* 11, no. 19 (2023): 4107.
- [92] Alhumade, Hesham, Essam H. Houssein, Hegazy Rezk, Iqbal Ahmed Moujдин, and Saad Al-Shahrani. "Modified Artificial Hummingbird Algorithm-Based Single-Sensor Global MPPT for Photovoltaic Systems." *Mathematics* 11, no. 4 (2023): 979.
- [93] Houssein, Essam H., and Awmy Sayed. "Dynamic Candidate Solution Boosted Beluga Whale Optimization Algorithm for Biomedical Classification." *Mathematics* 11, no. 3 (2023): 707.
- [94] Premkumar, M., R. Sowmya, C. Ramakrishnan, Pradeep Jangir, Essam H. Houssein, Sanchari Deb, and Nallapaneni Manoj Kumar. "An efficient and reliable scheduling algorithm for unit commitment scheme in microgrid systems using enhanced mixed integer particle swarm optimizer considering uncertainties." *Energy Reports* 9 (2023): 1029-1053.
- [95] Sahoo, Saroj Kumar, Essam H. Houssein, M. Premkumar, Apu Kumar Saha, and Marwa M. Emam. "Self-adaptive moth flame optimizer combined with crossover operator and Fibonacci search strategy for COVID-19 CT image segmentation." *Expert Systems with Applications* (2023): 120367.
- [96] Houssein, Essam H., Mohammed R. Saad, Abdelmgeid A. Ali, and Hassan Shaban. "An efficient multi-objective gorilla troops optimizer for minimizing energy consumption of large-scale wireless sensor networks." *Expert Systems with Applications* 212 (2023): 118827.
- [97] Houssein, Essam H., Diego Oliva, Emre Çelik, Marwa M. Emam, and Rania M. Ghoniem. "Boosted sooty tern optimization algorithm for global optimization and feature selection." *Expert Systems with Applications* 213 (2022): 119015.
- [98] Houssein, Essam H., Osama Mohamed, Nagwan Abdel Samee, Noha F. Mahmoud, Rawan Talaat, Aymen M. Al-Hejri, and Riyadh M. Al-Tam. "Using deep DenseNet with cyclical learning rate to classify leukocytes for leukemia identification." *Frontiers in Oncology* 13 (2023): 1230434.

Conference and Book Chapters

- [99] Younis, Eman MG, Someya Mohsen Zaki, and Essam Halim Houssein. "Machine Learning and Sensor Data Fusion for Emotion Recognition." In *Encyclopedia of Data Science and Machine Learning*, pp. 2653-2682. IGI Global, 2023.

2022

Journal Papers

- [100] Alomoush, Waleed, Osama A. Khashan, Ayat Alrosan, Essam H. Houssein, Hani Attar, Mohammed Alweshah, and Fuad Alhosban. "Fuzzy Clustering Algorithm Based on Improved Global Best-Guided Artificial Bee Colony with New Search Probability Model for Image Segmentation." *Sensors* 22, no. 22 (2022): 8956.
- [101] Younis, Eman MG, Someya Mohsen Zaki, Eiman Kanjo, and Essam H. Houssein. "Evaluating Ensemble Learning Methods for Multi-Modal Emotion Recognition Using Sensor Data Fusion." *Sensors* 22, no. 15 (2022): 5611.
- [102] Djenouri, Youcef, Asma Belhadi, Essam H. Houssein, Gautam Srivastava, and Jerry Chun-Wei Lin. "Intelligent Graph Convolutional Neural Network for Road Crack Detection." *IEEE Transactions on Intelligent Transportation Systems* (2022).
- [103] Houssein, Essam H., Doaa A. Abdelkareem, Marwa M. Emam, Mohamed Abdel Hameed, and Mina Younan. "An efficient image segmentation method for skin cancer imaging using improved golden jackal optimization algorithm." *Computers in Biology and Medicine* (2022): 106075.
- [104] Rodríguez, Alma, Erik Cuevas, Daniel Zaldivar, Bernardo Morales-Castañeda, Ram Sarkar, and Essam H. Houssein. "An agent-based transmission model of COVID-19 for re-opening policy design." *Computers in Biology and Medicine* (2022): 105847.
- [105] Çelik, E., Öztürk, N. & Houssein, E.H. Influence of energy storage device on load frequency control of an interconnected dual-area thermal and solar photovoltaic power system. *Neural Computing and Applications* (2022).
- [106] Eid, Ahmad, Salah Kamel, Houssein, Essam H. "An enhanced equilibrium optimizer for strategic planning of PV-BES units in radial distribution systems considering time-varying demand." *Neural Computing and Applications* (2022): 1-29.
- [107] Houssein, Essam H., Marwa M. Emam, and Abdelmgeid A. Ali. "Improved manta ray foraging optimization for multi-level thresholding using COVID-19 CT images." *Neural Computing and Applications* (2022): 1-19.
- [108] Houssein, Essam H., Marwa M. Emam, and Abdelmgeid A. Ali. "An optimized deep learning architecture for breast cancer diagnosis based on improved marine predators algorithm." *Neural Computing and Applications* (2022): 1-19.
- [109] Nassef, Ahmed M., Essam H. Houssein, Bahaa El-din Helmy, Ahmed Fathy, Mamdouh L. Alghaythi, and Hegazy Rezk. "Optimal reconfiguration strategy based on modified Runge Kutta optimizer to mitigate partial shading condition in photovoltaic systems." *Energy Reports* 8 (2022): 7242-7262.
- [110] Nassef, Ahmed M., Essam H. Houssein, Bahaa El-din Helmy, and Hegazy Rezk. "Modified honey badger algorithm based global MPPT for triple-junction solar photovoltaic system under partial shading condition and global optimization." *Energy* (2022): 124363.

- [111] Houssein, Essam H., Ahmed M. Nassef, Ahmed Fathy, Mohamed A. Mahdy, and Hegazy Rezk. "Modified search and rescue optimization algorithm for identifying the optimal parameters of high efficiency triple-junction solar cell/module." *International Journal of Energy Research*.
- [112] Houssein, Essam H., Hegazy Rezk, Ahmed Fathy, Mohamed A. Mahdy, and Ahmed M. Nassef. "A modified adaptive guided differential evolution algorithm applied to engineering applications." *Engineering Applications of Artificial Intelligence* **113** (2022): 104920.
- [113] Houssein, Essam H., Asmaa Hammad, and Abdelmgeid Ali. "Human emotion recognition from EEG based brain computer interface using machine learning: a comprehensive review." *Neural Computing and Applications* (2022): 1-31.
- [114] Said, Mokhtar, Essam H. Houssein, Sanchari Deb, Rania M. Ghoniem, and Abeer Galal Elsayed. "Economic Load Dispatch Problem Based on Search and Rescue Optimization Algorithm." *IEEE Access* **10** (2022): 47109-47123.
- [115] Djenouri, Youcef, Asma Belhadi, Gautam Srivastava, Essam H. Houssein, and Jerry Chun-Wei Lin. "Sensor data fusion for the industrial artificial intelligence of things." *Expert Systems* (2021): e12875.
- [116] Abdelhamid, Mohamed, Essam H. Houssein, Mohamed A. Mahdy, Ali Selim, and Salah Kamel. "An improved seagull optimization algorithm for optimal coordination of distance and directional over-current relays." *Expert Systems with Applications* (2022): 116931.
- [117] Tahraoui, Hichem, Abd-Elmouneïm Belhadj, Abdeltif Amrane, and Essam H. Houssein. "Predicting the concentration of sulfate using machine learning methods." *Earth Science Informatics* (2022): 1-22.
- [118] Kamel, Salah, Essam H. Houssein, Mohamed H. Hassan, Mokhtar Shouran, and Fatma A. Hashim. "An Efficient Electric Charged Particles Optimization Algorithm for Numerical Optimization and Optimal Estimation of Photovoltaic Models." *Mathematics* **10**, no. 6 (2022): 913.
- [119] Houssein, Essam H., Nahed Ibrahim, Alaa M. Zaki, and Awany Sayed. "Semantic Protocol and Resource Description Framework Query Language: A Comprehensive Review." *Mathematics* **10**, no. 17 (2022): 3203.
- [120] Abualigah, Laith, Nada Khalil Al-Okbi, Mohamed Abd Elaziz, and Essam H. Houssein. "Boosting Marine Predators Algorithm by Salp Swarm Algorithm for Multilevel Thresholding Image Segmentation." *Multimedia Tools and Applications* (2022): 1-36.
- [121] Houssein, Essam H., Zainab Abohashima, Mohamed Elhoseny, and Waleed M. Mohamed. "Hybrid quantum-classical convolutional neural network model for COVID-19 prediction using chest X-ray images." *Journal of Computational Design and Engineering* **9**, no. 2 (2022): 343-363.
- [122] AbdElminaam, Daa Salama, Essam H. Houssein, Mokhtar Said, Diego Oliva, and Ayman Nabil. "An Efficient Heap-Based Optimizer for Parameters Identification of Modified Photovoltaic Models." *Ain Shams Engineering Journal* **13**, no. 5 (2022): 101728.
- [123] Houssein, Essam H., Ibrahim E. Ibrahim, Mohammed Kharrich, and Salah Kamel. "An improved marine predators algorithm for the optimal design of hybrid renewable energy systems." *Engineering Applications of Artificial Intelligence* **110** (2022): 104722.
- [124] Said, Mokhtar, Essam H. Houssein, Sanchari Deb, Amel A. Alhussan, and Rania M. Ghoniem. "A Novel Gradient Based Optimizer for Solving Unit Commitment Problem." *IEEE Access* (2022).
- [125] Houssein, Essam H., Zainab Abohashima, Mohamed Elhoseny, and Waleed M. Mohamed. "Machine learning in the quantum realm: The state-of-the-art, challenges, and future vision." *Expert Systems with Applications* (2022): 116512.
- [126] Thaher, Thaer, Hamouda Chantar, Jingwei Too, Majdi Mafarja, Hamza Turabieh, and Essam H. Houssein. "Boolean Particle Swarm Optimization with various Evolutionary Population Dynamics approaches for feature selection problems." *Expert Systems with Applications* (2022): 116550.
- [127] Houssein, Essam H., Emre Çelik, Mohamed A. Mahdy, and Rania M. Ghoniem. "Self-adaptive Equilibrium Optimizer for solving global, combinatorial, engineering, and multi-Objective problems." *Expert Systems with Applications* (2022): 116552.
- [128] Houssein, Essam H., Bahaa El-din Helmy, Hegazy Rezk, and Ahmed M. Nassef. "An efficient orthogonal opposition-based learning slime mould algorithm for maximum power point tracking." *Neural Computing and Applications* (2022): 1-25.
- [129] Houssein, Essam H., Fatma A. Hashim, Seydali Ferahtia, and Hegazy Rezk. "Battery parameter identification strategy based on modified coot optimization algorithm." *Journal of Energy Storage* **46** (2022): 103848.
- [130] Abd Elminaam, Daa Salama, Shima Abdallah Ibrahim, Essam H. Houssein, and Salah M. Elsayed. "An Efficient Chaotic Gradient-Based Optimizer for Feature Selection." *IEEE Access* (2022).
- [131] Houssein, Essam H., Bahaa El-din Helmy, Diego Oliva, Pradeep Jangir, M. Premkumar, Ahmed A. Elngar, and Hassan Shaban. "An efficient multi-thresholding based COVID-19 CT images segmentation approach using an improved equilibrium optimizer." *Biomedical Signal Processing and Control* **73** (2022): 103401.
- [132] Houssein, Essam H., Eman Saber, and Yaser M. Wazery. "Centroid mutation-based Search and Rescue optimization algorithm for feature selection and classification." *Expert Systems with Applications* (2022): 116235.
- [133] Houssein, Essam H., Mahmoud Dirar, Laith Abualigah, and Waleed M. Mohamed. "An efficient equilibrium optimizer with support vector regression for stock market prediction." *Neural Computing and Applications* (2022): 1-36.
- [134] Houssein, Essam H., M. Hassaballah, Ibrahim E. Ibrahim, Daa Salama AbdElminaam, and Yaser M. Wazery. "An automatic arrhythmia classification model based on improved Marine Predators Algorithm and Convolutions Neural Networks." *Expert Systems with Applications* **187** (2022): 115936.
- [135] Houssein, Essam H., Mohamed A. Mahdy, Maude J. Blondin, Doaa Shebl, and Waleed M. Mohamed. "An Efficient Slime Mould Algorithm for Solving Multi-Objective Optimization Problems." *Expert Systems with Applications* **187** (2022): 114689.
- [136] Ismaeel, Alaa AK, Essam H. Houssein, Amir Y. Hassan, and Mokhtar Said. "Performance of Gradient-Based Optimizer for Optimum Wind Cube Design." *Computers, Materials & Continua*, DOI:10.32604/cmc.2022.021517

Conference and Book Chapters

- [137] Houssein, Essam H., Eman Saber, Abdelmgeid A. Ali, and Yaser M. Wazery. "Opposition-based learning tunicate swarm algorithm for biomedical classification." *In 2021 17th International Computer Engineering Conference (ICENCO)*, pp. 1-6. IEEE, 2021.
- [138] Mohamed, Takwa, Sabah Sayed, Akram Salah, and Essam H. Houssein. "Next Generation Sequence Prediction Intelligent System for SARS-COV-2 Using Deep Learning Neural Network." *In 2021 17th International Computer*

Engineering Conference (ICENCO), pp. 88-93. IEEE, 2021.

- [139] Younan, Mina, Mohamed Elhoseny, Abdelmgeid A. Ali, and Essam H. Houssein. "Quantum Chain of Things (QCoT): A New Paradigm for Integrating Quantum Computing, Blockchain, and Internet of Things." *In 2021 17th International Computer Engineering Conference (ICENCO)*, pp. 101-106. IEEE, 2021.
- [140] Houssein, Essam H., Zainab Abohashima, Mohamed Elhoseny, and Waleed M. Mohamed. "An efficient binary harris hawks optimization based on quantum SVM for cancer classification tasks." *The 2nd International Conference on Distributed Sensing and Intelligent Systems (ICDISIS 2021)*, 2021 p. 247 – 258.
- [141] Mohamed, Takwa, Sabah Sayed, Akram Salah, and Essam Halim Houssein. "Deep Neural Network for Virus Mutation Prediction: A Comprehensive Review." *Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems* (2022): 225-255.
- [142] Houssein, Essam Halim, Ibrahim E. Ibrahim, M. Hassaballah, and Yaser M. Wazery. "Integration of Machine Learning and Optimization Techniques for Cardiac Health Recognition." *In Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems*, pp. 121-148. Springer, Cham, 2022.
- [143] Houssein, Essam Halim, Hager N. Hassan, Mustafa M. Al-Sayed, and Emad Nabil. "Intelligent Computational Models for Cancer Diagnosis: A Comprehensive Review." *Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems* (2022): 25-50.
- [144] Houssein, Essam Halim, Gamela Nageh Zaki, Laith Abualigah, and Eman MG Younis. "Metaheuristics for Parameter Estimation of Solar Photovoltaic Cells: A Comprehensive Review." *Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems* (2022): 149-179.
- [145] Houssein, Essam Halim, Eman Saber, Yaser M. Wazery, and Abdelmgeid A. Ali. "Swarm Intelligence Algorithms-Based Machine Learning Framework for Medical Diagnosis: A Comprehensive Review." *Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems* (2022): 85-106.

2021

Journal Papers

- [146] Houssein, Essam H., Hager N. Hassan, Mustafa M. Al-Sayed, and Emad Nabil. "Gene Selection for Microarray Cancer Classification based on Manta Rays Foraging Optimization and Support Vector Machines." *Arabian Journal for Science and Engineering* (2021): 1-18.
- [147] Houssein, Essam H., Rehab E. Mohamed, and Abdelmgeid A. Ali. "Machine Learning Techniques for Biomedical Natural Language Processing: A comprehensive Review." *IEEE Access* (2021).
- [148] Houssein, Essam H., Marwa M. Emam, and Abdelmgeid A. Ali. "An efficient multilevel thresholding segmentation method for thermography breast cancer imaging based on improved chimp optimization algorithm." *Expert Systems with Applications* 185 (2021): 115651.
- [149] Houssein, Essam H., Kashif Hussain, Laith Abualigah, Mohamed Abd Elaziz, Waleed Alomoush, Gaurav Dhiman, Youcef Djenouri, and Erik Cuevas. "An improved opposition-based marine predators algorithm for global optimization and multilevel thresholding image segmentation." *Knowledge-Based Systems* 229 (2021): 107348.
- [150] Shaban, Hassan, Essam H. Houssein, Marco Pérez-Cisneros, Diego Oliva, Amir Y. Hassan, Alaa AK Ismaeel, Diah Salama AbdElminaam, Sanchari Deb, and Mokhtar Said. "Identification of Parameters in Photovoltaic Models through a Runge Kutta Optimizer." *Mathematics* 9, no. 18 (2021): 2313.
- [151] Fathy, Ahmed, Hegazy Rezk, Dalia Yousri, Essam H. Houssein, and Rania M. Ghoniem. "Parameter Identification of Optimized Fractional Maximum Power Point Tracking for Thermoelectric Generation Systems Using Manta Ray Foraging Optimization." *Mathematics* 9, no. 22 (2021): 2971.
- [152] Houssein, Essam H., Sanchari Deb, Diego Oliva, Hegazy Rezk, Hesham Alhumade, and Mokhtar Said. "Performance of gradient-based optimizer on charging station placement problem." *Mathematics* 9, no. 21 (2021): 2821.
- [153] Said, Mokhtar, Ali M. El-Rifaie, Mohamed A. Tolba, Essam H. Houssein, and Sanchari Deb. "An efficient chameleon swarm algorithm for economic load dispatch problem." *Mathematics* 9, no. 21 (2021): 2770.
- [154] Houssein, Essam H., Gamela Nageh, Mohamed Abd Elaziz, and Eman Younis. "An efficient Equilibrium Optimizer for parameters identification of photovoltaic modules." *PeerJ Computer Science* 7 (2021): e708.
- [155] Wazery, Yaser M., Eman Saber, Essam H. Houssein, Abdelmgeid A. Ali, and Eslam Amer. "An Efficient Slime Mould Algorithm Combined with k-Nearest Neighbor for Medical Classification Tasks." *IEEE Access* (2021).
- [156] Houssein, Essam H., Fatma A. Hashim, Seydali Ferahtia, and Hegazy Rezk. "An efficient modified artificial electric field algorithm for solving optimization problems and parameter estimation of fuel cell." *International Journal of Energy Research* (2021).
- [157] Houssein, Essam H., Marwa M. Emam, and Abdelmgeid A. Ali. "Improved manta ray foraging optimization for multi-level thresholding using COVID-19 CT images." *Neural Computing and Applications* (2021): 1-21.
- [158] Mohamed, Takwa, Sabah Sayed, Akram Salah, and Essam H. Houssein. "Long Short-Term Memory Neural Networks for RNA Viruses Mutations Prediction." *Mathematical Problems in Engineering* 2021 (2021).
- [159] Houssein, Essam H., Mohamed A. Mahdy, Ahmed Fathy, and Hegazy Rezk. "A modified Marine Predator Algorithm based on opposition based learning for tracking the global MPP of shaded PV system." *Expert Systems with Applications* 183 (2021): 115253.
- [160] Houssein, Essam H., Ibrahim E. Ibrahim, Nabil Neggaz, M. Hassaballah, and Yaser M. Wazery. "An efficient ECG arrhythmia classification method based on Manta ray foraging optimization." *Expert Systems with Applications* 181 (2021): 115131.
- [161] Houssein, Essam H., Gamela Nageh Zaki, Ahmed A. Zaki Diab, and Eman MG Younis. "An efficient Manta Ray Foraging Optimization algorithm for parameter extraction of three-diode photovoltaic model." *Computers & Electrical Engineering* 94 (2021): 107304.
- [162] Houssein, Essam H., Bahaa El-din Helmy, Hegazy Rezk, and Ahmed M. Nassef. "An enhanced Archimedes optimization algorithm based on Local escaping operator and Orthogonal learning for PEM fuel cell parameter identification." *Engineering Applications of Artificial Intelligence* 103 (2021): 104309.
- [163] Hussain, Kashif, Nabil Neggaz, William Zhu, and Essam H. Houssein. "An efficient hybrid sine-cosine Harris hawks optimization for low and high-dimensional feature selection." *Expert Systems with Applications* 176 (2021): 114778.

- [164] Houssein, Essam H., Mohamed A. Mahdy, Maude J. Blondin, Doaa Shebl, and Waleed M. Mohamed. "Hybrid slime mould algorithm with adaptive guided differential evolution algorithm for combinatorial and global optimization problems." *Expert Systems with Applications* 174 (2021): 114689.
- [165] Korashy, Ahmed, Salah Kamel, Essam H. Houssein, Francisco Jurado, and Fatma A. Hashim. "Development and Application of Evaporation Rate Water Cycle Algorithm for Optimal Coordination of Directional Overcurrent Relays." *Expert Systems with Applications* (2021): 115538.
- [166] Houssein, Essam H., Ahmed G. Gad, Kashif Hussain, and Ponnuthurai Nagarathnam Suganthan. "Major Advances in Particle Swarm Optimization: Theory, Analysis, and Application." *Swarm and Evolutionary Computation* (2021): 100868.
- [167] Houssein, Essam H., Mahmoud Dirar, Kashif Hussain, and Waleed M. Mohamed. "Assess deep learning models for Egyptian exchange prediction using nonlinear artificial neural networks." *Neural Computing and Applications* 33, no. 11 (2021): 5965-5987.
- [168] Belhadi, Asma, Youcef Djenouri, Vicente Garcia Diaz, Essam H. Houssein, and Jerry Chun-Wei Lin. "Hybrid intelligent framework for automated medical learning." *Expert Systems* (2021).
- [169] Houssein, Essam H., Nabil Neggaz, Mosa E. Hosney, Waleed M. Mohamed, and M. Hassaballah. "Enhanced Harris hawks optimization with genetic operators for selection chemical descriptors and compounds activities." *Neural Computing and Applications* (2021): 1-18.
- [170] Younan, Mina, Essam H. Houssein, Mohamed Elhoseny, and Abd El-mageid Ali. "Performance analysis for similarity data fusion model for enabling time series indexing in internet of things applications." *PeerJ Computer Science* 7 (2021): e500.
- [171] Houssein, Essam H., Diaan Salama Abdelminaam, Hager N. Hassan, Mustafa M. Al-Sayed, and Emad Nabil. "A Hybrid Barnacles Mating Optimizer Algorithm With Support Vector Machines for Gene Selection of Microarray Cancer Classification." *IEEE Access* 9 (2021): 64895-64905.
- [172] Houssein, Essam H., Diaan Salama Abdelminaam, Ibrahim E. Ibrahim, M. Hassaballah, and Yaser M. Wazery. "A Hybrid Heartbeats Classification Approach Based on Marine Predators Algorithm and Convolution Neural Networks." *IEEE Access* (2021).
- [173] Deb, Sanchari, Essam H. Houssein, Mokhtar Said, and Diaan Salama Abdelminaam. "Performance of Turbulent Flow of Water Optimization on Economic Load Dispatch Problem." *IEEE Access* (2021).
- [174] Abd Elminaam, Diaan Salama, Ayman Nabil, Shimaa Abdallah Ibrahim, and Essam H. Houssein. "An Efficient Marine Predators Algorithm for Feature Selection." *IEEE Access* (2021).
- [175] Houssein, Essam H., Bahaa El-Din Helmy, Ahmed A. Elngar, Diaan Salama Abdelminaam, and Hassan Shaban. "An Improved Tunicate Swarm Algorithm for Global Optimization and Image Segmentation." *IEEE Access* 9 (2021): 56066-56092.
- [176] Dhiman, Gaurav, Krishna Kant Singh, Mukesh Soni, Atulya Nagar, Mohammad Dehghani, Adam Slowik, Amandeep Kaur, Ashutosh Sharma, Essam H. Houssein, and Korhan Cengiz. "MOSOA: a new multi-objective seagull optimization algorithm." *Expert Systems with Applications* 167 (2021): 114150.
- [177] Houssein, Essam H., Bahaa El-din Helmy, Diego Oliva, Ahmed A. Elngar, and Hassan Shaban. "A novel Black Widow Optimization algorithm for multilevel thresholding image segmentation." *Expert Systems with Applications* 167 (2021): 114159.
- [178] Deb, Sanchari, Diaan Salama Abdelminaam, Mokhtar Said, and Essam H. Houssein. "Recent Methodology-Based Gradient-Based Optimizer for Economic Load Dispatch Problem." *IEEE Access* 9 (2021): 44322-44338.
- [179] Houssein, Essam H., Mohammed M. Ahmed, Mohamed Abd Elaziz, Ahmed A. Ewees, and Rania M. Ghoniem. "Solving Multi-Objective Problems Using Bird Swarm Algorithm." *IEEE Access* 9 (2021): 36382-36398.
- [180] Houssein, Essam H., Mohamed A. Mahdy, Manal G. Eldin, Doaa Shebl, Waleed M. Mohamed, and Mahmoud Abdel-Aty. "Optimizing quantum cloning circuit parameters based on adaptive guided differential evolution algorithm." *Journal of Advanced Research* 29 (2021): 147-157.
- [181] Abdelminaam, Diaan Salama, Mokhtar Said, and Essam H. Houssein. "Turbulent Flow of Water-based Optimization Using New Objective Function for Parameter Extraction of Six Photovoltaic Models." *IEEE Access* (2021).
- [182] Abdelminaam, Diaan Salama, Fatma Helmy Ismail, Mohamed Taha, Ahmed Taha, Essam H. Houssein, and Ayman Nabil. "CoAID-DEEP: An Optimized Intelligent Framework for Automated Detecting COVID-19 Misleading Information on Twitter." *IEEE Access* 9 (2021): 27840-27867.
- [183] Houssein, Essam H., Ahmed G. Gad, Yaser M. Wazery, and Ponnuthurai Nagarathnam Suganthan. "Task Scheduling in cloud computing based on meta-heuristics: review, taxonomy, open challenges, and future trends." *Swarm and Evolutionary Computation* (2021): 100841.
- [184] Ismaeel, Alaa AK, Essam H. Houssein, Diego Oliva, and Mokhtar Said. "Gradient-Based Optimizer for Parameter Extraction in Photovoltaic Models." *IEEE Access* 9 (2021): 13403-13416.
- [185] Hassan, Mohamed H., Essam H. Houssein, Mohamed A. Mahdy, and Salah Kamel. "An improved Manta ray foraging optimizer for cost-effective emission dispatch problems." *Engineering Applications of Artificial Intelligence* 100 (2021): 104155.
- [186] Houssein, Essam H., Marwa M. Emam, Abdelmgeid A. Ali, and Ponnuthurai Nagarathnam Suganthan. "Deep and machine learning techniques for medical imaging-based breast cancer: A comprehensive review." *Expert Systems with Applications* (2021): 114161.

Conference and Book Chapters

- [187] Houssein, Essam H., Mosa E. Hosney, and Diego Oliva. "A hybrid seagull optimization algorithm for chemical descriptors classification." In *2021 International Mobile, Intelligent, and Ubiquitous Computing Conference (MIUCC)*, pp. 1-6. IEEE, 2021.
- [188] Younan, Mina, Essam H. Houssein, Mohamed Elhoseny, and Abd El-mageid A. Ali. "Improved Models for Time Series Cluster Representation Based Dynamic Time Warping." In *2020 15th International Conference on Computer Engineering and Systems (ICCES)*, pp. 1-6. IEEE, 2020.
- [189] Houssein, Essam H., Muhammad Ahmad, Mosa E. Hosney, and Manuel Mazzara. "Classification Approach for COVID-19 Gene Based on Harris Hawks Optimization." In *Artificial Intelligence for COVID-19*, pp. 575-594. Springer, Cham, 2021.
- [190] Houssein, Essam H., Bahaa El-din Helmy, Diego Oliva, Ahmed A. Elngar, and Hassan Shaban. "Multi-level Thresholding Image Segmentation Based on Nature-Inspired Optimization Algorithms: A Comprehensive Review." *Metaheuristics in Machine Learning: Theory and Applications* (2021): 239-265.
- [191] Houssein, Essam H., Mohammed R. Saad, Kashif Hussain, Hassan Shaban, and M. Hassaballah. "A Review of

Metaheuristic Optimization Algorithms in Wireless Sensor Networks." *Metaheuristics in Machine Learning: Theory and Applications* (2021): 193-217.

- [192] Houssein, Essam H., Mohamed A. Mahdy, Doaa Shebl, and Waleed M. Mohamed. "A Survey of Metaheuristic Algorithms for Solving Optimization Problems." *In Metaheuristics in Machine Learning: Theory and Applications*, pp. 515-543. Springer, Cham, 2021.
- [193] Houssein, Essam H., Mahmoud Dirar, Kashif Hussain, and Waleed M. Mohamed. "Artificial Neural Networks for Stock Market Prediction: A Comprehensive Review." *Metaheuristics in Machine Learning: Theory and Applications* (2021): 409-444.
- [194] Houssein, Essam H., Mosa E. Hosney, Diego Oliva, Waleed M. Mohamed, and M. Hassaballah. "Drug Design and Discovery: Theory, Applications, Open Issues and Challenges." *In Metaheuristics in Machine Learning: Theory and Applications*, pp. 337-358. Springer, Cham, 2021.
- [195] Houssein, Essam H., Ibrahim E. Ibrahim, M. Hassaballah, and Yaser M. Wazery. "Integration of Internet of Things and Cloud Computing for Cardiac Health Recognition." *In Metaheuristics in Machine Learning: Theory and Applications*, pp. 645-661. Springer, Cham, 2021.
- [196] Houssein, Essam H., Ahmed G. Gad, and Yaser M. Wazery. "Jaya algorithm and applications: A comprehensive review." *Metaheuristics and Optimization in Computer and Electrical Engineering*, Springer (2021): 3-24.

2020

Journal Papers

- [197] Abualigah, Laith, Amir H. Gandomi, Mohamed Abd Elaziz, Abdelazim G. Hussien, Ahmad M. Khasawneh, Mohammad Alshinwan, and Essam H. Houssein. "Nature-inspired optimization algorithms for text document clustering—a comprehensive analysis." *Algorithms* 13, no. 12 (2020): 345.
- [198] Singh, Narinder, S. B. Singh, Essam H. Houssein, and Muhammad Ahmad. "COVID-19: risk prediction through nature inspired algorithm." *World Journal of Engineering* (2020).
- [199] Younan, Mina, Mohamed Elhoseny, Abd El-mageid A. Ali, and Essam H. Houssein. "Data Reduction Model for Balancing Indexing and Securing Resources in the Internet of Things Applications." *IEEE Internet of Things Journal* (2020).
- [200] Hussien, Abdelazim G., Diego Oliva, Essam H. Houssein, Angel A. Juan, and Xu Yu. "Binary Whale Optimization Algorithm for Dimensionality Reduction." *Mathematics* 8, no. 10 (2020): 1821.
- [201] Singh, Narinder, S. B. Singh, and Essam H. Houssein. "Hybridizing salp swarm algorithm with particle swarm optimization algorithm for recent optimization functions." *Evolutionary Intelligence* (2020): 1-34.
- [202] Houssein, Essam H., Mosa E. Hosney, Mohamed Elhoseny, Diego Oliva, Waleed M. Mohamed, and M. Hassaballah. "Hybrid Harris hawks optimization with cuckoo search for drug design and discovery in chemoinformatics." *Scientific Reports* 10, no. 1 (2020): 1-22.
- [203] Avalos, Omar, Erik Cuevas, Jorge Gálvez, Essam H. Houssein, and Kashif Hussain. "Comparison of Circular Symmetric Low-Pass Digital IIR Filter Design Using Evolutionary Computation Techniques." *Mathematics* 8, no. 8 (2020): 1226.
- [204] Neggaz, Nabil, Essam H. Houssein, and Kashif Hussain. "An efficient Henry Gas Solubility Optimization for Feature Selection." *Expert Systems with Applications* (2020): 113364.
- [205] Hashim, Fatma A., Essam H. Houssein, Kashif Hussain, Mai S. Mabrouk, and Walid Al-Atabany. "A modified Henry gas solubility optimization for solving motif discovery problem." *Neural Computing and Applications* 32, no. 14 (2020): 10759-10771.
- [206] Mualla, Noor, Essam H. Houssein, and M. R. Hassan. "Dental Age Estimation Based on X-ray Images." *CMC-COMPUTERS MATERIALS & CONTINUA* 62, no. 2 (2020): 591-605.
- [207] Houssein, Essam H., Mosa E. Hosney, Diego Oliva, Waleed M. Mohamed, and M. Hassaballah. "A Novel Hybrid Harris Hawks Optimization and Support Vector Machines for Drug Design and Discovery." *Computers & Chemical Engineering* (2020), Vol. 133: 106656.
- [208] Younan, Mina, Essam H. Houssein, Mohamed Elhoseny, and Abdelmgeid A. Ali. "Challenges and Recommended Technologies for the Industrial Internet of Things: A Comprehensive Review." *Measurement* (2020): 107198.
- [209] Houssein, Essam H., Mohammed R. Saad, Kashif Hussain, William Zhu, Hassan Shaban, and M. Hassaballah. "Optimal Sink Node Placement in Large Scale Wireless Sensor Networks Based on Harris' Hawk Optimization Algorithm." *IEEE Access* 8 (2020): 19381-19397.

Conference and Book Chapters

- [210] Hedaia, Omar Ahmed, Ahmed Shawish, Essam H. Houssein, and Hala Zayed. "Bio-CAPTCHA Voice-Based Authentication Technique for Better Security and Usability in Cloud Computing." *International Journal of Service Science, Management, Engineering, and Technology (IJSSMET)* 11, no. 2 (2020): 59-79.
- [211] Younan, Mina, Essam H. Houssein, Mohamed Elhoseny, and Abd El-mageid A. Ali. "Improved Models for Time Series Cluster Representation Based Dynamic Time Warping." *In 2020 15th International Conference on Computer Engineering and Systems (ICCES)*, pp. 1-6. IEEE, 2020.
- [212] Houssein, Essam H., Ibrahim E. Mohamed, and Aboul Ella Hassanien. "Salp Swarm Algorithm: Tutorial." *In Swarm Intelligence Algorithms*, pp. 279-292. CRC Press, 2020.
- [213] Houssein, Essam H., Ibrahim E. Mohamed, and Aboul Ella Hassanien. "Salp Swarm Algorithm: Modification and Application." *In Swarm Intelligence Algorithms*, pp. 285-299. CRC Press, 2020.
- [214] Houssein, Essam H., Ibrahim E. Mohamed, and Yaser M. Wazery. "Salp Swarm Algorithm: A Comprehensive Review." *In Applications of Hybrid Metaheuristic Algorithms for Image Processing*, Springer, Cham, pp. 285-308, 2020.

2019

- [215] ElShaarawy, Islam A., Essam H. Houssein, Fatma Helmy Ismail, and Aboul Ella Hassanien. "An exploration-enhanced elephant herding optimization." *Engineering Computations* (2019).
- [216] Hussien, Abdelazim G., Aboul Ella Hassanien, Essam H. Houssein, Mohamed Amin, and Ahmad Taher Azar. "New binary whale optimization algorithm for discrete optimization problems." *Engineering Optimization* (2019): 1-15.
- [217] 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.
- [218] Ismaeel, Alaa AK, Islam A. Elshaarawy, Essam H. Houssein, Fatma Helmy Ismail, and Aboul Ella Hassanien. "Enhanced Elephant Herding Optimization for Global Optimization." *IEEE Access* **7** (2019): 34738-34752.
- [219] Ahmed, Mohammed M., Essam H. Houssein, Aboul Ella Hassanien, Ayman Taha, and Ehab Hassanien. "Maximizing lifetime of large-scale wireless sensor networks using multi-objective whale optimization algorithm." *Telecommunication Systems* (2019): 1-17.
- [220] Huthaifa M. Kanoosh, Essam Halim Houssein, and Mazen M. Selim, "Salp Swarm Algorithm for Node Localization in Wireless Sensor Networks," *Journal of Computer Networks and Communications*, vol. 2019, Article ID 1028723, 12 pages, 2019. <https://doi.org/10.1155/2019/1028723>.
- [221] Hussien, Abdelazim G., Aboul Ella Hassanien, Essam H. Houssein, Siddhartha Bhattacharyya, and Mohamed Amin. "S-shaped Binary Whale Optimization Algorithm for Feature Selection." *In Recent Trends in Signal and Image Processing*, pp. 79-87. Springer, Singapore, 2019.

Conference and Book Chapters

- [222] Houssein, Essam H. "Machine Learning and Meta-heuristic Algorithms for Renewable Energy: A Systematic Review." *Advanced Control and Optimization Paradigms for Wind Energy Systems*, pp. 165-187. Springer, 2019.
- [223] Essam H. Houssein, Mina Younan, Aboul Ella Hassanien, "Nature-Inspired Algorithms: A Comprehensive Review", *HCIRA 2019*, CRC Press.

2018

- [224] Wazery, Yaser Maher, Hager Saleh Mohammed, and Essam Halim Houssein. "Twitter Sentiment Analysis using Deep Neural Network." *In 2018 14th International Computer Engineering Conference (ICENCO)*, pp. 177-182. IEEE, 2018.
- [225] Ismail, Fatma Helmy, Essam H. Houssein, and Aboul Ella Hassanien. "Chaotic Bird Swarm Optimization Algorithm." *In International Conference on Advanced Intelligent Systems and Informatics*, pp. 294-303. Springer, Cham, 2018.
- [226] Houssein, Essam H., Ahmed A. Ewees, and Mohamed Abd ElAziz. "Improving Twin Support Vector Machine Based on Hybrid Swarm Optimizer for Heartbeat Classification." *Pattern Recognition and Image Analysis* **28**, no. 2 (2018): 243-253.
- [227] Hassanien, Aboul Ella, Moataz Kilany, and Essam H. Houssein. "Combining Support Vector Machine and Elephant Herding Optimization for Cardiac Arrhythmias." *arXiv preprint arXiv:1806.08242* (2018).
- [228] Ewees, Ahmed A., Mohamed Abd Elaziz, and Essam H. Houssein. "Improved Grasshopper Optimization Algorithm using Opposition-based Learning." *Expert Systems with Applications* (2018).
- [229] Hassanien, Aboul Ella, Moataz Kilany, Essam H. Houssein, and Hameed AlQaheri. "Intelligent human emotion recognition based on elephant herding optimization tuned support vector regression." *Biomedical Signal Processing and Control* **45** (2018): 182-191.
- [230] Noor Mualla, Essam H. Houssein, Hala H. Zayed, "Face Age Estimation Approach Based on Deep Learning and Principle Component Analysis", (*IJACSA*) *International Journal of Advanced Computer Science and Applications*, Vol. 9, No. 2, 2018.
- [231] Essam H. Houssein. & Mohamed Abd-ELfattah. Multi-objective Modified Flower Pollination Algorithm for Maximizing Lifetime in Wireless Sensor Networks. *International Journal of Systems Signal Control and Engineering Application*, Vol 11(1), PP. 20-29, 2018.

Conference and Book Chapters

- [232] 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 (AMTA2018)* to be held at Cairo, during November 22-24 February 2018.
- [233] Ahmed Abdeldaim, Essam Houssein and Aboul Ella Hassanien. "Color Image Segmentation of Fishes with Complex Background in Water", *3rd International Conference on Advanced Machine Learning Technologies and Applications (AMTA2018)* to be held at Cairo, during November 22-24 February 2018.
- [234] Osama, Sarah, Essam H. Houssein, Ashraf Darwish, Aboul Ella Hassanien, and Aly A. Fahmy. "An Optimized Support Vector Regression Using Whale Optimization for Long Term Wind Speed Forecasting." *Hybrid Metaheuristics: Research And Applications* **84**, pp. 171-196 (2018).
- [235] 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).
- [236] Mostafa, A., Houssein, E. H., Houseni, M., Hassanien, A. E., & Hefny, H. (2018). Evaluating Swarm Optimization Algorithms for Segmentation of Liver Images. *In Advances in Soft Computing and Machine Learning in Image Processing* (pp. 41-62). Springer, Cham.

2017

- [237] Houssein, Essam H., Aboul Ella Hassanien, and Alaa AK Ismaeel. "EEG signals classification for epileptic detection: a review." *Proceedings of the Second International Conference on Internet of things and Cloud Computing*. ACM, 2017.
- [238] Essam H. Houssein. & Mohamed Abd-ELfattah. The Decisional Visualized Toolkit for Crises Management based on Information Visualization. *International Journal of Soft Computing*, Vol. 11 (5-6), PP. 355-364, 2017.
- [239] Alaa Tharwat, Essam H. Houssein, Mohammed M. Ahmed, Aboul Ella Hassanien & Thomas Gabel. MOGOA algorithm for constrained and unconstrained multi-objective optimization problems. *Applied Intelligence* Springer. 2017.
- [240] Noor Mualla, Essam H. Houssein, Hala H. Zayed, "Automated Facial Age Estimation Using Deep Belief Network", *International Journal of Advancements in Computing Technology (IJACT)*, Vol. 9, No.3, 2017.
- [241] Essam H. Houssein & Yaser Maher Wazery. Vortex Search Topology Control Algorithm for Wireless Sensor Networks. *International Journal of Intelligent Engineering and Systems (IJIES)*, 2017.
- [242] Essam H. Houssein. Particle swarm optimization enhanced twin support vector regression for wind speed forecasting. *Journal of Intelligent Systems*. 2017.
- [243] Abdullah, Khalid M., Essam H. Houssein, and Hala H. Zayed. "Extended SPINS Framework for Security Wireless Sensor Network." *International Journal of Computer Science Issues (IJCSI)* **14**, no. 2 (2017): 58.
- [244] Mlgheit, J. R., Houssein, E. H., & Zayed, H. H. (2017). Security Model for Preserving Privacy over Encrypted Cloud

Computing. *Journal of Computer and Communications*, 5(06), 149.

- [245] Houssein, Essam H., Moataz Kilany, and Aboul Ella Hassanien. "ECG signals classification: a review." *International Journal of Intelligent Engineering Informatics* 5.4 (2017): 376-396.
- [246] Moataz kilany, Essam H Houssein, and Amr Badr, "Hybrid of Water Wave Optimization and Support Vector Machine to Improve EMG Signal Classification for Neurogenic Disorders", *12th IEEE International Conference on Computer Engineering and Systems (ICCES 2017)*, Cairo, Egypt, December 19-20, 2017.
- [247] Essam H Houssein, Abdelazim G. Hussien, Aboul Ella Hassanien, "A binary whale optimization algorithm with hyperbolic tangent fitness function for feature selection", *12th IEEE International Conference on Computer Engineering and Systems (ICCES 2017)*, Cairo, Egypt, December 19-20, 2017.
- [248] Essam H. Houssein, Abdelazim G. Hussien, Aboul Ella Hassanien, "A binary whale optimization algorithm with hyperbolic tangent fitness function for feature Selection", *12th IEEE International Conference on Computer Engineering and Systems (ICCES 2017)*, Cairo, Egypt, December 19-20, 2017.
- [249] Sarah Osama, Ashraf Darwish, Essam H. Houssein, Aboul Ella Hassanien, Aly A. Fahmy, and Ayman Mahrous2, "Forecast of Long-Term Wind Speed based on Optimized Support Vector Regression", *8th IEEE International Conference on Intelligent Computing and Information Systems (ICICIS 2017)*. Faculty of computer and information sciences, Ain Shams University, Egypt.
- [250] Abdelazim G. Hussien, Essam H. Houssein, Aboul Ella Hassanien and Mohamed Amin "Salp Swarm Algorithm for Predicting Chemical Activity", *8th IEEE International Conference on Intelligent Computing and Information Systems (ICICIS 2017)*. Faculty of computer and information sciences, Ain Shams University, Egypt.
- [251] Said, Shereen, Abdalla Mostafa, Essam H. Houssein, Aboul Ella Hassanien, and Hesham Hefny. "Moth-flame Optimization Based Segmentation for MRI Liver Images." *In International Conference on Advanced Intelligent Systems and Informatics*, pp. 320-330. Springer, Cham, 2017.
- [252] Ahmed, Mohammed M., Essam H. Houssein, Aboul Ella Hassanien, Ayman Taha, and Ehab Hassanien. "Maximizing Lifetime of Wireless Sensor Networks Based on Whale Optimization Algorithm." *In International Conference on Advanced Intelligent Systems and Informatics*, pp. 724-733. Springer, Cham, 2017.
- [253] 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.
- [254] Ali, M. A., Houssein, E. H., Eldemerdash, N. A., & Hassanien, A. E. (2017). Increasing the hiding capacity in image steganography using Braille code. *International Journal of Intelligent Engineering Informatics*, 5(4), 327-341.
- [255] Essam H. Houssein, Aboul Ella Hassanien, Alaa A. K. Ismaeel, "EEG Signals Classification for Epileptic Detection: A review", *2nd International Conference on Internet of Things Data, and Cloud Computing Venue: Churchill College, Cambridge, United Kingdom*, 22-23 March 2017.
- [256] Osama, Sarah, Essam H. Houssein, Aboul Ella Hassanien, and Aly A. Fahmy. "Forecast of wind speed based on whale optimization algorithm." *International Conference on IoT and Machine Learning*, p. 62. ACM, 2017.

2016

- [257] Hamad, A., Houssein, E. H., Hassanien, A. E., & Fahmy, A. A. (2016, December). Feature extraction of epilepsy EEG using discrete wavelet transform. *In 12th International Computer Engineering Conference (ICENCO)*, IEEE, pp. 190-195, Dec 2016.
- [258] Houssein, E. H., AbdElminaam, D. S., & Ismaeel, A. A. Ant-Hoc: A swarm intelligence-based routing protocol for Ad Hoc networks. *International Journal of Computer Networks and Wireless Communications (IJCNWC)*, ISSN: 2250-3501, Vol.6, No 1, Jan-Feb 2016.
- [259] Houssein, E. H., Ali, M. A., & Hassanien, A. E. (2016, September). An Image Steganography Algorithm using Haar Discrete Wavelet Transform with Advanced Encryption System. *In Computer Science and Information Systems (FedCSIS)*, 2016 Federated Conference on (pp. 641-644). IEEE.
- [260] Jassim R. Mlgheit , Essam H. Houssein , Hala H. Zayed , "Efficient Privacy Preserving of Multi-keyword Ranked Search Model over Encrypted Cloud Computing", *ICCAT'2017*, cairo, Egypt, December 29th 2016.
- [261] Khalid M. Abdullah, Essam H. Houssein, Hala H. Zayed , "New Security Protocol using Hybrid Cryptography Algorithm for WSN", *ICCAT'2017*, Cairo, Egypt, December 29th 2016.
- [262] Houssein, Essam H., Moataz Kilany, Aboul Ella Hassanien, and Vaclav Snasel. "A Two-Stage Feature Extraction Approach for ECG Signals." *In International Afro-European Conference for Industrial Advancement*, pp. 299-310. Springer, Cham, 2016.

2015

- [263] Ismaeel, Alaa AK, Ammar Yassir, Tarek Mahmoud, Abdelmegied Aly, and Essam H. Houssein. "Area bounds of hierarchical graphs straightline grid drawing." *In Information Technology and Computer Applications Congress (WCITCA)*, 2015 World Congress on, pp. 1-5. IEEE, 2015.
- [264] Houssein, Essam H., and A. A. Ismaeel. "Ant Colony Optimization based Hybrid Routing Protocol for MANETs." *Journal of Emerging Trends in Computing and Information Sciences* 6, no. 11 (2015).

Before 2014

- [265] T. M. Mahmoud, E. H. Houssein and Alaa A. K. Ismaeel, "New Adaptive Routing Protocol for Mobile Ad hoc Networks", *International Journal of Networking and Communication (IJNC)*, Vol.1, Issue 1, 2014.
- [266] T. M. Mahmoud, E. H. Houssein and Alaa A. K. Ismaeel, "New Hybrid Routing Protocol for MANETs", *International Conference on Network & Wireless Technology and Applications, Tunisia, ICNWT'2014*.
- [267] A. A. A. Radwan, T. M. Mahmoud and E. H. Houssein, " HOPPRP: Hybrid Ant Colony Optimization Proactive Routing Protocol for Mobile Ad hoc Networks", *5th International Conference on Intelligent Computing and Information Systems, Faculty of Computer & Information Science, Ain Shams University, Egypt, 30 June - 3July, 2011*.
- [268] A. A. A. Radwan, T. M. Mahmoud and E. H. Houssein, "AntNet-RSLR: A Proposed Ant Routing Protocol for MANETs", *The first Saudi International Electronics, Communications and Electronics Conference (SIECPC'11) and IEEE Explore Digital*

Library, Riyadh, Saudi Arabia, <http://www.kacst-siecpc.org>, April 23-26, 2011.

- [269] A. A. A. Radwan, T. M. Mahmoud and E. H. Houssein, "Performance Comparison of AODV, DSR and LAR Routing Protocols for MANETs", *5th International Conference on Intelligent Computing and Information Systems, Faculty of Computer & Information Science, Ain Shams University, Egypt, 30 June - 3 July, 2011*.
- [270] A. A. A. Radwan, T. M. Mahmoud and E. H. Houssein, "Evaluation Comparison of Some Ad Hoc Networks Routing Protocols", *El Sevier, Egyptian Informatics Journal (EIJ), Volume 12, issue2, July 2011*.
- [271] A. A. Radwan, T. M. Mahmoud and E. H. Houssein, "Performance Measurement of Some Mobile Ad Hoc Network Routing Protocols", *International Journal of Computer Science Issues (IJCSI), Vol.8, Issue 1, Jan. 2011*.
- [272] A. A. A. Radwan and E. H. Houssein, "A new Algorithm for Compact Box-Drawing of Trees", *International Journal of Intelligent Computing & Information Sciences, Volume 4, Number 2, PP: 21-31, 2004*.
- [273] A. A. A. Radwan, M. R. Girgis and E. H. Houssein, "Techniques for Determining the Area Requirement of Visibility Representations of Rooted Trees", *International Journal of Intelligent Computing & Information Sciences, Volume 2, Number 2, PP: 69-79, 2002b*.
- [274] A. A. Radwan, M. R. Girgis and E. H. Houssein, "Comparing Area of Different Visibility Representations of Rooted Trees", *International Journal of Intelligent Computing & Information Sciences, Volume 2, Number 1, PP: 68-77, 2002a*.

Thesis Supervision:

PhD degree defend

- [1] Noor Ali Mualla, M.Sc. title "Age Estimation based on Machine Learning Methods", Faculty of Science, Aswan University, Supervision Committee: Prof. Dr. Moa'temed and Associate Prof. Dr. Essam Halim Houssein, 2020.
- [2] Mina Samman Younan, PhD title "Scalable Crawling and Indexing Mechanisms for the Internet of Things", Faculty of Computers and Information, Minia University, Committee: Prof. Abd Elmegeed Amin and Prof. Dr. Essam Halim Houssein, 2020.
- [3] Marwa Mamdouh Emam Khalef, PhD title "Computer Aided Diagnosis (CAD) System for Medical Imaging based on Artificial Intelligence", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2021.
- [4] Mohamed Rabea Saad Nour, M.Sc. title "Studying Meta-heuristic Intelligence Optimization Algorithms for Enhancing the Efficiency of Wireless Sensor Networks", Faculty of Computers and Information, Minia University, Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2021.
- [5] Mosa Elkhedr Hosny Mohamed, M.Sc. title "Soft Computing Techniques for Analysis Biomedical Data", Faculty of Computers and Information, Minia University, Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2021.
- [6] Rehab Emad El-Dein Sayed Mohamed, PhD title "Applying Machine Learning Techniques to Biomedical Natural Language Processing", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2019.
- [7] Asmaa Hammad El-sayed, PhD title "Brain Computer Interface for Human Emotion Recognition based on Machine learning Techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2021.

PhD Degree Present

- [1] Eman Saber, PhD title "Metaheuristic Optimization Algorithms Boosted Artificial Intelligence Techniques for Healthcare Applications", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Prof. Dr. Essam Halim Houssein, 2023.
- [2] Baha Helmy, PhD title "Integrated deep learning-based optimization algorithms for medical data", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Hassan Shaban 2023.
- [3] Mohamed Arafa Ali Mahdy, PhD title "Action Recognition Framework Based on Multi-Agent Systems and Soft Computing", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Waleed Makram, 2023.
- [4] Mahmoud Dirar Mahmoud, PhD title "Prediction of Climate Change using Artificial Intelligence techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Prof. Dr. Essam Halim Houssein, and Dr. Waleed Makram, 2023.
- [5] Hebatollah Mostafa El-kaiaty, PhD title "Brain Computer Interface for Human Emotion Recognition based on Machine learning Techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Associate Prof. Dr. Essam Halim Houssein, 2021.
- [6] Shima Gamal Mohamed, PhD title "Multibiometric Personal Authentication Framework Based on Soft Computing Techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Abd Elmegeed Amin Aly and Prof. Dr. Essam Halim Houssein, 2023.
- [7] Hager Nady Hassan, PhD title "Artificial Intelligence Advances for Medical Computer-Aided Diagnosis of Brain Diseases", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Moustafa Elsayed 2023.
- [8] Ibrahim Elsayed Ibrahim, PhD title "Improving the Efficiency of Wireless Sensor Networks based on Soft Computing Techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Yasser Maher 2023.
- [9] Osama Mohamed Hefny, PhD title "AI-Powered Video Analytics: Unleashing Insightful Applications", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Ebtsam Abdulhakam Sayed, 2024.
- [10] Takwa Mohamed Saied, PhD title "Data Fusion Model for intelligent transportation systems applications", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Yasser Maher, 2024.
- [11] Gamela Nageh Zaki Malaik, PhD title "Parameter Estimation for the Components of Hydrogen Energy Systems Using Metaheuristics", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and, and Dr. Eman Mamdouh, 2024.

-
- [12] Ibrahim Ramadan Abdelhamid Abdelbaki, PhD title “Enhancing Security and Efficiency in Smart Government Services with Blockchain and Artificial Intelligence” Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and, and Dr. Mina Samman Younan, 2025.

Master’s degree defend.

- [1] Khaled Abd Allah, M.Sc. title “Secure Routing Protocol for Wireless Sensor Networks”, Faculty of Computers and Informatics, Benha University, Supervision Committee: Prof. Dr. Hala Helmy Zayed and Dr. Essam Halim Houssein, 2017.
- [2] Jassim Rahman Mlgheit, M.Sc. title “Preserving Privacy of Multi-Keyword Search over Encrypted Cloud Computing”, Faculty of Computers and Informatics, Benha University, Supervision Committee: Prof. Dr. Hala Zayed and Dr. Essam Halim, 2017.
- [3] Asmaa Hamad El-Saied, M.Sc. title “Application of Swarm Intelligence Optimization in Biomedical”, Faculty of Computers and Information, Cairo University, Supervision Committee: Prof. Aly Aly Fahmy, Prof. Aboul Ella Hassanien, Associate Prof. Dr. Essam Halim Houssein, 2018.
- [4] Sarah Osama Talaat, M.Sc. title “Kernel-based Swarm Optimization and Renewable Energy Application”, Faculty of Computers and Information, Cairo University, Supervision Committee: Prof. Aly Aly Fahmy, Prof. Aboul Ella Hassanien, Associate Prof. Dr. Essam Halim Houssein, 2018.
- [5] Noor Ali Mualla, M.Sc. title “Facial Age Estimation Using Machine Learning Methods”, Faculty of Computers and Informatics, Benha University, Supervision Committee: Prof. Dr. Hala Helmy Zayed and Associate Prof. Dr. Essam Halim Houssein, 2018.
- [6] Huthaifa Mohammed Kanoosh, M.Sc. title “Wireless Sensor Networks Localization Based on Meta-heuristic Algorithms”, Faculty of Computers and Informatics, Benha University, Supervision Committee: Prof. Dr. Mazen Mohamed Selim and Associate Prof. Dr. Essam Halim Houssein, 2019.
- [7] Mohamed Rabea Saad Nour, M.Sc. title “Meta heuristic Intelligence Optimization Approach for Node Deployment in Wireless Sensor Networks “, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Associate Prof. Mahmoud Hasaballah, 2020.
- [8] Mosa Elkhedr Hosny Mohamed, M.Sc. title “Drug Design and Discovery Framework Based on Soft Computing Techniques”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Associate Prof. Mahmoud Hasaballah, 2020.
- [9] Mahmoud Dirar Mahmoud, M.Sc. title "Predicting Stock Market Price Using Artificial Intelligence Techniques”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Waleed Makram, 2020.
- [10] Omar Hedia, M.Sc. title “Design of Secure Biometric Authentication Technique in Cloud Computing”, Faculty of Computers and Informatics, Benha University, Supervision Committee: Prof. Dr. Hala Helmy Zayed and Associate Prof. Dr. Essam Halim Houssein, 2020.
- [11] Mohamed Arafa Ali Mahdy, M.Sc. title "Studying Nature-inspired Algorithms for Solving Optimization Problems”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Waleed Makram, 2019.
- [12] Bahaa El-Din Helmy Shabaan, M.Sc. title “MultiLevel thresholding image segmentation using Meta-heuristic optimization algorithms “, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Hassan Shaban, 2020.
- [13] Zainab Abo Hashima Saad, M.Sc. title “Quantum Machine Learning for Classification of Medical Diseases”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, 2021.
- [14] Takwa Mohamed Saied, M.Sc. title “Machine Learning for Prediction Virus Mutation”, Faculty of Computers and Information, Cairo University, Supervision Committee: Prof. Aly Aly Fahmy, Associate Prof. Dr. Essam Halim Houssein, and Dr. Emad Nabil, 2021.
- [15] Gamela Nageh Zaki Malaik, M.Sc. title “Parameter estimation of renewable energy using meta-heuristic optimization algorithms”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Eman Mamdouh, 2021.
- [16] Hager Nady Hassan, M.Sc. title “Cancer classification approach based on metaheuristic algorithms and machine learning technique”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Emad Nabil, 2021.
- [17] Zainab Abo Hashima Saad, M.Sc. title “Quantum Machine Learning for Classification of Medical Diseases”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Mohamed Elhoseny, 2022.
- [18] Ibrahim Elsayed Ibrahim, M.Sc. title “Integration of Machine Learning and Optimization Techniques for Cardiac Health Recognition”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, 2022.
- [19] Someya Mohsen Zaki Mahmoud, M.Sc. title “Machine learning for Emotion Recognition Using Wearable Sensors”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Eman Mamdouh, 2022.
- [20] Nahed Ibrahim Mahmoud, M.Sc. title “Analyzing A Question Answering Semantic search engine based on Semantic Web Technologies”, Faculty of Science, Minia University, Supervision Committee: Prof. Dr. Awny Abdelhadi Ahmed Sayed, Associate Prof. Dr. Essam Halim Houssein, 2022.
- [21] Ahmed Gamal Gad, M.Sc. title "Improving Task Scheduling in Cloud Computing based on Meta-heuristic Optimization Algorithms”, Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Yaser Maher Wazery, 2019.
- [22] Nada Abdalkarim Abdalazim, M.Sc. title "Computer-Aided Diagnosis System for Liver Fibrosis Using Data Mining Techniques”, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Ebtam Abdulhakam Sayed, 2021.
- [23] Doaa Ahmed Abd Allah, M.Sc. title "Biomedical Imaging Segmentation and Classification Framework Based on Soft Computing Techniques”, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Mina Younan, 2021.
- [24] Mahmoud Khalaf Saeed Hassan, M.Sc. title "A comparative study of metaheuristic algorithms for solving various optimization problems”, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Moustafa Mahmoud Al-Sayed, 2021.
- [25] Mohamed Reda Sayed Salah, M.Sc. title “Intelligent Healthcare System based on Blockchain Technology”, Faculty of Computers

and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Yaser Maher, 2018.

- [26] Mahmoud Abd Elwahab, M.Sc. title " Semantic Framework Integrated Internet of Things with Artificial Intelligence for Smart Cities", Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Waleed Makram, 2020.

Master's degree Present

- [1] Ahmed Khairy Mohamed Hassan, M.Sc. title " Predictive analytics Based on Machine Learning for Drug Side-Effects", Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Eman Mamdouh, 2020.
- [2] Ahmed Dirar Mahmoud Hassan M.Sc. title "A machine learning-based technique for diagnosis of COVID-19 from medical imaging", Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Moustafa ElSayed, 2021.
- [3] Enas Salah Abdelazem Mohamed, M.Sc. title "Artificial Intelligence techniques for Diagnosis of Alzheimer's disease", Faculty of Computers and Information, Minia University, Supervision Committee: Associate Prof. Dr. Essam Halim Houssein, and Dr. Marwa Mamdouh Emam, 2022.
- [4] Yasmin Mouawad Abdelghany, M.Sc. title "Feature Selection based Swarm Intelligence Algorithms for High Dimensional Data Classification", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Marwa Mamdouh Emam, 2023.
- [5] Esraa Mohiy Mohammad, M.Sc. title "A Computer-Aided Diagnosis System for Detecting Ocular Diseases Based on Soft Computing Techniques", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Hamada I. AbdulWakel, 2023.
- [6] Nouran Mohamed, M.Sc. title "Mitigation and Adaptation Solutions for Climate Crisis Using Internet of Things (IoT) and Artificial Intelligence (AI) Technologies", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Mina Younan, 2023.
- [7] Amir Moustafa, M.Sc. title " A blockchain-based Internet of medical things framework for diabetes", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Mina Younan, 2023.
- [8] Ahmed Mohamed Abdel Muntalib, M.Sc. title "Generative Adversarial Network Approach for Mitral Regurgitation Diagnosis from Cardiac Magnetic Resonance Imaging", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Hamada Ibrahim Abdel Wakil, 2024.
- [9] Amr Gamal, M.Sc. title " Explainable Artificial Intelligence for Medical Imaging Models", Faculty of Computers and Information, Minia University, Supervision Committee: Prof. Dr. Essam Halim Houssein, and Dr. Eman Mamdouh, 2024.

Theses account

PhD		MSc		Total Thesis
Done	Present	Done	Present	
7	12	26	9	54

Training Courses

- ORASCOM Training & Technology (OTT)
- Career Development and Consultation Academy
- CCNA instructor
- Information Storage and Management (ISM), EMC², 2 Feb 2014.
- Cloud Infrastructure and Services (CIS), EMC², 16:20 Feb 2014.
- NAQAAE (National Authority for Quality Assurance and Accreditation of Education)
 - Good practices for institutions of higher education,
 - Active learning and
 - Evaluating the learning outcomes

Teaching Undergraduate Courses

Object Oriented Programming	Operating Systems	Data Structures
Computer Networks	Automata and Formal Languages	Object Oriented Programming

Teaching Postgraduate Courses

Artificial Intelligence	Metaheuristic Algorithms	Optimization	Research Methods and Skills	Soft Computing
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• **Journal Reviewer**

Web of Science: <https://www.webofscience.com/wos/author/rid/C-8941-2016>

Elsevier: <https://reviewerhub.elsevier.com/reviewer/rewards-reports/certificates>

Publishers	Journals
Elsevier	<ol style="list-style-type: none"> 1. Ad Hoc Networks 2. Advances in Engineering Software 3. Alexandria Engineering Journal 4. Applied Energy 5. Applied Soft Computing 6. Artificial Intelligence in Medicine 7. Biomedical Signal Processing and Control 8. Building and Environment 9. Computer Communications 10. Computer Methods and Programs in Biomedicine 11. Computers in Biology and Medicine 12. Displays 13. Ecological Informatics 14. Energy Conversion and Management 15. Engineering 16. Engineering Applications of Artificial Intelligence 17. Engineering Science and Technology, an International Journal 18. Engineering Structures 19. Expert Systems with Applications 20. Future Generation Computer Systems 21. Heliyon 22. Information Sciences 23. Informatics in Medicine Unlocked 24. Intelligent Systems with Applications 25. International Journal of Electrical Power and Energy Systems 26. IRBM 27. Journal of Cleaner Production 28. Journal of Energy Storage 29. King Saud University - Computer and Information Sciences 30. King Saud University - Engineering Sciences 31. Knowledge-Based Systems 32. Mathematics and Computers in Simulation 33. Measurement 34. Resources, Conservation & Recycling 35. Sustainable Energy Technologies and Assessments 36. Swarm and Evolutionary Computation
Springer	<ol style="list-style-type: none"> 37. Journal of Ambient Intelligence and Humanized Computing 38. Applied Intelligence 39. Arabian Journal for Science and Engineering 40. Archives of Computational Methods in Engineering 41. Artificial Intelligence Review 42. Cluster Computing 43. Complex & Intelligent System 44. Evolutionary Intelligence 45. Evolving Systems 46. Interdisciplinary Sciences Computational Life Sciences 47. International Journal of Computational Intelligence Systems 48. ISA Transactions 49. Journal of Bionic Engineering 50. Journal of Combinatorial Optimization 51. Journal of Intelligent Manufacturing 52. Journal of Medical and Biological Engineering 53. Journal of Supercomputing 54. Knowledge and Information Systems 55. Neural Computing and Applications 56. Neural Processing Letters 57. Personal and Ubiquitous Computing 58. SN Applied Sciences 59. SN Computer Science 60. Soft Computing 61. Telecommunication Systems 62. Wireless Personal Communications
IEEE	<ol style="list-style-type: none"> 63. IEEE Access 64. IEEE ACM Transactions on Autonomous and Adaptive Systems 65. IEEE Big Data Mining and Analytics 66. IEEE Intelligent Systems 67. IEEE Journal of Biomedical and Health Informatics 68. IEEE Systems Journal

	69. IEEE Transactions on Artificial Intelligence 70. IEEE Transactions on Engineering Management 71. IEEE Transactions on Evolutionary Computation 72. IEEE Transactions on Industrial Informatics 73. IEEE Transactions on Network and Service Management 74. IEEE Transactions on Neural Networks and Learning Systems 75. IEEE Transactions on Neural Systems and Rehabilitation Engineering 76. IEEE Transactions on Pattern Analysis and Machine Intelligence
ACM	77. ACM Computing Surveys
Cell	78. iScience
Tech Science Press	79. Computers, Materials & Continua
Scientific Reports	80. Scientific Reports
PeerJ	81. PeerJ Computer Science
PLOS ONE	82. PLOS ONE
Taylor and Francis	83. Ambient Energy 84. Applied Artificial Intelligence 85. Automatika 86. Computer Methods in Biomechanics and Biomedical Engineering 87. Connection Science 88. Electric Power Components and Systems 89. Electromagnetic Biology and Medicine 90. Engineering Applications of Computational Fluid Mechanics 91. Engineering Optimization 92. IJHC 93. Imaging Science Journal 94. Journal of Experimental & Theoretical Artificial Intelligence
Emerald	95. Engineering Computations 96. International Journal of Energy Sector Management
Wiley	97. Basic & Clinical Pharmacology & Toxicology 98. Concurrency and Computation: Practice and Experience 99. Expert Systems 100. International Journal Imaging Systems and Technology (IMA) 101. Imaging Systems and Technology (IMA) 102. Intelligent Systems 103. International Journal of Information Technology & Decision Making 104. Transactions on Emerging Telecommunications Technologies 105. WIREs Data Mining and Knowledge Discovery
OXFORD	106. Journal of Computational Design and Engineering 107. Clean Energy
MDPI (12 journals)	108. Algorithms, 109. Applied Sciences, 110. Computation, 111. Diagnostics, 112. Electronics, 113. energies, 114. entropy, 115. Environmental Research and Public Health and Remote Sensing, 116. Mathematics, 117. Processes, 118. Remote Sensing, 119. Sensors
IET	115. energy systems integration, CAAI Transactions on Intelligence Technology, Renewable Power Generation
Frontiers	116. in Bioengineering, in Energy Research, in Neuroinformatics
Hindawi (7 journals)	117. Complexity, Computational Intelligence and Neuroscience, Journal of Mathematics, Mathematical Problems in Engineering, Wireless Communications and Mobile Computing and Journal of Control Science and Engineering, Computational and Mathematical Methods in Medicine
Others	118. Kuwait Journal of Science 119. Jordanian Journal 120. Energy systems integration, IET 121. Technical Review, IETE 122. Mechatronic Systems and Control ACTA Press 123. Jordanian Journal of Computers and Information Technology (JJCIT) 124. International Journal of Intelligent Engineering Informatics, inderscience 125. International Journal of Advanced Computer Technology – GlobalCIS 126. Bulletin of Electrical Engineering and Informatics - IAES

Bio:

Essam H. Houssein (*Member, IEEE*) received the Ph.D. degree in computer science, in 2012. He is currently a Professor of Artificial Intelligence with the Faculty of Computers and Information, Minia University, Minia, Egypt. He is the founder and the Chair of Artificial Intelligence Research (AIR) Group, Egypt. He has more than 200 scientific research articles published in prestigious international journals. His research interests include Meta-heuristics Optimization Algorithms, WSN, Bioinformatics, Internet of Things, Artificial Intelligence, Image Processing, Data Mining. He serves as a Reviewer for more than 100 journals, such as Elsevier, Springer, and IEEE.

Important accounts

<https://scholar.google.com/citations?user=UScKJW4AAAAJ&hl=en>

https://www.researchgate.net/profile/Essam_Houssein

<http://staffportal.minia.edu.eg/essam.halim/>

<https://publons.com/researcher/1736026/essam-h-houssein/>

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Regards,

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Chair of Artificial Intelligence Research (AIR) Group

<https://www.facebook.com/groups/airai/>