CURRICULUM VITAE

Mohamed N. Saad (m.n.saad@ieee.org, m.n.saad@minia.edu.eg)

May 2020

WEB LINKS

Scopus: https://www.scopus.com/authid/detail.uri?authorId=55635992600

Google Scholar:
https://scholar.google.com.eg/citations?user=GXXM__wAAAAJ&hl=en&oi=ao

Mendeley: https://www.mendeley.com/profiles/mohamed-n-saad/

Linkedin: https://www.linkedin.com/in/mohamed-nagy-saad-phd-81890484/

ResearchGate: https://www.researchgate.net/profile/Mohamed_Saad17

Orcid: https://orcid.org/0000-0001-8229-0280

Publons: https://publons.com/researcher/1192734/mohamed-nagy-saad/

EDUCATION

2012 - 2017

Systems & Biomedical Engineering Dept., Cairo University, **Ph.D.**
Major: Bioinformatics
Advisors: Ayman M. Eldeib, **Olfat G. Shaker**, **Mai S. Mabrouk**
Title: *Association Analysis for Big Data Related to Rheumatoid Arthritis Based on Haplotype Block Partitioning and Single Nucleotide Polymorphisms*
Summary: The human genome, which includes thousands of genes, represents a big data challenge. Rheumatoid arthritis (RA) is a complex autoimmune disease with a genetic basis. Many single-nucleotide polymorphism (SNP) association methods partition a genome into haplotype blocks. The aim of this genome wide association study (GWAS) was to select the most appropriate haplotype block partitioning method for the North American Rheumatoid Arthritis Consortium (NARAC) dataset. The methods used for the NARAC dataset were the individual SNP approach and the following haplotype block methods: the four-gamete test (FGT), confidence interval test (CIT), and solid spine of linkage disequilibrium (SSLD). The measured parameters that reflect the strength of the association between the biomarker and RA were the

P-value after Bonferroni correction and other parameters used to compare the output of each haplotype block method. This work presents a comparison among the individual SNP approach and the three haplotype block methods to select the method that can detect all the significant SNPs when applied alone.

2005 - 2011 — Systems & Biomedical Engineering Dept., Cairo University, **M.Sc.**
Major: Digital Image Processing
Advisors: Ahmed H. Kandil, **Sahar A. Fawzi**, **Mohamed Abouelhoda**
Title: *Comparative Study for Biomedical Image Compression Techniques*

2000 - 2005 — Systems & Biomedical Engineering Dept., Cairo University, **B.Sc.**
Major: Biomedical Engineering (with honor)

ACADEMIC EMPLOYMENT

February 2017 - Present — **Assistant Professor**, Minia University, Faculty of Engineering, Biomedical Engineering Dept.

Spring 2020 — **Assistant Professor (Part Time)**, Arab Academy for Science Technology and Maritime Transport (AASTMT), Productivity and Quality Institute (Cairo Campus), ***Healthcare Information Management*** (Master Course) at Smart Village branch.

Fall 2018 — **Assistant Professor (Part Time)**, Arab Academy for Science Technology and Maritime Transport (AASTMT), College of Computing and Information Technology, ***Advanced Topics in Bioinformatics*** (Pre-PhD Course) at Sheraton branch.

April 2015 - February 2017 — **Assistant Lecturer**, Minia University, Faculty of Engineering, Biomedical Engineering Dept.

May 2011 - April 2015 — **Assistant Lecturer**, Misr University for Science and Technology, Faculty of Engineering, Biomedical Engineering Dept.

March 2010 - May 2011 — **Teaching Assistant**, Misr University for Science and Technology, Faculty of Engineering, Biomedical Engineering Dept.

EMPLOYMENT

December 2006 - March 2010 — **Clinical Engineer,** Suez Canal Authority Hospitals

HONORS AND AWARDS

2019, 2020 **International Scientific Publishing Award**
Awarded by Minia University, Egypt.

December 2018 **3rd Best Student Paper Award in the 9th Cairo International Biomedical Engineering Conference (CIBEC 2018)**
The paper entitled "*Haplotype Block Partitioning for NARAC Dataset Using Interval Graph Modeling of Clusters Algorithm*".

December 2017 **14th Place in the Best Ph.D. Engineering Theses Competition**
Awarded by The Engineering Sector Committee at the Supreme Council of Universities (SCU), Egypt.
2nd Place on Faculty of Engineering, Cairo University.
1st Place on Systems & Biomedical Engineering Department.

October 2017 **Senior Member**
Elevated to Senior Member, IEEE.

CONFERENCES AND WORKSHOPS

1. Ensembl REST API course - Ensembl Project at The American University in Cairo, 22 – 01 – 2020.
2. Ensembl Browser course - Ensembl Project at The American University in Cairo, 21 – 01 – 2020.
3. The International Winter School on Bioinformatics - EG-CompBio at Nile university, 27 – 31 December 2019.
4. The International Summer School on Bioinformatics - EG-CompBio at Nile university, 25 – 27 October 2019.
5. The 1st Bioinformatics Workshop - EG-CompBio: Empowering Computational Biology and Bioinformatics Research in Egypt at Saleh Kamel Center, Al-Azhar University, Nasr city, Cairo, Egypt, 13 – 07 – 2019.
6. The 3rd Egyptian Bioinformatics Workshop at Nile University, 23 – 12 – 2018.
7. The 9th Cairo International Biomedical Engineering Conference (CIBEC), 20 – 22 December 2018, Giza, Egypt.
8. Workshop on Data Science in Population Health, 9th Cairo International Biomedical Engineering Conference (CIBEC), 22 – 12 – 2018, Giza, Egypt.
9. The 4th International Conference on Biomedical & Clinical Engineering in the Arab Countries organized by EXICON, at Intercontinental City Stars, Cairo, Egypt, 2018.
10. the 6th International Congress on History of Medicine in Muslim Heritage, Faculty of Medicine & Pharmacy of Fez, University Sidi Mohammed Benabdellah, Fez, Morocco, 03 – 06 October 2018.
11. **Open Education Training Week**, Politecnico di Torino, Torino, Italy, 25 – 29 September 2017, OpenMed, Mediterranean Universities Union (UNIMED).
12. The 1st Egyptian Bioinformatics Workshop at Nile University, 12 – 09 – 2017.

13. **Big Data & Data Science …. Hype or Reality** Workshop at Nile University, 2015.
14. The 7th Cairo International Biomedical Engineering Conference (CIBEC), 11 – 12 December 2014, Giza, Egypt.
15. **Genetic Analysis Workshop (GAW19)**, Texas Biomedical Research Institute, Vienna, Austria, 24 – 27 August 2014 as a Volunteer.
16. **Entrepreneurship in Biomedical Engineering Basics & Success Stories** Conference, at Misr University for Science and Technology (MUST), 2014.
17. Introduction to Bioinformatics Workshop, Alkhawarizmi for Bioinformatics Training Center, 26 – 10 – 2013, Giza, Egypt.
18. **Tutorial in Mathematics of Bioinformatics**, International Joint Conference on Biomedical Engineering Systems & Technologies (BIOSTEC), Barcelona, Spain, 13 – 02 – 2013.
19. **International Conference on Biomedical Electronics and Devices (BIODEVICES)** a part of International Joint Conference on Biomedical Engineering Systems & Technologies (BIOSTEC), Barcelona, Spain, 11 to 14 February 2013.
20. Workshop on Bioinformatics, 6th Cairo International Biomedical Engineering Conference (CIBEC), 22 – 12 – 2012, Giza, Egypt.
21. The 6th Cairo International Biomedical Engineering Conference (CIBEC), 20 – 21 December 2012, Giza, Egypt.
22. Workshop on Bioinformatics, Al-Azhar Computer Center, Al-Azhar University, 30 – 01 to 01 – 02 – 2012, Cairo, Egypt.
23. **The 3rd International Conference & Exhibition "MEDICONEX 2010"** organized by **Arab African Conferences & Exhibitions**, at Cairo International Conference Centre, 30 – 03 to 02 – 04 – 2010.

PROFESSIONAL AFFILIATIONS AND SERVICES

Reviewer for the following international publications:

1. Autoimmunity – Informa Healthcare, Taylor & Francis
2. Biological Sciences (*Biomedical Engineering & Medical Devices*) – Omics Publishing Group
3. Biological Sciences (*Clinical & Medical Biochemistry*)– Omics Publishing Group
4. Biological Sciences (*Current Neurobiology*) – Omics Publishing Group
5. Biological Sciences (*Hereditary Genetics*) – Omics Publishing Group
6. Biological Sciences (*Journal of Biotechnology & Biomaterials*) – Omics Publishing Group
7. Biological Sciences (*Tissue Science & Engineering*) – Omics Publishing Group
8. Biomedical Engineering: Applications, Basis and Communications – World Scientific Publishing
9. Biomedical Research – Allied Academies
10. **BMJ Open** – British Medical Journals Publishing Group
11. Clinical and Experimental Medicine – Springer
12. Clinical Interventions in Aging - Dove Medical Press Ltd.
13. Clinical Rheumatology – Springer
14. Current Medical Imaging Reviews – Bentham Science Publishers
15. Current Medicinal Chemistry – Bentham Science Publishers
16. **Genetic Testing and Molecular Biomarkers** – Mary Ann Liebert Inc.
17. Global Journal of Medical and Clinical Case Reports – Peertechz.

18. HLA – Wiley
19. **International Journal of Biomathematics** – World Scientific Publishing
20. International Journal of Image and Data Fusion – Taylor & Francis
21. **Journal of Advanced Research** – Elsevier
22. Journal of Biomedical Engineering and Medical Devices – Longdom Group
23. Journal of International Medical Research – SAGE Publishing
24. Journal of Medical Imaging and Health Informatics – American Scientific Publishers
25. Journal of Ophthalmology & Clinical Research – Herald
26. Molecular Biology Reports – Springer
27. Patient Preference and Adherence – Dove Medical Press Ltd.
28. Therapeutics and Clinical Risk Management – Dove Medical Press Ltd.

Reviewer for the following international conferences:

1. 9th Cairo International Biomedical Engineering Conference (CIBEC 2018) – Giza, Egypt.
2. 2nd International Conference on Physics, Mathematics and Statistics (ICPMS 2019) – Hangzhou, China.

Professional Organization Member

1. Institute of Electrical and Electronics Engineers (IEEE) - Engineering in Medicine and Biology Society (EMBS).
2. Institute for Systems and Technologies of Information, Control and Communication (INSTICC) (2014).

Committee Member

Egyptian Syndicate of Engineers (2005 – Present).

Judgment Committee Member

1. **Bioinformatics Session**, 9th Cairo International Biomedical Engineering Conference (CIBEC), Giza, Egypt, 21 December 2018.
2. Innovation Day 7, IEEE Minia Student Branch, 16 – 18 April 2018 at Faculty of Engineering, Minia University, Minia.
3. Graduation Projects Evaluation, Since 2017, Biomedical Engineering Department, Faculty of Engineering, Minia University, Minia.

ONLINE COURSES / CERTIFICATIONS

1. Online Module titled (How to turn your thesis into an article), Researcher Academy, Elsevier, 01 – 05 – 2020.
2. Webinar titled (Hospital Management Challenges During COVID-19), The American University in Cairo School of Business, 30 – 04 – 2020.
3. Online Course titled (**From Disease to Genes and Back**), Coursera, Novosibirsk State University, January 2020.
4. Online Course titled (Certified Peer Reviewer Course), Researcher Academy, Elsevier, 11 – 09 – 2019.

5. Online Module titled (What to expect from the Certified Peer Reviewer Course?), Researcher Academy, Elsevier, 11 – 09 – 2019.
6. Online Specialization titled (**Deep Learning**), Coursera, deeplearning.ai, 2019.
7. Online Course titled (**Sequence Models**), Coursera, deeplearning.ai, February to March 2019.
8. Online Course titled (**Convolutional Neural Networks**), Coursera, deeplearning.ai, August to September 2018.
9. Online Course titled (**Structuring Machine Learning Projects**), Coursera, deeplearning.ai, May to June 2018.
10. Online Course titled (**Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization**), Coursera, deeplearning.ai, April to May 2018.
11. Online Course titled (**Neural Networks and Deep Learning**), Coursera, deeplearning.ai, February to March 2018.
12. Training of Trainers Course titled (**Open Education: fundamentals and approaches. *A learning journey opening up teaching and learning***), OpenMed, Mediterranean Universities Union (UNIMED), 1-10-2017 to 31-03-2018.
13. Online Course titled (So You Want to Become a Biomedical Engineer), edX, IEEEx, organized by IEEE Engineering in Medicine and Biology Society (EMBS), 2017.
14. Online Course titled (Emotional Intelligence), Edraak, Queen Rania Foundation, Jordan, November to December 2017.
15. Online Course titled (**Writing in the Sciences**), Coursera, Stanford University, Stanford, California, U.S.A., October to November 2017.
16. Online Webinar titled (10 tips for writing a truly terrible review), Elsevier Publishing Campus, 20 – 09 – 2017.
17. Online Course titled (**R Programming**), Coursera, Johns Hopkins University, Baltimore, Maryland, U.S.A., October to November 2014.
18. Online Course titled (**DNA – From Structure to Therapy**), Iversity, Jacobs University, Bremen, Germany, April to July 2014.

MINIA UNIVERSITY COURSES

1. Training Course on Exam Systems & Student Assessment, Faculty & Leadership Development Center (FLDC), Minia University, 10 – 11 October 2016.
2. Training Course on Quality Standards in the Teaching Process, Faculty & Leadership Development Center (FLDC), Minia University, 04 – 05 October 2016.
3. Training Course on Communication Skills in Different Types of Education, Faculty & Leadership Development Center (FLDC), Minia University, 26 – 27 September 2016.
4. Training Course on Ethics of Scientific Research, Faculty & Leadership Development Center (FLDC), Minia University, 22 – 23 August 2016.
5. Training Course on Research in the Global Databases & Management of Scientific References, Information Technology Center (ITC), Minia University, 14 – 16 August 2016.
6. Training Course on Scientific Publishing, Faculty & Leadership Development Center (FLDC), Minia University, 08 – 09 August 2016.
7. Training Course on Effective Presentation Skills, Faculty & Leadership Development Center (FLDC), Minia University, 01 – 02 August 2016.

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

1. ***Saad, M. N.*** (27 January 2019)
   The Ophthalmological Instruments of Al-Halabi Fills in a Gap in the Biomedical Engineering History. *Transylvanian Review,* vol. XXVII, no.36, pp. 9159-9173.

2. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (18 January 2019)
   Studying the effects of haplotype partitioning methods on the RA-associated genomic results from the North American Rheumatoid Arthritis Consortium (NARAC) dataset. *Journal of Advanced Research*, vol. 18, no. C, pp. 113–126.

3. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (31 December 2018)
   Comparative study for haplotype block partitioning methods – Evidence from chromosome 6 of the North American Rheumatoid Arthritis Consortium (NARAC) dataset. *PLoS One*, 13(12): e0209603.

4. ***Saad, M. N.*** (14 March 2016)
   Could Al-Zahrawi Be Considered a Biomedical Engineer? *IEEE pulse,* vol. 7, no.2, pp. 56-67.

5. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (04 February 2015)
   Identification of rheumatoid arthritis biomarkers based on single nucleotide polymorphisms and haplotype blocks: A systematic review and meta-analysis. *Journal of Advanced Research*, vol. 7, no. 1, pp. 1–16.

6. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (15 May 2015)
   Effect of MTHFR, TGFβ1, and TNFB Polymorphisms on Osteoporosis in Rheumatoid Arthritis Patients. *Gene,* vol. 568, no. 2, pp. 124-128.

7. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (06 July 2015)
   Genetic Case-Control Study for Eight Polymorphisms Associated with Rheumatoid Arthritis. *PLoS one,* 10(7): e0131960.

MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

1. ***Saad, M. N.***, Makram, H. R., Nadier, M. F., Mohamed, N. A., Anwar, N. M., Abdelbar, W. R., Ayeldeen, G. M., & Shaker, O. G. (**Under Preparation**). Breast Cancer and Fibroadenoma Biomarkers Detection in Egyptian Population through Genetic Association Study. *Clinical and Translational Oncology*

2. Yassen, M. M., Said, A. M., ***Saad, M. N.***, Saber, A. M., & Khalifa, A. M. (**Under Review**). Developing a Low-cost Smart Handheld EMG Biofeedback System for Telerehabilitation with Experimental Evaluation. *Disability and Rehabilitation: Assistive Technology*

3. Yassen, M. M., Said, A. M., ***Saad, M. N.***, Saber, A. M., & Khalifa, A. M. (**Under Preparation**). EMG biofeedback systems from research to commercial: A review. *IEEE Reviews in Biomedical Engineering*

4. Ibrahim, F. S., ***Saad, M. N.***, Said, A. M., & Hamed, H. F. A. (**Under Preparation**). Genome-wide Exploratory Analysis for NARAC Dataset with Preparation for Haplotype Block Partitioning through Minor Allele Frequency Quality Control Viewpoint. *Data in Brief*

5. Emara, M. M., Mahmoud, M. M., ***Saad, M. N.***, Hamed, M., & Shaker, O. G. (**Under Preparation**). An Association Study between FokI, BsmI, miR-146a, miR-155 and Behcet's Disease in Egyptian Population. *Rheumatology International*

6. Sobhy, A. M., Mahmoud, N., ***Saad, M. N.***, Mabrouk, M. S., & Shaker, O. G. (**Under Preparation**). A Study of Genetic Polymorphisms Associated with Rheumatoid Arthritis in the Egyptian Population. *Clinical Rheumatology*

7. Abd El-Hamid, M. M., Ali, N. M., ***Saad, M. N.***, Mabrouk, M. S., & Shaker, O. G. (**Submitted to Journal**). Multiple Sclerosis - An Associated Single Nucleotide Polymorphism Study on Egyptian Population. *Network Modeling Analysis in Health Informatics and Bioinformatics*

CONFERENCE PRESENTATIONS

TALKS

1. Ibrahim, F. S., ***Saad, M. N.***, Said, A. M., & Hamed, H. F. A. (21 December 2018)
Haplotype Block Partitioning for NARAC Dataset Using Interval Graph Modeling of Clusters Algorithm. Talk presented at the *9th Cairo International Biomedical Engineering Conference, IEEE*, Giza, Egypt.

2. ***Saad, M. N.***, (05 October 2018)
Could Al-Zahrawi be Considered a Biomedical Engineer? Talk presented at the *6th International Congress on History of Medicine in Muslim Heritage, Faculty of Medicine & Pharmacy of Fez, University Sidi Mohammed Benabdellah*, Fez, Morocco.

3. ***Saad, M. N.***, Leder, R. S., Kun, L., & Casson, A. J. (29 August 2015)
Could Al-Zahrawi (Pre-medieval Surgeon) be Considered a Biomedical Engineer? Talk presented at the *37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Milan, Italy.

4. ***Saad, M. N.***, Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (11 December 2014)
Vitamin D Receptor Gene Polymorphisms in Rheumatoid Arthritis Patients Associating Osteoporosis. Talk presented at the *7th Cairo International Biomedical Engineering Conference, IEEE*, Giza, Egypt.

5. ***Saad, M. N.***, & Kandil, A. H. (13 February 2013)
Improved ROI Algorithm for Compressing Medical Images. Talk presented at the *6th International Conference on Biomedical Electronics and Devices, 6th International Joint Conference on Biomedical Engineering Systems & Technologies, SciTePress,* Barcelona, Spain.

6. ***Saad, M. N.***, & Kandil, A. H. (21 December 2012)
A Hybrid Compression Technique for Segmented Hand Veins Using Quad Tree Decomposition. Talk presented at the *6th Cairo International Biomedical Engineering Conference, IEEE,* Cairo, Egypt.

POSTERS

Saad, M. N., Mabrouk, M. S., Eldeib, A. M., & Shaker, O. G. (12 September 2017)
Empirical comparison for the haplotype block methods for partitioning the human genome with data from the North American Rheumatoid Arthritis Consortium. Poster presented at the *1st Egyptian Bioinformatics* Workshop, Nile University, Giza, Egypt.

BOOKS

1. ***Saad, M. N.***, "Association Analysis for Big Data Related to Rheumatoid Arthritis: genetic association study for Egyptian population and GWAS for NARAC dataset", LAP Lambert Academic Publishing, May 20, 2019.
2. ***Saad, M. N.***, "Comparative Study & Hybrid Technique for Biomidical Image Compression: comparative study for biomedical image compression techniques then a hybrid technique is applied to hand vein modality", LAP Lambert Academic Publishing, Mar 14, 2012.

SCIENTIFIC EVENTS

1. **German Science Night** at the German Science Centre, DWZ Cairo/DAAD Cairo Office, 2018.
2. Symposium for **the Introduction of the Fulbright Scholarships**, at the New Central Library, Cairo University, 2017.
3. **German Science Day** at the German Science Centre, DWZ Cairo/DAAD Cairo Office, 2016.
4. Online BioConference titled (**Genetics and Genomics)** organized by LabRoots, 2015.
5. **Cairo Mini Maker Faire** at The American University in Cairo, 2015.
6. Symposium on **the participation in the competition to support five reviews for publication in international journals** by the Scientific Support and Projects Section, Bibliotheca Alexandria, at the New Central Library, Cairo University, 2013.

M.SC. THESIS SUPERVISION

1. Sara Alaa Mahmoud Kayed, **Sequence Kernel Association Test for Genomic Data**, (01-10-2016 till now), Systems and Biomedical Engineering Department, Faculty of Engineering, Cairo University.
2. Fatma Sayed Ibrahim, **Influence of Minor Allele Frequency on the genomic results of Haplotype Block Partitioning methods**, (14-11-2017 till now), Electrical Engineering Department, Faculty of Engineering, Minia University.
3. Mazen Mohamed Yassin, **Design and Implementation of Biofeedback System**, (01-03-2019 till now), Biomedical Engineering Department, Faculty of Engineering, Helwan University.

TEACHING EXPERIENCE

INSTRUCTOR OF RECORD

2018-2019	**Advanced Topics in Bioinformatics,** Arab Academy for Science Technology and Maritime Transport (AASTMT), College of Computing and Information Technology (Pre-PhD Course)
2015-2016 2018-2019	**Bioinformatics,** Minia University
2018-2019	**Deep Learning,** Minia University
2016-2018	**Patterns Recognition,** Minia University
2015-2018	**Digital Image Processing,** Minia University
2017-2018	**Bioelectronics & Measurements,** Minia University
2016-2018	**Basics of Maintenance & Calibrations of Medical Equipments,** Minia University

TEACHING ASSISTANTSHIPS

2010-2014	**Bioinformatics,** Misr University for Science & Technology
2013-2014	**Image Processing**, Misr University for Science & Technology
2016-2017	**Clinical Engineering**, Minia University
2015-2016	**Hospital Design**, Minia University
Summer 2012	**Bioelectronics,** Misr University for Science & Technology
2010-2011	**Clinical Engineering I**, Misr University for Science & Technology
2011-2012	**Medical Instrumentation**, Misr University for Science & Technology
Fall 2012	**Biosignals: Analysis & Interpretation**, Misr University for Science & Technology
2010-2011	**Medical Equipment I**, Misr University for Science & Technology
2013-2014	**Medical Equipment II**, Misr University for Science & Technology

Discussion Section Instructor

TEACHING INTERESTS

Lectures: Bioinformatics, Deep Learning, Digital Image Processing, Patterns Recognition, Healthcare Information Management, Clinical Engineering.

GRADUATION PROJECTS – BME SENIORS

1. Hanan Reda Makram, Mariam Francees Nadier, Nourhan Ali Mohamed, Nourhan Mahmoud Anwar, Warda Ramadan Abdel bar, **Breast Cancer and Fibroadenoma Detection in Egyptian Population through Genetic Association Study** (2017-2018), Biomedical Engineering Department, Faculty of Engineering, Minia University.
2. Abdelmageed Ahmed Abdelmageed, Ahmed Hussein Kamel, Dalia Moustafa Farghal, **Leukemia Detection Based on Microscopic Blood Smear Images using Deep Learning** (2018-2019), Biomedical Engineering Department, Faculty of Engineering, Minia University.