

Curriculum Vitae

Prof. Dr. Soliman Mahmoud

IEEE SENIOR MEMBER,

PROFESSOR ELECTRICAL AND COMPUTER ENGINEERING

UNIVERSITY OF SHARJAH, SHARJAH, UAE



1. Personal Information

- ◆ Date of birth: 27 / 9 / 1971
- ◆ Place of birth: Cairo
- ◆ Nationality: Egyptian
- ◆ Marital status: Married
- ◆ Address: 120B street # 6 El Mokattam, Cairo, Egypt
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- ◆ Author Google Scholar Citations: <https://scholar.google.com/citations?hl=en-US&user=8kFw2RsAAAAJ>

2. Education

B.Sc. Electronics and Communications Dept. July 1994

- ◆ University: **Cairo University**
- ◆ Faculty: Faculty of Engineering
- ◆ Major: Electronics and Communications
- ◆ Duration: 1989-1994
- ◆ Appreciation: Distinction with honor degree
- ◆ GPA: 3.8/4
- ◆ Rank: Top 1% of a class of 200 students
- ◆ B.Sc. score: 94%
- ◆ Project: *New CMOS Voltage Controlled Floating and Grounded Resistors.*
- ◆ Supervisor: Prof. Dr. Ahmed M. Soliman

M.Sc. Electronics and Communications Dept. Nov. 1996

- ◆ University: **Cairo University**
- ◆ Faculty: Faculty of Engineering
- ◆ Major: Microelectronics Circuit Design
- ◆ Duration: 1994-1996
- ◆ Title: *New Building Blocks for Analog Signal Processing in MOS Technology.*
- ◆ Appreciation: Distinction in post graduate courses.
- ◆ GPA: 3.9/4
- ◆ Rank: 1/20
- ◆ M.Sc. score: 96%
- ◆ Supervisor: Prof. Dr. Ahmed M. Soliman

- ◆ University: **Cairo University**
- ◆ Faculty: Faculty of Engineering
- ◆ Major: Microelectronics Circuit Design
- ◆ Duration: 1997-1999
- ◆ Title: **Low Voltage Analog VLSI Circuits**
- ◆ Supervisor: Prof. Dr. Ahmed M. Soliman

3. Academic Ranks, administration positions and Teaching Experience

Academic Rank	Date of obtaining Rank			Name of University Granting Rank	Location/Country	Number of Years Holding the rank	
	Day	Month	Year			From	To
Assistant Prof.	26	July	2000	Cairo University/ Fayoum Campus	Cairo/Egypt	2000	2005
Associate Prof.	28	Sept.	2005	Cairo University/ Fayoum Campus	Cairo/Egypt	2005	2010
Professor	27	Oct.	2010	Cairo University/ Fayoum Campus	Cairo/Egypt	2010	Present
Professor	17	July	2016	University Of Sharjah, UAE	Sharjah/UAE	2016	Present

Faculty of Engineering - Cairo University - Fayoum Branch-Egypt (1999-2005)

Faculty of Engineering - Fayoum University - Fayoum -Egypt (1999- Present)

Faculty of Engineering – German University in Cairo (GUC)- Egypt (2006-2010)

College of Engineering –University of Sharjah – Sharjah, UAE (2010- Present)

◆ **Administration positions:**

- **Department head** at Fayoum University, Egypt from Sept. 2007 to January 2010
- **Department head** at German University in Cairo, Egypt from Sept. 2008 to January 2010
- **Assistant Dean for research and graduate studies**, University of Sharjah, Sharjah from Sept. 2016-Sept 2017.

◆ **Teaching Lectures for:**

- | | |
|--|-------------------------------|
| Electronics I | 1 st year students |
| Electronics II | 2 nd year students |
| Electronics III | 3 rd year students |
| Digital Electronics | 4 th year students |
| Selected Topic in Integrated system | 4 th year students |
| ◆ Analog VLSI Circuits | |
| Analog-Modulation Communications Systems | 3 rd year students |
| Digital- Modulation Communications Systems | 3 rd year students |
| Information Theory and Channel Coding | 4 th year students |
| Selected Topic in Communications Systems | 4 th year students |
| ◆ Optical Fiber Communication | |
| ◆ Satellite Communication | |

- ◆ Mobile Communication
- ◆ Spread Spectrum Communication

Electric Circuit I	1 st year students
Electric Circuit II	2 nd year students
Active Circuits	3 rd year students
Electromagnetic I and II	2 nd year students
Electromagnetic III	3 rd year students
Electromagnetic IV	4 th year students
Logic Design	1 st year students
Microprocessors	2 nd year students

◆ **Developing laboratory experiments and laboratory manuals for:**

Electronics	4 th year students
Communication	4 th year students

◆ **Supervising graduation projects for 4th year students:**

For Example

◆ **Hand Held Calling System:**

The project consists of two major parts, the first is the handheld where the user can write a message of 80 characters with all letters, numbers and symbols, all editing functions (select, copy, cut, paste and delete), scrolling and writing new message are available, then by pressing "send" button, this message can be sent to PC or the large display unit or both. The large display unit is about 1m*20cm, so as to enable any number of people to read the message.

◆ **Participating in designing the curricula and defining course syllabi for the Electrical Engineering Department, Cairo University-Fayoum Branch**

4. Teaching Statement

There are many ways in which a teacher can impart a better conceptual understanding of Electronic Communication Systems. One of the most important is to first attract their interest by designing circuits which are relevant to the particular interest of the students in the class. I often use examples from my expertise in applied microelectronics to convey and elicit enthusiasm. For example, in Electronics III course, I teach not only the theory of analog and digital circuit design but also how we can use this theory in implementing several projects such as microcontroller based application like light control system, digital clock, handheld calling system, moving message display units, air condition controller and queuing system. Another relevant example occurs in Electronics IV course, when demonstrating the design of microprocessor using digital building blocks, I make a project divided among my students as CPU part, control unit part, and memory part and I/O interface. These examples naturally lead to the use of CAD tools in the classroom, such as SPICE, Matlab and Ledit layout tool.

◆ **Interested Subjects, I would like to teach the following subjects :**

1. Analog and Digital Microelectronics Circuits and Systems.
2. Passive and Active Electric Circuits.
3. Analog and Digital Modulation Systems.

4. Information Theory and Channel Coding.
5. Electromagnetic Fields and waves.
6. Digital Logic Design and Microprocessors.

◆ **Teaching Method**

While teaching, I use computer based presentation (e.g. power point). I use the board when detailed explanation is needed (e.g., more problems to solve). As a picture worth a thousand words, it is essential to draw pictures and diagrams when explaining certain concepts.

Various course materials(e.g., notes, assignments , etc) are posted to the course book or homepage for easy access by students.

By doing so, the lecture is more alluring and time preserved for the instructor to cover more concepts and solve more problems. Moreover, students are no longer worried about copying the notes, but are more focused on understanding the material presented. This gives students more chance to ask questions during the class period.

5. Research Area

- ◆ Mixed-mode Analog VLSI
- ◆ Low-voltage low-power designs
- ◆ Application Specific Integrated Circuits (ASIC) design
- ◆ Design of high frequency filters using MOS transconductors

6. Research Statement

My research is on fully integrated analog filters, high frequency transconductance amplifiers, low voltage mixed mode CMOS circuit design and design of very large scale integrated circuits applications (VLSI).

The main objective of my thesis work in my PhD is on the design of low voltage high performance building blocks suitable for VLSI applications. I have been proposed the first CMOS realization operating under low voltage operation of the current feedback op-amp both in single and fully differential forms.

7. Industrial Experience

- Design, build and support innovative and reliable Electronic based communication systems.
- Listen to and interpret customer requirements.
- Build robust microcontrollers - based application.
- Follow best practice methodologies for development and documentation
- Build relationships at all levels with customers, suppliers and colleagues
- Contribute to the training and development function.

8. Project Management Experience

- Jointly responsible for all business planning, development and management activities for a startup specializing in PC and network support. I am a member in the management team of Integrated University Management System, the objective of this project is the automation all the university processes in the Fayoum Branch of Cairo university.

- Wrote project proposals and functional specifications for all projects developed by the faculty, both internally and for its clients.

9. Computer Skills

- ◆ Operating Systems: DOS, Windows, UNIX, Linux.
- ◆ Computer languages: C, C++, Visual Basic, Assembly
- ◆ Simulations tools: PSpice, Logic Designer, MATLAB
- ◆ Tools: PowerPoint, Winword, Scientific Word

10. Languages

- ◆ Arabic: Mother tongue
- ◆ English: Fluent (reading, writing and speaking)

11. Publications

(I). Refereed Books

1. Eman Soliman and Soliman Mahmoud, Design of The Differential Difference Operational Floating Amplifier, ISBN 978-3-639-17849-4, VDM publisher. **2009**
2. Eman Soliman and Soliman Mahmoud, Field Programmable Analog Arrays: Design and Applications, ISBN 978-3-659-48366-0 LAP LAMBERT Academic Publishing July **2013**.
3. Tasnim Nazzal and Soliman Mahmoud, On the Design of Low Power CMOS (SA-ADCs) for Biomedical Applications, ISBN 978-3-659-88227-2, LAP LAMBERT Academic Publishing April **2016**.
4. Aisha Alhammadi and Soliman Mahmoud, CMOS Digitally Programmable Analog Front-End for EEG Detection System, ISBN 978-3-659-90884-2, LAP LAMBERT Academic Publishing June **2016**.
5. Mohamed Elamien and Soliman Mahmoud, On the Design of a Highly Linear CMOS Programmable Transconductor, ISBN 978-620-2-00793-1, LAP LAMBERT Academic Publishing, July **2017**.
6. Samah Milhem and Soliman Mahmoud, CMOS Digitally Programmable Lock-In Amplifier for Bio Applications, ISBN 978-620-0-00538-0, LAP LAMBERT Academic Publishing, April **2019**.

(II). Refereed Journal Papers

1. M. S. Diab and **S. A. Mahmoud**, "Field Programmable Analog Arrays for Implementation of Generalized Balanced OTA-C Odd/Even-nth Order Elliptic Filters" WILEY ETRI Journal Special Issue on SOC and AI Processors, First published: 12 August 2020 <https://doi.org/10.4218/etrij.2020-0104>, Vol. 42, pp. 534-548, August 2020..
2. M. S. Diab and **S. A. Mahmoud**, "On the Design of OTA-C Based Field Programmable Analog Arrays for Continuous Time Low Frequency Applications " Microelectron. J(2020), <https://doi.org/10.1016/j.mejo.2020.104870>, vol 103, no.8, pp.1-20, August 2020.

3. S. I. Khan, M. S. Diab and **S. A. Mahmoud**, "Design of Low Power Teager Energy Operator Circuit for Sleep Spindle and K-Complex Extraction" *Microelectron. J*(2020), <https://doi.org/10.1016/j.mejo.2020.104785>, Vol. 100, pp. 1-13, June 2020.
4. I. B. Attili, and **S. A. Mahmoud**, "Survey on Single Stage Amplifiers for Column Drivers in Active Matrix LCD Panels Leading to a Highly Linear Rail-to-Rail Robust Amplifier" in *IEEE Access*, Digital Object Identifier 10.1109/ACCESS.2019.2954002, Vol.7, pp. 166629- 166647, Dec. 2019.
5. S. I. Khan, and **S. A. Mahmoud**, "Highly linear CMOS subthreshold four-quadrant multiplier for Teager Energy Operator based Sleep Spindle detectors" *Microelectron. J*(2019), <https://doi.org/10.1016/j.mejo.2019.104653>, Vol. 94, pp. 1-8, Dec. 2019.
6. M. B. Elamien, and **S. A. Mahmoud**, "OTA-based switchable gain and order multi-standard receiver analog baseband chain" *International Journal of Electronics and Communications (AEÜ)*, <https://doi.org/10.1016/j.aeue.2019.04.021>, Vol. 106, pp. 1-11, July. 2019.
7. M. B. Elamien, and **S. A. Mahmoud**, "An 114 Hz to 12 MHz Digitally Controlled Low Pass Filter for Biomedical and Wireless Applications" *IET Circuits, Devices & Systems*, Published online: 07 March 2018, DOI [10.1049/iet-cds.2017.0410](https://doi.org/10.1049/iet-cds.2017.0410) , Print ISSN 1751-858X, Online ISSN 1751-8598, Vol. 12, pp. 606-614, Sept. 2018.
8. M. B. Elamien, and **S. A. Mahmoud**, "On the Design of Highly Linear CMOS Digitally Programmable Operational Transconductance Amplifiers for Low and High-Frequency Applications" *Analog Integrated Circuits and Signal Processing*, Published online: 22 Feb. 2018, DOI 10.1007/s10470-018-1128-2, Vol. 97, pp. 225-241, 2018.
9. M. B. Elamien, and **S. A. Mahmoud**, "A Wide Digitally Tunable Low Pass Filter for Biomedical and Wireless Applications" *Electronics Letters*, Available online: 04 December 2017 DOI [10.1049/el.2017.2092](https://doi.org/10.1049/el.2017.2092), Vol. 54, pp. 124- 126, Feb. 2018.
10. M. B. Elamien, and **S. A. Mahmoud**, "Third-Order Elliptic Lowpass Filter for Multi-Standard Baseband Chain Using Highly Linear Digitally Programmable OTA" in *Materials Science and Engineering* **341** (2018) 012005 doi:10.1088/1757-899X/341/1/012005, pp. 1-7, April 2017.
11. M. B. Elamien, and **S. A. Mahmoud**, "Analysis and Design of a Highly Linear CMOS OTA for Portable Biomedical Applications in 90 nm CMOS" *Microelectron. J*(2017), DOI 10.1016/j.mejo.2017.10.009, Vol. 70, pp. 72-80, Dec. 2017.
12. Aisha Abdallah, and **S. A. Mahmoud**, "Fully Differential Fifth-Order Dual-Notch Powerline Interference Filter Oriented to EEG Detection System with Low Pass Feature" *Microelectron. J*(2016), DOI 10.1016/j.mejo.2016.08.014, Vol. 56, pp. 122-133, 2016.
13. Aisha Abdallah, Tasnim B. Nazzal and **S. A. Mahmoud**, "A CMOS EEG Detection System with a Configurable Analog Front-End Architecture" *Analog Integrated Circuits and Signal Processing*, DOI 10.1007/s10470-016-0826-x, Vol. 89, pp. 151-176, 2016.
14. Tasnim B. Nazzal, **S. A. Mahmoud**, M.O. Shaker, "A 200-nW 7.6-ENOB 10-KS/s SAR ADC in 90-nm CMOS for portable Biomedical Applications" *Microelectron. J*(2016), DOI 10.1016/j.mejo.2016.08.004, Vol. 56, pp. 81- 96, 2016.
15. **S. A. Mahmoud**, H. A. Salem, H. M. Albaloshi, "An 8-bit, 10KS/s, 1.87 μ W Successive Approximation Analog to Digital Converter in 0.25 μ m CMOS Technology for ECG Detection Systems" in *Circuits, Systems, and Signal Processing (CSSP9478)*, doi: 10.1007/s00034-015-9973-z, Vol.34, No.8, pp. 2419 -2439, 2015.
16. **S. A. Mahmoud**, A. Bamakhramah and S. A. Al-Tunaiji, "Six Order Cascaded Power Line Notch Filter for ECG Detection Systems with Noise Shaping" in *Circuits, Systems, and Signal Processing (CSSP9478)*, (Accepted for publication on Feb. 10, 2014), doi: 10.1007/s00034-014-9761-1, Vol.33, No.8, pp. 2029-2045, Aug. 2014.
17. **S. A. Mahmoud**, A. Bamakhramah and S. A. Al-Tunaiji, "Low noise Low Pass Filter for ECG Portable Detection Systems with Digitally Programmable Range" in *Circuits, Systems, and Signal Processing (CSSP9478)*,)published online: 20 Feb. 2013, doi: 10.1007/s00034-013-9564-9), Vol.32, No.5, pp. 2029-2045, Oct. 31, 2013.

18. **S. A. Mahmoud**, and E. A. Soliman, "Novel CCII-based Field Programmable Analog Array and its Application to a Sixth-Order Butterworth LPF" in *Radio engineering Journal*, Vol. 22, No. 2, pp. 440-447, June 2013.
19. **S. A. Mahmoud**, and E. A. Soliman, "Multi-Standard Receiver Baseband Chain Using Digitally Programmable OTA based on CCII and Current Division Networks" in *Journal of Circuits, Systems and Computers*, JCS Vol. 22 No. 4, 2013.
20. **S. A. Mahmoud**, "Wide Dynamic Range CMOS Pseudo-differential Current Conveyors: CMOS Realizations and Applications" in *Circuits, Systems, and Signal Processing (CSSP9478)*, (published online: 29 August 2012, doi: 10.1007/s00034-012-9478-y), Vol.32, pp. 477-497, 2013.
21. **S. A. Mahmoud**, and Eman A. Soliman, "Digitally Programmable Second Generation Current Conveyor based FPAA" in *International Journal of Circuit Theory and Applications*, published online: 25 JUL 2012, Issue published : 22 OCT 2013, Vol.41, No.10, pp 1074–1084, doi: 10.1002/cta.1826,
22. **S.A. Mahmoud**, Mejd M.Alsari, Esra I.Red, and Ruqiya M. Alhammadi, "MATLAB Modeling and Simulation of Photovoltaic Modules" *Advanced Materials Research: Renewable and Sustainable Energy II*, Vols. 512-515, pp 246-249, 2012 doi:10.4028/www.scientific.net/AMR.512-515.246.
23. **S.A. Mahmoud** and Heba. N. Mohamed, "High Accuracy Modeling Method for Photovoltaic Arrays" *Advanced Materials Research: Renewable and Sustainable Energy II*, Vols. 512-515, pp 238-241, 2012 doi:10.4028/www.scientific.net/AMR.512-515.238.
24. **S.A. Mahmoud**, "A Gain / Filtering Interleaved Baseband Chain Architectures for Multi-standard Reconfigurable Receivers" in *Journal of Circuits, Systems and Computers*, JCS Vol.21 No. 1, Feb. 2012
25. **S. A. Mahmoud**, and Eman A. Soliman, "Low Voltage Current Conveyor Based Field Programmable Analog Array" in *Journal of Circuits, Systems and Computers*, JCS Vol. 20, No. 8, Dec. 2011.
26. **S.A. Mahmoud**, "Low power Low-Pass Filter with Programmable Cutoff Frequency Based On a tunable Unity Gain Frequency Operational Amplifier" in *Journal of Circuits, Systems and Computers*, JCS Vol. 19, No. 8, pp. 1-13, Dec. 2010.
27. T.M. Hassan and **S.A. Mahmoud**, "New CMOS DVCC Realization and Applications to Instrumentation Amplifier and Active –RC filters" in *International Journal of Electronics and Communications*, AEU, Vol. 64, pp. 47-55, Jan. 2010
28. Eman A. Soliman, and **S. A. Mahmoud**, "The Differential Difference Operational Floating Amplifier: New CMOS Realizations and Applications" in *Journal of Circuits, Systems and Computers*, JCS Vol. 18, No. 7, pp. 1287-1308, Nov. 2009.
29. T.M. Hassan and **S.A. Mahmoud**, "Fully Programmable Universal Filter with Independent Gain- ω_0 -Q Control Based On New Digitally Programmable CMOS CCII" in *Journal of Circuits, Systems and Computers*, JCS Vol. 18, No. 5, pp. 875-897, Oct. 2009.
30. A.H. Madian, **S.A. Mahmoud**, and A.M Soliman," Configurable Analog Block based on CFOA and its Application "WSEAS Transactions on Electronics Journal, Special Issue of 'MODERN CIRCUIT COMPONENTS FOR ANALOGUE SIGNAL PROCESSING AND THEIR APPLICATIONS', pp.26-31, November 2008.
31. **S. A. Mahmoud**," Low Voltage Wide Range CMOS Differential Voltage Current Conveyor and its Applications", *Contemporary Engineering Sciences*, Vol. 1, no. 3, pp.105 – 126, 2008.
32. **S. A. Mahmoud**," Fully Differential CMOS CCII based on differential difference transconductor" *Analog Integrated Circuits and Signal Processing*, Vol. 50, pp. 195-203, March 2007.
33. A.H. Madian, **S.A. Mahmoud**, and A.M Soliman," New Low Voltage CMOS Current Feedback Amplifier and its Applications "ETRI Journal, vol.29, no.2, pp.212-218, April 2007.
34. A.H. Madian, **S.A. Mahmoud**, and A.M Soliman," Low Voltage CMOS Fully Differential Current Feedback Amplifier with Controllable 3-dB bandwidth "Analog Integrated Circuits and Signal Processing, Vol. 52,no.3 , pp.139-146, September 2007.

35. **S. A. Mahmoud,** "New Fully Differential CMOS Second- Generation Current Conveyor" ETRI Journal, vol.28, no.4, pp.495-501, August 2006.
36. M. O. Shaker, **S. A. Mahmoud,** and A. M. Soliman, "New CMOS Fully-differential Transconductor and Application to Fully-Differential Gm-C Filters" ETRI Journal, vol.28, no.2, pp.175-181, April 2006.
37. A.H. Madian, **S.A. Mahmoud,** and A.M Soliman, "New 1.5-V CMOS Second Generation Current Conveyor Based on a Wide range Transconductor "Analog Integrated Circuits and Signal Processing, Vol. 49, pp 267-279, Dec. 2006.
38. **S. A. Mahmoud,** M. A. Hashiesh, and A. M. Soliman, "Digitally Controlled Fully Differential Current Conveyor," IEEE Trans. Circuits Syst. I, Vol.52, No.10, pp 2055-2064, Oct.2005.
39. **S. A. Mahmoud** and I. A. Awad, "Fully Differential CMOS Current Feedback Operational Amplifier," Analog Integrated Circuits and Signal Processing, Vol.43, pp 61-69, May 2005.
40. **S. A. Mahmoud,** "Digitally Controlled Balanced Output Transconductor and Application to Variable Gain Amplifier and GM-C Filter on Field Programmable Analog Array" Journal of Circuits, Systems and Computer, vol.14, No.4,pp 667-684, Aug.2005
41. M. A. Hashiesh, **S. A. Mahmoud,** and A. M. Soliman, "New Four-Quadrant CMOS Current Mode and Voltage Mode Multiplier," Analog Integrated Circuits and Signal Processing, Vol.45, pp. 295-307, Dec.2005
42. **S. A. Mahmoud** and A. M. Soliman, "Low voltage rail to rail CMOS current feedback operational amplifier and its applications for analog VLSI," Analog Integrated Circuits and Signal Processing, vol. 25, pp. 47-57, 2000.
43. **S. A. Mahmoud** and A. M. Soliman, "Novel MOS-C oscillators using the current feedback op-amp," Int. J. of Electronics, vol. 87, no. 3, 2000.
44. **S. A. Mahmoud** and A. M. Soliman, "New CMOS programmable balanced output transconductor and application to a mixed mode universal filter suitable for VLSI," Analog Integrated Circuits and Signal Processing, vol. 19, pp. 241-254, 1999.
45. **S. A. Mahmoud** and A. M. Soliman, "CMOS balanced output transconductor and applications for analog VLSI," Microelectronics J., vol. 30, pp. 29-39, 1999.
46. **S. A. Mahmoud** and A. M. Soliman, "New MOS-C biquad filter using the current feedback operational amplifier," IEEE Trans. Circuits Syst. I, vol. 26, 1431-1440, Dec. 1999.
47. **S. A. Mahmoud** and A. M. Soliman, "New CMOS fully differential difference transconductors and application to fully differential filters for VLSI," Microelectronics J., vol. 30, pp. 169-192, 1999.
48. **S. A. Mahmoud,** A. S. Elwakil and A. M. Soliman, "CMOS current feedback op-amp- based chaos generators using novel active nonlinear voltage controlled resistors with odd symmetrical characteristics," Int. J. of Electronics, vol. 86, 1441-1451, 1999.
49. **S. A. Mahmoud** and A. M. Soliman, "Novel MOS-C balanced-input balanced-output filter using the current feedback operational amplifier," Int. J. of Electronics, vol. 84, pp. 479-485, 1998.
50. **S. A. Mahmoud** and A. M. Soliman, "The differential difference operational floating amplifier: a new block for analog signal processing," IEEE Trans. Circuits Syst. II, 45, pp.148-158, 1998.
51. **S. A. Mahmoud** and A. M. Soliman, "A new CMOS realization of the differential difference amplifier and its application to a MOS-C oscillator," Int. J. of Electronics, vol. 83, pp. 455-465, 1997.
52. **S. A. Mahmoud** and A. M. Soliman, "A CMOS programmable balanced output transconductor for analog signal processing," Int. J. of Electronics, vol. 82, pp. 605-620, 1997.
53. **S. A. Mahmoud,** H. O. Elwan and A. M. Soliman, "Generation of CMOS voltage controlled floating resistors," Microelectronics J., vol. 28, pp. 627-640, 1997.
54. **S. A. Mahmoud,** H. O. Elwan and A. M. Soliman, "Grounded MOS resistor," Electronic Engineering, vol. 68, pp. 22-24, 1997.
55. H. O. Elwan, **S. A Mahmoud** and A. M. Soliman, "CMOS voltage controlled floating resistor," Int. J. Electronics, vol. 81, pp. 571-576, 1996.
56. H. O. Elwan, **S. A Mahmoud** and A. M. Soliman, "VC square law grounded MOS resistor," Electronic Engineering, 67, pp. 34-38, 1995.

(III). Refereed Conference Papers

1. M. S. Diab; and **Soliman Mahmoud**, “14.5nW, 30 dB Analog Front-End in 90-nm Technology for Biopotential Signal Detection” in 2020 43rd International Conference on Telecommunications and Signal Processing (TSP), held during July 7-9, 2020, as an online event due to COVID-19 (originally scheduled to Milan, Italy).
2. M. S. Diab; and **Soliman Mahmoud**, “Field Programmable Analog Array for Low Frequency Application of OTA-C Low Pass Filters” in 2020 43rd International Conference on Telecommunications and Signal Processing (TSP), held during July 7-9, 2020, as an online event due to COVID-19 (originally scheduled to Milan, Italy).
3. M. S. Diab; and **Soliman Mahmoud**, “Continuous Wavelet Transform OTA-C Band Pass Filter on Field Programmable Analog Arrays” in 2020 Advances in Science and Engineering Technology International Conferences, ASET 2020; Dubai; United Arab Emirates; 26 March 2020 through 10 April 2020.
4. S. I. Khan; M. S. Diab; and **Soliman Mahmoud**, “Ultra-Low-Power Subthreshold Teager Energy Operator Circuits for Sleep Spindle and K-Complex Detection” in 2020 Advances in Science and Engineering Technology International Conferences, ASET 2020; Dubai; United Arab Emirates; 26 March 2020 through 10 April 2020.
5. S. I. Khan; and **Soliman Mahmoud**, “Highly Accurate Subthreshold Four-Quadrant Multiplier for Biomedical Teager Energy Operator Circuits” in 2020 Advances in Science and Engineering Technology International Conferences, ASET 2020; Dubai; United Arab Emirates; 26 March 2020 through 10 April 2020.
6. M. S. Diab, and **S. A. Mahmoud**, “A Simple Macromodel Circuit for Operational Transconductance Amplifier with Low Frequency OTA-C Filter Application” in 2019 International Conference on Electrical and Computing Technologies and Applications (ICECTA), American University of RAS Alkheimah, UAE, from Nov. 19 to 21, pp. -----, 2019.
7. M. S. Diab, and **S. A. Mahmoud**, “Ultra-Low Power Rectangular Field Programmable Analogue Arrays For Biomedical Applications” in The 16th IEEE International SoC Design Conference (ISOCC 2019), in Ramada Plaza Hotel, Jeju, Korea from Oct. 6 to 9, pp. 204-205, 2019.
8. M. S. Diab, and **S. A. Mahmoud**, “A 6nW Seventh-Order OTA-C Band Pass Filter for Continuous Wavelet Transform” in The 16th IEEE International SoC Design Conference (ISOCC 2019), in Ramada Plaza Hotel, Jeju, Korea from Oct. 6 to 9, pp. 196-197, 2019.
9. I. B. Attili, and **S. A. Mahmoud**, “Uncompensated Robust Rail-to-Rail New Amplifier Structure Compatible with Drivers of LCD Panels” in The 16th IEEE International SoC Design Conference (ISOCC 2019), in Ramada Plaza Hotel, Jeju, Korea from Oct. 6 to 9, pp. 192-193, 2019.
10. S. I. Khan, and **S. A. Mahmoud**, “CMOS Subthreshold Balanced Input-Differential Output Four-Quadrant Multiplier for Teager Energy Operator Based Systems” in The 16th IEEE International SoC Design Conference (ISOCC 2019), in Ramada Plaza Hotel, Jeju, Korea from Oct. 6 to 9, pp. 122-123, 2019.
11. M. S. Diab, and **S. A. Mahmoud**, “A 1.7nW 24 Hz Variable Gain Elliptic Low Pass Filter in 90-nm CMOS for Biosignal Detection” in the 2019 IEEE International Symposium on Circuits and Systems, to be held in Sapporo, Japan from May 26-29, 2019.
12. Douae Nouichi ; Noor Hindawi ; Heba Fares ; Yara Yaghi ; and **Soliman Mahmoud**, “Laser Technology for Customizing Silicon Solar Cells” in 2019 Advances in Science and Engineering Technology International Conferences, ASET 2019; Dubai; United Arab Emirates; 26 March 2019 through 10 April 2019.
13. I. B. Attili, and **S. A. Mahmoud**, “Examining the Performance of Low Power – Area Efficient OTA Designs that are Based on Different Current Shunting Techniques” in the 30th

- International Conference on Microelectronics (ICM 2018), in Sousse, Tunisia from December 16-19, pp. 212-215, 2018.
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(IV). Research projects

1. Project ID: "**648**"

Project Type: "**German Egyptian Research Fund Grant**"

Project Title:" **Design of CMOS field programmable analog arrays and its applications**"

Principal Investigator: **Prof. Soliman Awad Mahmoud**

I have received "The German-Egyptian Research Fund" Grant. The German-Egyptian Research Fund is part of the long-standing partnership between the Arab Republic of Egypt and the Federal Republic of Germany in the fields of science and technology, the Ministry of Higher Education and Scientific Research of the Arab Republic of Egypt (MHESR) and the Federal Ministry of Education and Research (BMBF) have agreed to issue this joint call for proposals for innovative, application-oriented research projects. This grant are intended to give researchers– including young scientists- an opportunity to address new areas of scientific research and to promote bilateral research cooperation between the two countries in areas of mutual interest. The Grant will be used to finance the project "Design of CMOS Field Programmable Analog Array and its Applications". The project will be carried out in collaboration with Ulm Microelectronics Institute under supervision of Prof. Dr. Ing. Maurits Ortmanns and Dipl. Ing. Joachim Becker. With financial support of a total sum of € 100,000, for 24 months, starting from Jan. 1st , 2009.

2. Project ID: "**1702040379-P**"

Project Type: **“Competitive Research Grant” from University of Sharjah**

Project Title: **” A 90-nm CMOS EEG Detection System with a Configurable Analog Frontend Architecture”**

Principal Investigator: **Prof. Soliman Awad Mahmoud**

I have received this **“Competitive Research Grant” from University of Sharjah**. With financial support of a total sum of DHs 80,000, for 24 months, starting from Dec. 1st, 2017.

This project aims to design and implement a configurable analog frontend (AFE) chain architecture used in the EEG (Electroencephalogram) detection system under investigation. The new chip can be used in implementing and testing the analog frontend of EEG detection system using 90nm CMOS technology. Since the implementation of conventional systems is done using bulky building blocks; the process of implementing system architecture consumes a lot of time and money. The proposed system can be programmed using computer aided design software tools in a short period of time to implement the system. The chip has the advantages of being able to operate at low power consuming and easily integrated with digital electronics modules. These specifications make it suitable for implementing a recent EEG detection system. Moreover, this chip can be used for educational purposes in bioelectronics engineering institutes. The chip is very useful in analog electronics labs as it offers the students a chance to implement and test their designs in a cost effective way.

(V). Dissertations and Theses Directed

PhD Dissertations Completed

1. Low-Voltage Current-Mode CMOS Building Blocks for Field Programmable Analog Arrays and Applications; Ahmed Madian; Cairo University; Egypt, 2006.
2. Design of CMOS Programmable Current Mode Building Blocks and Field Programmable Analog Arrays; Eman Soliman; German University in Cairo; Egypt, 2012.

MSc. Theses Completed

1. Digitally Controlled CMOS Analog Building Blocks Using New Current Division Networks, Mohamed Ahmed Hassan; Cairo University; Egypt, 2004.
2. Differential and Single-Ended Low Voltage CMOS Current Conveyors and their Mixed-Mode Applications for Analog Signal Processing, Tarek Mohamed Hassan, German University in Cairo, Egypt, 2006.
3. Differential Difference Operational Floating Amplifier: New CMOS realizations and Applications, Eman Ahmed Soliman, German University in Cairo, Egypt, 2008.
4. Modeling of Active Compensated KHN Band Pass Filter Using Standard Hardware Description, Rasha E. Elqueseny, Ain Shames University, 2009.
5. Modeling and Simulation of Photovoltaic Modules, Heba Nadhmi Mohamed, University of Sharjah, UAE, 2013.
6. On the Design of Low Power CMOS (SA-ADCs) for Biomedical Applications, Tasnim Bassam Nazzal, University of Sharjah, UAE, 2016.
7. CMOS Digitally Programmable Analog Front-End for EEG Detection System, Aisha Alhammadi, University of Sharjah, UAE, 2016.
8. Design of a Highly Linear CMOS Programmable Transconductor Circuit and Its Applications in Biomedical Systems and Multi-Standard Receivers, Mohamed Balla Elamien, University of Sharjah, UAE, 2017.
9. Higher Order CMOS Multi Response Filters Based on DDCC and FDCC for Multi-Standard Receivers, Sana Adil Alshwaikh, University of Sharjah, UAE, 2018.

10. CMOS Digitally Programmable Lock-in Amplifier for Biomedical Applications, Samah Fathi Milhem, University of Sharjah, UAE, 2019.
11. On the Design of Low Power- Area efficient CMOS Channel Buffers For Column Drivers in Active Matrix TFT LCD Panels, Imtinan Basem Attili, University of Sharjah, UAE, 2019.
12. Field Programmable Analog arrays for Biomedical Applications, Maha Samir Baker Diab, University of Sharjah, UAE, 2019.
13. Mixed Analog-Digital Circuits Design for the Combined Extraction of Sleep Spindles and K-Complexes with High Sensitivity and Specificity, Sumaiyah Ismail Khan, University of Sharjah, UAE, 2019.

Senior Design Research Projects

1. Real-Time Zones Hazard Perception using Haptic Feedback, Aesha Al-Nuaimi, Aisha Al-Ali and Wafaa Al-Habach, University of Sharjah, UAE 2018-2019.
2. Design of A linear-Switched Reluctance Motor (LSRM) For Heart Assistance Circulatory, Hajar AlHayyas, Raheel Aqeel and Shaikha AlHayyas, University of Sharjah, UAE 2018-2019.
3. Smart Portable Kidney Dialysis Control and Monitoring System, Mahra Alzarouni, Sara AlJassmi, and Laila Abu Hweij, University of Sharjah, UAE 2017-2018.
4. Laser Technology for Customizing Silicon Solar PV dicing, Douae Nouichi, Noor Alhindawi, Heba Mohamed, and Yara Yaghi, University of Sharjah, UAE 2017-2018.
5. Smart Street Lighting System in Highways, Amna Alzarouni, Maha Alzarouni, and Noora Lootah, University of Sharjah, UAE 2017-2018.
6. Wheelchair Controlled by Tongue Derive System, Meera Abdallah, Mariam Mohammed, and Muhra Ahmed, University of Sharjah, UAE 2016-2017.
7. Restoring Function in Paralyzed Limbs Using EEG, Maha Samir Diab and Zainab Husain, University of Sharjah, UAE 2015-2016.
8. Smart Wearable Obstacle Detection Glasses for Low-Vision People, Noora Ahli, Hamadah AlJassmi and Hamda Alahmed, University of Sharjah, UAE 2015-2016.
9. Design and Implementation of an active electronic circuit chain for detecting EMG signal, Khawla Abdulla, Latifa Nasser, and Manal Saif, University of Sharjah, UAE 2015-2016.
10. Low noise low power instrumentation amplifier for biomedical application, Mohamed Balla Elamien, Abdulrahman Zaatari, and Mohamed ElTinai, University of Sharjah, UAE 2014-2015.
11. Design and Implementation of a Robust Electronic Read-out Circuit Chain for Monitoring and Processing of an EEG Signal, Amal AbdulAziz, Bushra Alhendi, and Saarah Abdulla, University of Sharjah, UAE 2014-2015.
12. Successive Approximation ADC for ECG, Heba Bilal and Hind Essa, University of Sharjah, UAE 2013-2014.
13. Variable Gain Amplifier for ECG, Ameera Al Hayyas, Mariam Al Hmoudi, and Khadija Abdulla, University of Sharjah, UAE 2013-2014.
14. Baby Safe Sleep Monitoring System, Sara Alnaqbi, Amna Alabdalla and Azeeza Alhammadi, University of Sharjah, UAE 2013-2014.
15. Differential Voltage Current Conveyor (DVCC) CMOS Discrete-Integrated Realization and its Applications in Realizing VGA, Filters and dual slope square/ triangular wave generator, Alya Mohammed Salem, Budoor Redha Makki and Hamda Ali Hassan, University of Sharjah, UAE 2013-2014.
16. Noise-Shaping Gain-Filtering Techniques For Wireless Applications, Aisha Abdallah and Sara Khalid, University of Sharjah, UAE 2012-2013.
17. Digitally Programmable OTA-C Low Pass Filter For Portable ECG Detection Systems, Ahmed Bamakhramah and Saeed A. Al-Tunaiji, University of Sharjah, UAE 2012-2013.

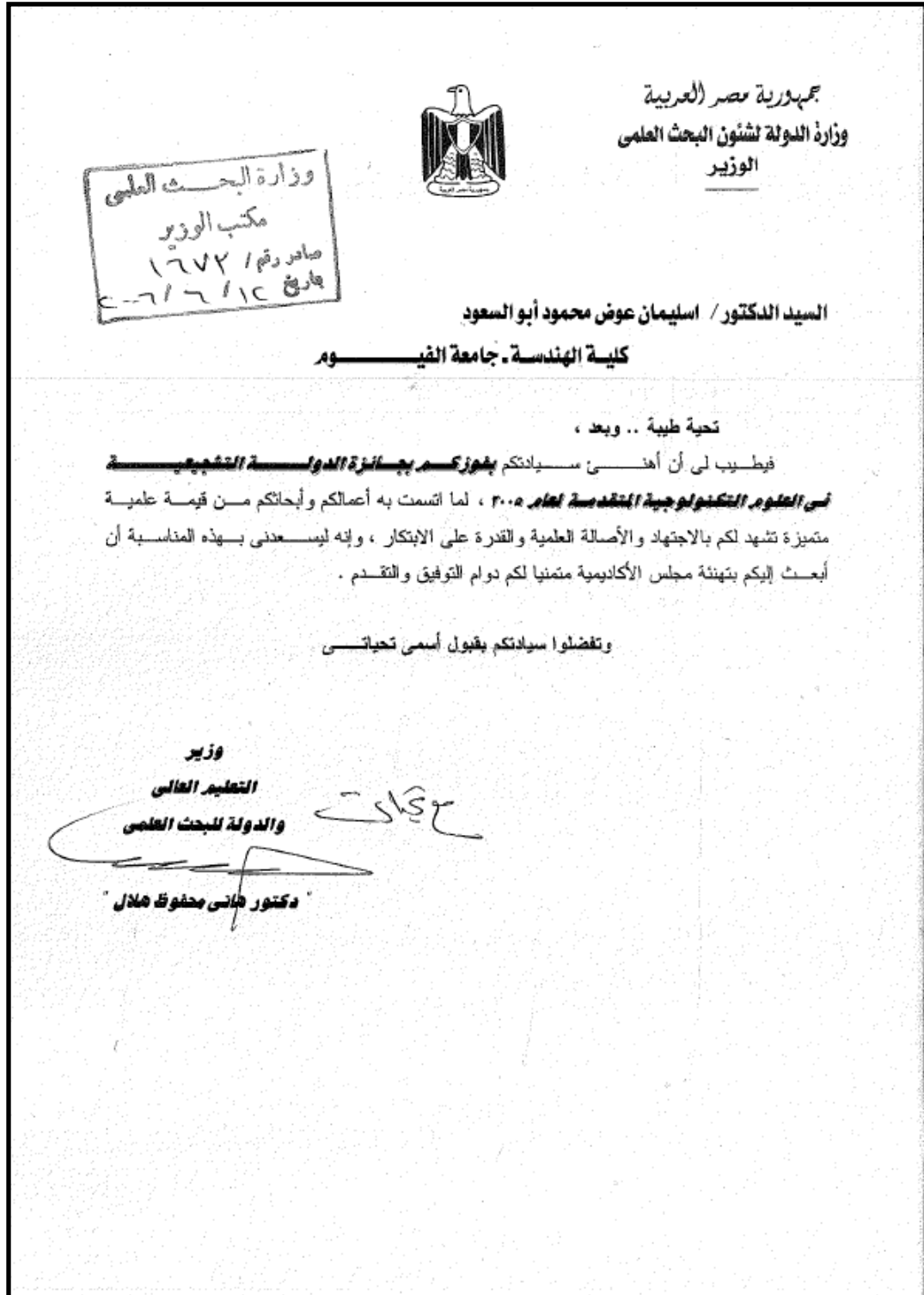
18. MATLAB/PSpice Hybrid Simulation Modeling of a Photovoltaic System and Its Applications, Mejd M. Alsari, Esra I. Reda, and Ruqiya M. Alhammadi, University of Sharjah, UAE 2012-2013.
19. A CMOS Complex Filter for Bluetooth with Gain Tuning, Sumayya Almazroei, Noor ul Misbah and Shamma Banihammad, University of Sharjah, UAE 2011-2012.
20. Low Power FPAA Design Based on OTA Using 90nm CMOS technology, K. Ali, A. Amgad, M. Rabea, A. Adel, A. Nasser, H. Mohamed and Y. Ismail Soliman, Fayoum University, Egypt 2010.
21. Cascaded Third-order Tunable Low-Pass Filter using Low Voltage Low Power OTA, Sondos Ismail, Germany University in Cairo (GUC), Egypt 2010.
22. High Frequency Tow-Thomas Tunable Filter using OTA based voltage op-amp, Walid Zemouri, Germany University in Cairo (GUC), Egypt 2010.
23. High Bandwidth Second Generation Current Conveyor based Operational Transconductance Amplifier, Mai M. Kamel, Germany University in Cairo (GUC), Egypt 2010.
24. Different Baseband Chain Architectures for Multi-standard Reconfigurable Receivers, M. A. Dawoud, Germany University in Cairo (GUC), Egypt 2009.
25. Reconfigurable Baseband Chain for Software-Defined Radio Receivers T. El-Zomor, Germany University in Cairo (GUC), Egypt 2009.
26. Sixth Order Baseband Variable LPF Using New Tunable Operational Amplifier, S. M. Fahmy, Germany University in Cairo (GUC), Egypt 2009.
27. High Frequency OTA-C Filters with Current and Voltage Transfer Functions based on Multiple Loop Feedback Technique, M. ElGuindy, Germany University in Cairo (GUC), Egypt 2009.
28. Design of Switched Capacitor Biquad Filter with Quality Factor Tenability, K. A. Al-Badawy, Germany University in Cairo (GUC), Egypt 2009.
29. Low voltage, low power CMOS Front-end for Bluetooth Applications, O.M. Kassam, Germany University in Cairo (GUC), Egypt 2008.
30. A CMOS Complex Gm – C Filter for Low-IF Bluetooth Receiver, M.M. Fahmy, Germany University in Cairo (GUC), Egypt 2008.
31. Fully Programmable CMOS Triangular and Trapezoidal function Generators, A. N. Taher, Germany University in Cairo (GUC), Egypt 2008.
32. New Switched Capacitor Biquad Filter Using Current feedback Amplifier, M. F. Nouraldin, Germany University in Cairo (GUC), Egypt 2007.
33. Low voltage DC-DC Converter Controller Based on CMOS Rail- to- Rail Second Generation Current Conveyor, A. A. Soliman, Germany University in Cairo (GUC), Egypt 2007.
34. 3V CMOS Rail to Rail Op-amp K.M. Abdel Moneim, Germany University in Cairo (GUC), Egypt 2007.

(VI).Professional Activities (Technical Committees)

- Senior member IEEE
- IEEE UOS University student branch counselor 2015-2017
- Review Committee Member, IEEE Journal of Solid State Circuits.
- Review Committee Member, IEEE Transactions on CAS I & II.
- Review Committee Member, International Journal on Circuits, Systems and Computers (JCSC).
- Review Committee Member, Journal on Circuits, Systems and signal processing.
- Review Committee Member, IEEE VLSI transactions
- Review Committee Member, Microelectronics Journal.
- Review Committee Member, Analog Integrated circuits
- Review Committee Member, Electronics letters
- Permanent Review Committee Member, IEEE International Symposium on Circuits & Systems ISCAS.
- Permanent Review Committee Member, IEEE International Midwest Symposium on Circuits and Systems, MWCAS

12. Prizes

- ◆ The Distinguished research award for the year 2014-2015 from University of Sharjah, UAE.
- ◆ The Distinguished research award for the year 2011-2012 from University of Sharjah, UAE.
- ◆ Science Prize of Advanced Engineering Technologies from Scientific Research Academy- Egypt (2005).
- ◆ The best teaching staff for 2005 and 2006 years from Electrical Engineering Department, Faculty of Engineering, Fayoum University.



شكر و تقدير

تشهد جامعة الشارقة أن

د. سليمان محمود _ كلية الهندسة

قد فاز بجائزة جامعة الشارقة التشجيعية السنوية لأعضاء هيئة التدريس

في مجال البحث العلمي (2011 - 2012)

متمنين له مزيدا من التقدم و العطاء

أ.د. سامي عبد الحميد محمود
مدير الجامعة

شهادة تقدير

عيد العلم الرابع
ديسمبر ٢٠١١

يسر أسرة جامعة الفيوم أن تتقدم بخالص التهنية

إلى السيد د. سليمان عوض محمود - كلية الهندسة،

لحصوله على / جائزة جامعة الفيوم للنشر العلمي لعام ٢٠١١

داعين الله ان ينفع بكم مصرنا الغالية

رئيس الجامعة

أ.د. عبد الحميد عبد التواب صبرى



جامعة الفيوم

شهادة تقدير

عيد العلم الخامس
ديسمبر ٢٠١٢

يسر أسرة جامعة الفيوم أن تتقدم بخالص التهنئة
إلى السيد/ د. / سليمان زع غو حوس محمود الأستاذ بكلية الهندسة
لحصوله على / جائزة جامعة الفيوم في النشر العلمي ٢٠١٢
داعين الله ان ينفع بكم مصرنا الغالية

رئيس الجامعة

أ.د. عبد الحميد عبد التواب صبرى

K.P



جامعة الفيوم

شهادة تقدير

عيد العلم السادس
ديسمبر ٢٠١٣

يسر أسرة جامعة الفيوم أن تتقدم بخالص التهنئة
إلى السيد / د. / سليمان زع غو حوس محمود
لحصوله على / جائزة جامعة الفيوم في النشر العلمي
داعين الله ان ينفع بكم مصرنا الغالية

رئيس الجامعة

أ.د. عبد الحميد عبد التواب صبرى

K.P



شهادة تقديري

تشهد جامعة الشارقة أن

د. سليمان محمود

قد فاز بجائزة جامعة الشارقة الشجعية السنوية لأعضاء هيئة التدريس المنميين في مجال

البحث العلمي (٢٠١٤-٢٠١٥)

أ.د. حميد مجول العيمي
مدير الجامعة

منميين له مزيداً من التقدم والعطاء

13. Professional Activity

♦ Chairman of the Electrical Engineering Department- Faculty of Engineering- Fayoum University from 1/9/2007 till 30/1/2010.

15. References

1. Prof. Dr Yasser Higazi

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3. Prof. Dr. Amr Mohamed Refaat Gody

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