

## Curriculum Vitae

### Personal Information

Name: Prof. Dr.-Ing. Moustafa Nawito  
Birth date and place: 17.12.1979, Cairo – Egypt  
Nationality: German  
Family status: Married with children



### Professional Experience

Since 05/21

#### Expert Reviewer for Academic Accreditation

The Accreditation Agency for Study Programs in Engineering, Informatics, Natural Sciences and Mathematics (ASIIN e.V.) – Expert Group for Electrical and Information Engineering

Overview: assessment of the quality and scope of university programs, judging the compatibility with European standards & ECTS, review of academic and research activities, review and assessment of academic staff.

Completed reviews:

- M.Sc. of Computer Science at the Polytechnique IPSAS academic institution, Sfax – Tunisia
- M.Sc. of Mechatronics at the Polytechnique IPSAS academic institution, Sfax - Tunisia

Since 03/20

#### Professor and Director of Electrical Engineering Study Program

IU International University of Applied Sciences – Distance Studies

Overview: Ensuring the academic quality of the entire program, curriculum development, planning and implementation of the laboratory concept, appellate review, teaching duties, script preparation.

Selected work:

- Development of the electrical engineering curriculum for distance and dual studies.
- Procurement of software and hardware lab infrastructure.
- Development of new input options for online exams.
- Committee member for appointment of professorship for applied mathematics
- Committee member for appointment of Professorship for High Voltage Technology
- Committee member for appointment of Professorship for Electrical Engineering

Since 08/2017

#### Founder and CEO

Startup TGU Polymath Analog at TTI GmbH, University of Stuttgart.

Overview: Consulting, training and design services in the fields of microelectronics for Industry 4.0, Internet of Things, biomedical engineering.

Selected work:

- Feasibility study, road map and strategic planning regarding electronics development of a family of medical products.

- Consulting regarding CMOS image sensor for biomedicine.
- Consulting on chip development for hearing aids.
- Consulting on electromagnetic compatibility of medical devices.
- Organization and speaking of the "Chip Design Management" workshop.
- Speaker of the seminar "Organic Electronics" at the Technical Academy Esslingen.

**10/2010 - 12/2019**

**Research Scientist**

Institut für Mikroelektronik Stuttgart IMS CHIPS, Stuttgart

Department: ASIC Products, ASIC Development

Responsibilities: technical project management, conceptual design, circuit and system design, simulation, layout, verification, measurement development, report writing.

Selection of work performed:

- Feasibility study electronics development of a lidar system
- Development of readout electronics for thermal automotive camera systems.
- Development of pipelined ADCs for miniaturized industrial camera systems.

**07/2018 – 03/2020**

**Part-time Lecturer**

Duale Hochschule Baden- Württemberg (DHBW), Stuttgart

- Fundamentals of Electrical Engineering (two semesters)
- Wilhelm Büchner Hochschule (Distance Studies), Darmstadt
- Control Engineering (online)
- Electronic Circuits

**02/2008 – 10/2010**

**Technical Director of the Center for Digital Broadcasting**

German University in Cairo GUC, Cairo - Egypt

Tasks: Infrastructure planning and design, technical direction, management of research projects, strategic planning, delivery and teaching of technical seminars, administration and management of technical work, technical support.

Courses:

- Advanced Digital Broadcasting (seminar and lab)
- Digital Video and Radio Broadcasting (seminar and lab)

**02/2005 – 02/2008**

**Teaching Assistant**

Electronics Department, German University in Cairo GUC, Cairo - Egypt

Courses:

- Signals and Systems Theory (Seminar)
- Electric Circuits (Seminar)
- Semiconductor Devices (lab)
- Microelectronics (lab)
- Advanced Microelectronics (lecture and lab)
- Digital Broadcasting Systems (lecture and lab)

**10/2003 – 02/2005**

**Project Support Engineer**

IT- Department, German University in Cairo GUC, Cairo - Egypt

**4/2003 – 10/2003**

**Reliability Engineer**

Directional Drilling Systems, Baker-Hughes INTEQ, Cairo - Egypt

## Academic Education

**03/2017**

### **PhD Degree Dr.-Ing.**

University of Stuttgart

Grade: 1.0 magna cum laude

Dissertation: "CMOS Readout Chips for Implantable Multimodal Smart Biosensors" (ISBN-13: 978-3658203467).

Overview: This work presents a family of readout chips used in an implantable electrochemical biosensor system. The analog front end is designed to perform fully integrated pH, oxygen concentration, and temperature measurements. Furthermore, a novel technique for broadband and digitally driven impedance spectroscopy is presented alongside a novel technique for fully integrated sinusoidal signal generation. The various functions and properties of the presented chips are demonstrated by a series of experiments, ranging from basic electrical validation tests in the laboratory to real electrochemical measurements with activated electrodes and chemical analytes.

Doctoral advisor: Prof. Dr.-Ing. Joachim N. Burghartz, University of Stuttgart.

Co-advisor: Prof. Dr. Boris Murmann, Stanford University.

**10/2007**

### **Master of Science (M.Sc.) in Electronics**

German University in Cairo (GUC)

Grade: A

Master's Thesis: "The Analysis of Group Delay of Ultra-Wideband Low Noise Amplifiers."

Overview: In this thesis, the effects of group delay variations in UWB LNAs are thoroughly analyzed. Using system simulations, the problem of pulse distortion due to group delay variations is investigated for different types of UWB pulses and modulation techniques. The work also addresses the causes of group delay in UWB - LNA circuits and investigates the effects of bandwidth enhancement techniques and noise reduction methods in the presence of group delay using analytical techniques. A practical UWB-LNA circuit based on a commercial process is then designed to validate the analytical results through simulation.

Advisor: Prof. Dr.-Ing. Darek Korzec, GUC.

**09/2002**

### **Bachelor of Science (B.Sc.) in Electronics and Electrical Communications**

Cairo University

Bachelor Thesis Grade: A+

Bachelor Thesis: "Design of New CMOS Logarithmic Active Pixel Sensors."

Overview: There are two main types of sensors for digital cameras: CCD (charge coupled device) sensors and CMOS sensors. CMOS sensors established as the better alternative for low-end and high-end digital camera applications. In this work, two completely new CMOS image sensor pixel circuits were developed. The new designs improve performance and reduce chip area.

Advisor: Prof. Dr. Aly Ezzat Salama, Cairo University.

## School Education

**06/1997**

### **Egyptian and German certificate of secondary education**

Deutsche Evangelische Oberschule (DEO), Cairo - Egypt

**03/1997**

### **Deutsches Sprachdiplom der Kultusministerkonferenz - Zweite Stufe**

## Further Education

- 07/2019**                      **Workshop Business Model Canvas**  
Bohn & Finkbeiner Consulting, TTI-GmbH, Stuttgart
- 10/2015**                      **Workshop Project Management**  
Baldinger & Partner, Hahn-Schickard, Villingen-Schwenningen
- Since 2014**                      **Numerous online courses**  
Basics of finance, accounting, economics, marketing and sales

## Selected Research Activities

- 2021: Co-founder of the SSMARTT research group at IU International School of Intelligent Systems, IU.
- 2018 - 2019: Lead the acquisition of an international project for digitization of catheter systems (40 project partners from 25 countries), EU Horizon 2020.
- 2016 - 2018: project management of the development of a family of implantable readout chips for diagnosis and therapy of diabetes mellitus type 2.
- 2013 - 2016: project lead of the development of a family of implantable readout chips for biological multi-parameter measurements.
- 2011 - 2013: led research on novel ADC circuits for ultra-compact digital cameras.
- 2008 - 2013: project management of the development of novel digital broadcasting systems.

## Honors and Grants

- Accepted to Smartly online Executive MBA program with scholarship (2020).
- Publication of doctoral dissertation with Springer Vieweg Research Publishing as part of the recognition of excellent doctoral dissertations. All costs covered by the publisher as a grant (2018).
- Recipient of the performance award of the Institute for Microelectronics Stuttgart IMS CHIPS (2016).
- "Best Poster Presentation" award at ICTOPEN, in Amersfoort - Netherlands (2015).
- First place at the "Robocup Festo Hockey Challenge" in Singapore (2010).
- Co-recipient of the "HP Innovation in Education Grant Initiative Award" prize (GUC 2009).
- Second place at the "Robocup Festo Hockey Challenge" in Graz - Austria (2009).
- Recognition from the Egyptian Ministry of Communications and Information Technology for teaching the course "Advanced Digital Broadcasting" (2008).
- Award for excellence in teaching electrical engineering (GUC 2008).
- Scholarship for research semester, University of Ulm (Uni Ulm, GUC 1/6 - 1/9 2006).

## Selected Scientific Publications

- Rene von Metzen, Udo Kraushaar, Lena Bleck, Moustafa Nawito, Harald Richter, Daniel Roszbach, Alfred Stett "Active Microelectrodearray for a Bioelectronic Diabetes Therapy Approach" DGBMT Jahrestagung, Aachen – Germany, September 2018.
- M. Nawito, H. Richter, J.N. Burghartz " Auslesechip für Erfassung der Betazellenaktivität", Präsentation bei der microTEC Südwest Clusterkonferenz, Freiburg, Germany, April 2018.
- G. Alavi, M. Nawito, R. Saleh, M.Hassan, C.Harendt, H. Richter, A. Stett, J.N. Burghartz "Embedding ultra-thin implantable biosensor system in polymers foil", Präsentation bei der microTEC Südwest Clusterkonferenz, Freiburg, Germany, March 2016.

- M. Nawito, H. Richter, J.N. Burghartz “Compact Wide-Range Sinusoidal Signal Generator for in vivo Impedance Spectroscopy” in proceedings of DCIS 2015, Estoril Portugal, November 2015.
- M. Nawito, G. Link, A. Stett, H. Richter, J.N. Burghartz. „Mikrosensor und Ausleseelektronik für miniaturisierte aktive medizinische Implantate“ in „proceedings of 286-289, MST Kongress, Karlsruhe, Germany, October 2015.
- M. Nawito, H. Richter, A. Stett, J.N. Burghartz. “A Programmable Energy Efficient Readout Chip for a Multiparameter Highly Integrated Implantable Biosensor System” Journal of Advances in Radio Science, 13, 1–6, Juli 2015.
- M. Nawito, H. Richter, J.N. Burghartz „A Readout Chip for Miniaturized in vivo Biosensor Implant“ proceedings of ICT.OPEN2015, 13-16 Amersfoort - Niederlande, March 2015
- M. Nawito, H. Richter, C. Scherjon, J.N. Burghartz „ASICs für medizinische Geräte und Implantate“ MPC Gruppe 53. Workshop, 1-6, Esslingen, Germany, Februar 2015.
- Stett, G. Link, R. Metzen, K. Schneider, D. Mintenbeck, D. Rossbach, H. Richter, M. Nawito, C. Jeschke, O. Bludau, N. Haas, T. Lebold, M. Kokelmann „Sensorkapsel für die medizinische In-vivo-Biosensorik“. MST Kongress, Karlsruhe, Germany, October 2015.
- Stett, G. Link, R. Metzen, K. Schneider, D. Mintenbeck, D. Rossbach, H. Richter, M. Nawito, C. Jeschke, O. Bludau, N. Haas, T. Lebold, M. Kokelmann “SMART Implant: Electronic Implants for Diagnosis and Monitoring”. GMM (Hrsg.), Energieautarke Sensorik (GMM-FB 79), VDE VERLAG GMBH · Berlin · Offenbach; Februar 2014.
- Stett, G. Link, R. Metzen, K. Schneider, D. Mintenbeck, D. Rossbach, H. Richter, M. Nawito, C. Jeschke, O. Bludau, N. Haas, T. Lebold, M. Kokelmann “Smart electronic implants for medical biosensory”. Smart Systems Integration Conference, Wien, Österreich, March 2014.
- Youss A. Kamal, Amr T. Abdel-Hamid, Moustafa Nawito, “Implementing a DVB-H Interactive Backward Channel using J2ME”, 9th Workshop on Digital Broadcasting, Ilmenau, Germany, September 2009
- Sarah Elkasrawy, Hani Hagrass, Moustafa Nawito, “An Intelligent System for Extracting Intro and Outré Times in Songs Using Artificial Neural Networks”, 5th International Conference on Intelligent Environments, Barcelona, Spanien, Juli 2009
- M. Nawito, S. Nader, A. Heuberger, J. Oscheck, and C. Forster, "The Digital Media Campus of the German University in Cairo," Proceedings of the 9th Workshop on Digital Broadcasting, Erlangen, Germany, September 2008.

### **Selected Invited Talks**

- „Young Talents: Polymath Analog“ microTEC Südwest Cluster Conference. Freiburg - Germany, March 2019.
- „Intelligente Implantate – Definition und Marktübersicht“ at the 13th meeting of the microTEC Südwest Expert Group Intelligent Implants. Furtwangen - Germany, May 2018.
- „Blickpunkt Startups: Polymath Analog“ at the microTEC Südwest Cluster Conference. Freiburg - Germany, April 2018.
- „ASICs und Chips“ at the interdisciplinary basic workshop of the microTEC Südwest expert group In Vitro Diagnostics. Freiburg - Germany. February 2017.
- „Low-power ASICs für die multimodale Sensorik“ at the 8th meeting of the microTEC Südwest expert group Intelligent Implants. Stuttgart - Germany, September 2016.
- ASICs für medizinische Geräte und Implantate“ at MPC Group 53rd Workshop. Esslingen - Germany, February 2015
- Invited panelist at the Workshop on Transition to Digital Broadcast in Egypt. Cairo- Egypt, January 2009.

- "Digital Video Broadcasting in Egypt" at the 10th Anniversary Celebration of the Department of Information Technology with a focus on Communication Electronics, Friedrich-Alexander-University Erlangen-Nuremberg. Erlangen - Germany, October 2009.
- "Digital Broadcasting Technologies" at the First Fraunhofer Workshop in Egypt: Innovation as a Tool for ICT Industry Development. Cairo - Egypt, March 2008.

### Selected Supervised Works

- „Entwicklung einer Messeinrichtung zur Erfassung der Betazellenaktivität“, Sophia Groß, Studienarbeit, Stuttgart University, 2017
- “Entwicklung und Aufbau eines ChipFilmTM-Patchbasierten Systems zum Einsatz als flexibles Implantat“, Rafat Saleh, Studienarbeit, Stuttgart University, 2015
- “Characterization and Measurement of Readout Chips for in vivo implantable biosensors” Sherif Eissa, B.Sc. Arbeit, GUC und IMS CHIPS, 2015
- “The Evaluation of Song Intro and Outro using Artificial Neural Networks and Type-2 Fuzzy Logic”, Sarah Elkasrawy, M.Sc. Arbeit, GUC, 2009
- “Modeling and simulation of UWB modulation techniques and System group delay”, Salma Muhamed, B.Sc. Arbeit, GUC, 2007
- “Design of low power Low Noise Amplifiers for UWB applications using SiGe HBTs” Muhammed Shawky, B.Sc. Arbeit, GUC, 2007
- “Design of low power high frequency mixers for automotive radars using SiCGE HBTs” Muhammed Abdelmoneim B.Sc. Arbeit, GUC, 2007

### Scientific Activities and Memberships

- Speaker for research for the working group "Encapsulation" of the Organic Electronics Association OE-A, 2021.
- Member of microTEC Südwest Expert Group Mikromedizintechnik since 2015.
- Member of microTEC Südwest Expert Group In Vitro Diagnostics since 2015.
- Organization and moderation of the research colloquium at IMS CHIPS 2013 - 2017.
- Co-founder and Vice President of the "IEEE Computational Intelligence Society (CIS) Egypt Chapter" 2008-2010.
- Local Chair of the 3rd Mediterranean Conference on Intelligent Systems and Automation (CISA'10), Cairo, Egypt, 2010.
- Co-founder of the "Ambient Intelligence Centre (AmIC)" research center in GUC, Cairo 2008.
- Active member of IEEE Solid State Society Since 2004.

### Languages

German:	Native-Level Proficiency.
English:	Native-Level Proficiency
French:	Limited Proficiency
Arabic:	Mother Tongue

Stuttgart, 20.05.2021

