

Mohammad Hossein Maghami



Assistant Professor
Faculty of Electrical Engineering
Shahid Rajaei Teacher Training University

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PERSONAL DATA:

- Date of Birth: 4 March 1984, Mashhad, Iran
- Nationality: Iranian
- Marital Status: Married

RESEARCH INTERESTS:

- Implantable biomedical microsystems
- Nyquist-rate and oversampling analog-to-digital data converters
- Low-voltage analog and mixed-signal ICs
- High-frequency analog circuit design
- Computer-aided design
- VLSI circuit design

EDUCATION:

Ph.D., Electrical Engineering (2009-2015)

K. N. Toosi University of Technology, Tehran, Iran

GPA: **19.01/20 (3.8/4)**

Thesis: “Design of a Current-Controlled Stimulation Back-End for Visual Prosthesis“

M.Sc., Electrical Engineering (2006-2009)

Amirkabir University of Technology, Tehran, Iran

Graduated in Jul. 2009

GPA: **17.54/20 (3.5/4)**

Thesis: “Design and Simulation of CT/DT Sigma-Delta Modulators for Broadband Applications in 90-nm CMOS Technology“

B.Sc., Electrical Engineering (2002-2006)

Ferdowsi University of Mashhad, Mashhad, Iran

Graduated in Sep. 2006

Total GPA: **16.95/20 (3.39/4)**

M.Sc. project: “Development of a CAD tool for analog IC design using Geometric Programming”

HONORS AND AWARDS:

- **Receiving Grant for Designing an Implantable ECoG System** 2016
Iranian National Science Foundation (INSF)
- **Best Paper Nominee (Invited for Publication in IEEE Transactions on Biomedical Circuits and Systems)** 2014
IEEE International Symposium on Circuits and Systems (ISCAS), Australia

- **Receiving Grant for Fabricating a Microstimulator Integrated Circuit (IC) to be Used in a Retinal Visual Prosthesis** 2013
Canada Research Chair on Smart Medical Devices, and Microsystems Strategic Alliance of Quebec (ReSMiQ)
- **Best Poster Award** 2012
4th Research and Innovation in Ophthalmology Festival, Farabi Vision Hospital
- **Outstanding Researcher Award** 2012
4th Anniversary of Research Laboratory for Integrated Circuits and Systems (ICAS), KNTU, Iran
- **One of the Best TAs Out of 36** 2007
Electrical Engineering Department, Amirkabir University of Technology
- **Distinguished Among All Undergraduate Students Majored in Electronics** 2006
Electrical Engineering Department, Ferdowsi University of Mashhad
- **Ranked 697th in the National Iranian University Entrance Exam Out of Over 300,000 Participants in Math and Physics.** 2002
- **Ranked 80th in the National Iranian University Entrance Exam (Masters Level) Out of Over 28000 Participants in Electrical Engineering.** 2006

PUBLICATIONS:

Book Chapters

- A. R. Zabihian, **M. H. Maghami**, F. Asgarian, and A. M. Sodagar, Implantable Biomedical Devices, In: *R. Hudak, M. Penhaker, J. Majernik editors, Biomedical Engineering-Technical Applications in Medicine, Rijeka: InTech*, ISBN 978-953-51-0733-0, August 2012, pp. 157-190.

Peer-Reviewed Journal Articles

- S. Radfar, A. Nejati, Y. Bastan, P. Amiri, **M. H. Maghami**, M. Nasrollahpour, and S. Hamedi-Hagh, "A Sub-Threshold Differential CMOS Schmitt Trigger with Adjustable Hysteresis Based on Body Bias Technique," *Electronics*, Vol. 9, No. 5, pp. (806)1-12, May 2020.
- M. Zinaty, P. Amiri, and **M. H. Maghami**, "A High-Data-Rate Area-Efficient Uni-Pulse Harmonic Modulation Transmitter for Implantable Neural Recording Microsystems," *Journal of Circuits, Systems and Computers (JCSC)*, Vol. 29, No. 4, pp. (2020001)1-21, Mar. 2020.
- F. Soleymani, Y. Bastan, P. Amiri, and **M. H. Maghami**, "A 0.3–1.4 GHz Inductorless CMOS Variable Gain LNA based on the Inverter Cell and Self-Forward-Body-Bias Technique," *AEU - International Journal of Electronics and Communications*, Vol. 113, No. 1, pp. (152974)1-9, Jan. 2020.
- **M. H. Maghami**, and A. M. Sodagar "Compact, Programmable, Two-Stage Configuration for Implantable Biopotential Recording Amplifiers," *Journal of Circuits, Systems and Computers (JCSC)*, Vol. 28, No. 14, pp. (1920009)1-17, Dec. 2019.
- A. Nejati, Y. Bastan, P. Amiri and **M. H. Maghami**, "A Low-Voltage Bulk-Driven Differential CMOS Schmitt Trigger with Tunable Hysteresis," *Journal of Circuits, Systems and Computers (JCSC)*, Vol. 28, No. 7, pp. (1920004)1-15, Jul. 2019.
- **M. H. Maghami**, A. M. Sodagar and M. Sawan, "Versatile Stimulation Back-End with Programmable Exponential Current Pulse Shapes for a Retinal Visual Prosthesis," *IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)*, Vol. 24, No. 11, pp. 1243-1253, Nov. 2016.
- **M. H. Maghami**, A. M. Sodagar and M. Sawan, "Analysis and design of a high-compliance ultra-high output resistance current mirror employing positive shunt feedback," *International Journal of Circuit Theory and Applications (IJCTA)*, Vol. 43, No. 12, pp. 1935-1952, Dec. 2015.
- **M. H. Maghami**, A. M. Sodagar, A. Lashay, H. Riazi Esfahani and M. Riazi Esfahani, "Visual Prostheses: The Enabling Technology to Give Sight to the Blind," *Journal of Ophthalmic and Vision Research (JOVR)*, Vol. 9, No. 4, pp. 494-505, Oct.-Dec. 2014.

- **M. H. Maghami** and A. M. Sodagar, “Low-Power, Low-Voltage, Dual-Output, Second Generation Current Conveyor and Its Application in Low-Pass Filter Design,” *Journal of Circuits, Systems and Computers (JCSC)*, Vol. 22, No. 6, pp. (1350044)1-10, June 2013.
- **M. H. Maghami** and M. Yavari, “A hybrid CT/DT double-sampled SMASH $\Sigma\Delta$ modulator for broadband applications in 90 nm CMOS technology,” *Analog Integrated Circuits and Signal Processing (AICSP)*, Vol. 23, No. 1, pp. 101-114, October 2012.
- **M. H. Maghami** and M. Yavari, “Low-Voltage Double-Sampled Hybrid CT/DT $\Sigma\Delta$ modulator for Wideband Applications,” *Journal of Circuits, Systems and Computers (JCSC)*, Vol.19, No. 8, pp. 1743-1751, December 2010.

Peer-Reviewed Conference Papers

- M. S. Nahvi, F. Akbari Boroumand, **M. H. Maghami**, A. M. Sodagar, A. Shojaei, and, J. Mirnajafi-Zadeh, “Design, Fabrication, and Test of Flexible Thin-Film Microelectrode Arrays for Neural Interfaces,” in the Proc. of *30th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, Windsor, Canada, 2017.
- A. Faizi-nejad, A. Kia, **M. H. Maghami**, S. Nasiri, R. Mohammadi, A. Shojaei, M. Rezaie, Y. Khazaei, J. Mirnajafi-Zadeh, E. Nadimi, and A. M. Sodagar, “Compact, Battery-Powered, Eight-Channel Micro-Electrocorticography (μ ECoG) System,” in the Proc. of *30th Annual IEEE Canadian Conference on Electrical and Computer Engineering (CCECE)*, Windsor, Canada, 2017.
- M. Karimi, **M. H. Maghami**, M. Faizollah and A. M. Sodagar, “A Noncoherent Low-Power High-Data-Rate BPSK Demodulator and Clock Recovery Circuit for Implantable Biomedical Devices,” in the Proc. of *IEEE 10th Conference on Biomedical Circuits and Systems (BioCAS)*, pp. 372-375, Switzerland, 2014.
- **M. H. Maghami**, A. M. Sodagar and M. Sawan, “Biphasic, Energy-Efficient, Current-Controlled Stimulation Back-End for Retinal Visual Prosthesis,” in the Proc. of *IEEE Intl. Symp. on Circuits and Systems (ISCAS)*, pp. 241-244, Australia, 2014.
- S. Farahmand, **M. H. Maghami** and A. M. Sodagar, “Programmable High-Output-Impedance, Large-Voltage Compliance, Microstimulator for Low-Voltage Biomedical Applications,” in the Proc. of *34th IEEE Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'12)*, pp. 863-866, San Diego, California, 2012.
- **M. H. Maghami** and A. M. Sodagar, “Fully-Integrated, Large-Time-Constant. Low-Pass, Gm-C Filter Based on Current Conveyors,” in the Proc. of *18th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, pp. 281-284, Lebanon, 2011.
- **M. H. Maghami** and M. Yavari, “Hybrid CT/DT Resonance-Based Cascade $\Sigma\Delta$ Modulator for Wideband Low-voltage Applications,” in the Proc. of *IEEE 5th European Conference on Circuits and Systems for Communications (ECCSC)*, pp. 107-110, Serbia, 2010.
- **M. H. Maghami** and M. Yavari, “A Double-Sampled Hybrid CT/DT SMASH $\Sigma\Delta$ Modulator for Wideband Applications,” in the Proc. of *16th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, pp. 41-44, Tunisia, 2009.
- **M. H. Maghami** and M. Yavari, “Multirate Double-Sampling Hybrid CT/DT Sigma-Delta Modulators for Wideband Applications,” in the Proc. of *IEEE Intl. Symp. on Circuits and Systems (ISCAS)*, pp. 2253-2256, Taipei, 2009.
- **M. H. Maghami**, S. Khatami and M. Yavari, “Design and Simulation of CT/DT Sigma-Delta Modulators for Broadband Applications in 90nm CMOS Technology,” *6th Nanotechnology Iranian Student Conference*, Iran, 2009 (in Persian).
- **M. H. Maghami**, F. Inanlou and R. Lotfi, “Simulation-Equation-Based Methodology for Design of CMOS Amplifiers Using Geometric Programming,” in the Proc. of *15th IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, pp. 360-363, Malta, 2008.
- **M. H. Maghami**, F. Inanlou and R. Lotfi, “Automatic Design of High-Performance Operational Amplifiers Using Geometric Programming,” in the Proc. of *15th Iranian Conference on Electrical Engineering, (ICEE2007)*, pp. 180-185, Iran (in Persian).

RESEARCH AND TEACHING EXPERIENCES:

Research Experiences:

- **RA for Polystim Neurotechnologies Laboratory**, Polytechnique Montreal, Canada, under direction of Prof. Sawan (1 May 2013 – 31 Jan 2014)
- **RA for Integrated Circuits and Systems Lab (ICAS)**, K.N. Toosi University of Technology, Tehran, Iran, under direction of Dr. Sodagar (2009-2016)
- **RA for Integrated Systems Lab (ISL)**, Amirkabir University of Technology, Tehran, Iran, under direction of Dr. Yavari (2007-2009)
- **RA for Integrated Systems Lab (ISL)**, Ferdowsi University of Mashhad, Iran, under direction of Dr. Lotfi (2005-2006)

Teaching Graduate and Undergraduate Courses:

- **Electronic Circuits**, K.N. Toosi University of Technology, Tehran, Iran, and Pooyesh University, Qom, Iran
- **Electronics I**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Electronics II**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Electronics III**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Analog IC Design**, Pooyesh University, Qom, Iran
- **CMOS VLSI circuits**, Shahid Rajaei Teacher Training University, Tehran, Iran, Islamic Azad University, Abhar branch, Iran, and Pooyesh University, Qom, Iran
- **Signals and Systems**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **General Electronics**, Pooyesh University, Qom, Iran
- **Pulse Techniques**, Sadra University, Tehran, Iran, and Pooyesh University, Qom, Iran
- **Integrated Circuits Laboratory**, Pooyesh University, Qom, Iran
- **Electric Circuits**, Shahid Rajaei Teacher Training University, Tehran, Iran, Pooyesh University, Qom, Iran, and Allameh Majlesi University, Takestan, Iran
- **Electrical Measurements**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Linear Integrated Circuits**, Pooyesh University, Qom, Iran
- **Electronics-I Laboratory**, Amirkabir University of Technology, Tehran, Iran, and K.N. Toosi University of Technology, Tehran, Iran
- **Electronics-II Laboratory**, K.N. Toosi University of Technology, Tehran, Iran
- **Electronics-III Laboratory**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Communication Circuits Laboratory**, Shahid Rajaei Teacher Training University, Tehran, Iran
- **Electric Circuits Laboratory**, Shahid Rajaei Teacher Training University, Tehran, Iran, Islamic Azad University, Abhar branch, Iran, and Allameh Majlesi University, Takestan, Iran
- **Electronic Circuits Laboratory**, Pooyesh University, Qom, Iran

Teaching Assistantships:

- **TA for Electronics-I**, Amirkabir University of Technology, Tehran, Iran (2006-2007), and Ferdowsi University of Mashhad, Iran (2004)
- **TA for Electronics-II**, Amirkabir University of Technology, Tehran, Iran (2006-2007), and Ferdowsi University of Mashhad, Iran (2004)
- **TA for Electronics-III**, K.N. Toosi University of Technology, Tehran, Iran (2009-2010), Amirkabir University of Technology, Tehran, Iran (2008), and Ferdowsi University of Mashhad, Iran (2005)
- **TA of Analog CMOS Circuits course**, Amirkabir University of Technology, Tehran, Iran (2007)

- **TA for Analog IC Design**, K.N. Toosi University of Technology, Tehran, Iran (2010-2011)
- **TA for Data Converters**, K.N. Toosi University of Technology, Tehran, Iran (2012)

WORK EXPERIENCES:

- | | |
|---|------------------------|
| • Sajjad Research Center (SRC)
(http://www.sadjad.ac.ir/src) | <i>Summer 2005</i> |
| • Islamic Azad University (Abhar branch)
(http://www.iau-abhar.ac.ir/) | <i>2010</i> |
| • Pooyesh University (Qom)
(http://www.pooyesh.ac.ir/) | <i>2010-2016</i> |
| • Sadra University (Tehran)
(http://www.sadra.ac.ir/) | <i>Fall 2011</i> |
| • Allameh Majlesi University (Takestan)
(http://allamehmajlesi.ac.ir/) | <i>2012 & 2015</i> |
| • Shahid Rajaei Teacher Training University (Tehran)
(http://www.sru.ac.ir/) | <i>2016-Present</i> |
| • Cognitive Science and Technologies Council of Iran (Tehran)
(http://www.cogc.ir/) | <i>2015-Present</i> |

PROFESSIONAL ACTIVITIES:

Reviewer for the Following Journals and Conferences:

Journals

- IEEE Transactions on Industrial Electronics
- IEEE Transactions on Biomedical Engineering
- Journal of IEEE Design and Test of Computers
- Journal of Biomedical Engineering Online
- International Journal of Circuit Theory and Application, John Wiley and Sons Inc.
- Journal of Analog Integrated Circuits and Signal Processing (Springer)
- Microelectronics Journal, Elsevier Publishing Company
- Journal of Circuits, Systems, and Computers, World Scientific Publishing Company
- Amirkabir International Journal of Electrical & Electronics Engineering (AIJ-EEE)
- Journal of Intelligent Procedures in Electrical Technology (JIPET)
- Journal of Electronics Industries (Sa-Iran)
- Iranian Journal of Biomedical Engineering (IJBME)
- Journal of Electrical and Computer Engineering Innovations (JECEI)

Conferences

- IEEE Intl. Symp. on Circuits and Systems (ISCAS), 2008-2010, 2014
- IEEE International Conference on Biomedical Circuits and Systems (BioCAS), 2014-2016, 2018-2019
- IEEE International Conference on Electronics, Circuits, and Systems (ICECS), 2008, 2014
- IEEE Canadian Conference on Electrical and Computer Engineering (CCECE), 2017
- IEEE Life Sciences Conference (LSC), 2017-2018
- Iranian Conference on Electrical Engineering (ICEE), 2018-2019

Memberships:

- Member of IEEE (2007-2012, 2014)
- IEEE Circuits and Systems Society (2008-2012, 2014)
- IEEE Engineering in Medicine and Biology Society (2010-2011)

SKILLS:

Computer: Cadence, Orcad, Hspice, Protel, L-Edit, C, Visual Basic, and MATLAB

Languages: Persian (Native), English (TOEFL iBT Score: 97/120)

Sports: Hiking, Swimming, Soccer

REFERENCES:

Prof. Amir M. Sodagar

Electrical Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

Email: amsodagar@ieee.org

Prof. Mohamad Sawan

Electrical Engineering Department, Polytechnique Montreal, Quebec, Montreal.

Email: Mohamad.sawan@polymtl.ca

Prof. Mohammad Yavari

Electrical Engineering Department, Amirkabir University of Technology, Tehran, Iran.

Email: myavari@aut.ac.ir

Prof. Reza Lotfi

Electrical Engineering Department, Ferdowsi University of Mashhad, Mashhad, Iran.

Email: r-lotfi@um.ac.ir

Prof. Saeed Khatami

Electrical Engineering Department, Amirkabir University of Technology, Tehran, Iran

Email: khatami@aut.ac.ir

Prof. Hossein Shamsi

Electrical Engineering Department, K. N. Toosi University of Technology, Tehran, Iran.

Email: shamsi@eetd.kntu.ac.ir