

**Siroos Toofan**  
**CV(Curriculum Vitae)**



**Overview:** He received the B.Sc. degree in Electronic Engineering from Amirkabir University of Technology (Tehran Polytechnic) in 1999, and the MSc. and PhD degree in Electronic Engineering from Iran University of Science and Technology (IUST) in 2002 and 2008, respectively. From 2007 to 2008, During his sabbatical leave, he worked in the VLSI group of Politecnico di Torino and in the Microelectronics-Integrated Circuits Laboratory of Politecnico di Milano Universities in Italy. From August 2009 to September 2022, he was assistance professor and then associate professor of Electrical Engineering at the University of Zanzjan.

He is currently an associate professor and he has been working with the Faculty of Electrical and Computer Engineering, University of Tabriz, since September 2022. His current research activities include design of CMOS analog/mixed mode integrated circuits, RF/MM integrated circuits, Integrated DC-DC Converters, and sensors interfaces.

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**Educations:**

- **B.Sc.**, 1999, Electrical Engineering - Electronics, Amirkabir University of Technology
- **M.Sc.**, 2002, Electrical Engineering - Electronics, Iran University of Science & Technology
- **Ph.D.**, 2008, Electrical Engineering - Electronics, Iran University of Science & Technology
  
- **B.Sc. Thesis:** “Design and Implementation of PCM-TDM Transceiver”
- **M.Sc. Thesis:** “Design and Simulation of CMOS Detection Circuit for Capacitive Sensors”
- **Ph.D. Thesis:** “Design and Simulation of a Low-Power CMOS LNA and Frequency Synthesizer for Wireless Sensor Networks Transceiver”

**Research Interests:**

CMOS/GaAs

Analog, mixed-signal, and RF Integrated Circuits design, including respectively:

1. Frequency Synthesizer (e.g., Delta-Sigma, All Digital and Fractional N)
2. RF LNA, Mixer and Power Amplifier
3. Low Power Sensor Interfaces (e.g., Capacitive Sensors, and Resistive Sensors)
4. On-Chip DC-DC Converters
5. Data converters

**Practical Experiences:**

Design and implementation of more than 30 laboratory, semi-industrial, and industrial projects in the field of electronics, telecommunications and power electronics

## Teaching Experience:

### Undergraduate:

- 1- Electronics I, II, III
- 2- Communication Circuits
- 3- Pulse Technique
- 4- Filter and Synthesis of Circuits
- 5- Digital Systems Design (ASIC and FPGA)
- 6- Electronics I, II, III and Communication Circuits Labs.

### Graduate:

- 1- CMOS Integrated Circuit (CMOS I)
- 2- Advanced CMOS Integrated Circuit (CMOS II)
- 3- Radio Frequency Integrated Circuit (RFIC)
- 4- Monolithic Microwave Integrated Circuits (MMIC)
- 5- Integrated Power Amplifier Design

## Research Laboratory:

- 1- Integrated Circuits Design Laboratory

## Current Students:

### Ph.D. Students (Name and Research Field):

- 1- ALaheh Pakravan; *Thesis Field:* She is new semester student
- 2- Yeganeh Moradzadeh Rezaei; *Thesis Field:* She is new semester student

### M.Sc. Students (Name and Research Field):

- 3- Ahmad Najjari; *Thesis Field:* High quality factor N-path filters for LTE and GSM
- 4- Rozhin Salehi Saheb; *Thesis Field:* Low-dropout Voltage Regulator

## Alumni Students:

### Ph.D. Students (Name and Thesis):

#### Supervisor:

- 1- Alireza Dehqan; *Thesis:* Class E Power Amplifier in 0.25um PHEMT and 0.18um CMOS;  
*The first graduated of Electronics engineering at PhD in the university of Zanjan.*  
<http://www.znu.ac.ir/pg/14336>
- 2- Leyla Bagherieh; *Thesis:* Analysis and Design of Reliable SRAM Cell in FinFET Technology
- 3- Mohammad Soleimani; *Thesis:* Design and Analysis of Reliable SRAM Cell in FinFET Technology
- 4- Abbas Nasri; *Thesis:* Integrated Power Amplifier; *Dual degree student between University of Zanjan and Politecnico di Torino University.*

#### Advisor:

- 1- Reza Daie Koozehkanani; *Thesis:* Design and Simulation of improved AGC for hearing aid
- 2- Elmira Semsar Parapari; *Thesis:* Analysis and Design of a wideband TIA for optical communications

### M.Sc. Students (Name and Thesis Field):

- 1- Majid Memarian Sorkhabi; *Thesis Field:* All Digital Frequency Synthesizers
- 2- Ali Tajari- Delta; *Thesis Field:* Sigma-Delta Analog to Digital Converter
- 3- Maryam Safari; *Thesis Field:* Wideband CMOS Mixer
- 4- Vahid Eghbalifar; *Thesis Field:* Integrated Class-E Power Amplifier
- 5- Hasan Almasi; *Thesis Field:* All Digital Frequency Synthesizers for IEEE 802.11a Standard

- 6- Leyla Bagherieh; *Thesis Field*: 12-Bit, 60 MS/s SAR Analog to Digital converter
- 7- Ebrahim Ahmadi; *Thesis Field*: Integrated DC-DC Converters
- 8- Morteza Alimohammadi; *Thesis Field*: Capacitive Sensors Changing to Digital Number
- 9- Ali Ghorbani; *Thesis Field*: Gain stage of 10 bit-150MS/S pipeline ADC with 4-bit internal stages
- 10- Akram Amiri; *Thesis Field*: Successive Approximation Time to Digital Converter (SAR TDC)
- 11- Parisa Mohammadi; *Thesis Field*: Fractional-N Frequency Synthesizer
- 12- Zahra Mehrara; *Thesis Field*: Construction of a Self-Contained Image Compression
- 13- Mohammad Fazel Farhadi; *Thesis Field*: PAPR Reduction in Alamouti coded at MIMO-OFDM
- 14- Mehdi Safarpour; *Thesis Field*: Analog to Information Convertor based on RMPI architecture
- 15- Farshad Goodarzi; *Thesis Field*: PFD and Reference frequency for PPLs
- 16- Farnaz Rezagholi; *Thesis Field*: Calibrated SAR TDC
- 17- Mostafa Katebi; *Thesis Field*: Temperature Compensated VCO/DCO for K-Band
- 18- Amin Sheykhi; *Thesis Field*: Pipeline ADC
- 19- Alahesh Zabardasti; *Thesis Field*: Pipeline TDC
- 20- Hamed Hekmati; *Thesis Field*: Integrated Buck- Boost DC-DC converter
- 21- Masoumeh Faraji; *Thesis Field*: VCO for 5G upper bands
- 22- Masoud Salary; *Thesis Field*: K-Band RADARs Phase Shifter
- 23- Maryam Abdi; *Thesis Field*: Delta-Sigma Modulator based on VCO
- 24- Mohsen Abedini; *Thesis Field*: household Electricity Phase Identification (Fabrication)
- 25- Alireza Kalantari; *Thesis Field*: Power Quality Analyzer with new aspects (Fabrication)
- 26- Asghar Abullu; *Thesis Field*: Power Switches Vacuum measuring (Fabrication)

## **Publications:**

### **Journals:**

- 1- M. Hekmati, A. Nasri, S. Toofan, "Design," Journal of, Vol. , No. ??, November 2023. (JCR; ISSN: 0218-1266)
- 2- H. Hekmati, A. Nasri, S. Toofan, "Design and Analysis of a Buck-Boost DC-DC Converter with Delta Sigma Modulator Controller," Journal of Circuits, Systems, and Computers, Vol. 32, No. ??, ?? 2023. (JCR; ISSN: 0218-1266)
- 3- E. Semsar Parapari, E. Semsar Parapari, Z. Daei Koozehkanani, S. Toofan, "A 12.5 Gb/s 0.13-  $\mu$ m CMOS Inductorless Transimpedance Amplifier with 1 pF Input Capacitance for Optical Communications," International Journal of Circuits and Theory Applications, September 2022. (ISC; ISSN: 1682-0053)
- 4- A. Nasri, M. Estebarsari, S. Toofan, A. Piacibello, M. Pirola, V. Camarchia, C. Ramella, "Broadband Class-J GaN Doherty Power Amplifier," Electronics, February 2022. (JCR; ISSN: 2079-9292)
- 5- R. Daie Koozehkanani, S. Makouei, S. Toofan, "Improved loop stability approach in fully differential operational transconductance amplifier with common mode feedback circuit," International Journal of Circuits and Theory Applications, December 2021. (ISC; ISSN: 1682-0053)
- 6- R. Daie Koozehkanani, S. Makouei, S. Toofan, "A fast configurable AGC for front-end of digital hearing aids," Springer, Analog Integrated Circuits and Signal Processing, august 2021. (JCR; ISSN: 0925-1030)
- 7- A. Nasri, M. Estebarsari, S. Toofan, A. Piacibello, M. Pirola, V. Camarchia, C. Ramella, "Design of a Wideband Doherty Power Amplifier with High Efficiency for 5G Application," Electronics, April 2021. (JCR; ISSN: 2079-9292)
- 8- E. Semsar Parapari, E. Semsar Parapari, Z. Daei Koozehkanani, S. Toofan, "A low power 102 dB Reconfigurable Variable Gain Amplifier for Multistandard Receivers," International Journal of Electronics and Communications, February 2021. (JCR; ISSN: 1434-8411)

- 9- A. Sheykhi, F. Goodarzi, S. Toofan, "A 100 $\mu$ A Low Temperature Coefficient Current Reference with Composition of Subthreshold and Saturation Transistors," Tabriz Journal of Electrical Engineering, April 2020. (ISC; ISSN: 2008-7799)
- 10- M. Soleimani, S. Toofan, "Improvement of Single-Phase Dynamic-Latched Comparator," Tabriz Journal of Electrical Engineering. (ISC; ISSN: 2008-7799)
- 11- A. Nasri, S. Toofan, M. Estebarsari, A. Estebarsari, "Design of a 41.14- 48.11 GHz Triple Frequency Based VCO," Electronics, May 2019. (JCR; ISSN: 2079-9292)
- 12- M. Katebi, A. Nasri, S. Toofan, H. Zolfkhani "Low Phase-Noise and Strong Start-Up Condition Voltage Controlled Oscillator for K Band Applications," Iranian Journal of Electrical and Computer Engineering, May 2019. (ISC; ISSN: 1682-0053)
- 13- F. Goodarzi, S. Toofan, "A 9 Bit, 3.6ps Resolution Pipeline Time to Digital Converter," Journal of Circuits, Systems, and Computers, Vol. 29, No. 8, September 2019. (JCR; ISSN: 0218-1266)
- 14- L. Bagheriye, S. Toofan, R. Saeidi, and F. Moradi, "Highly stable, Low Power FinFET SRAM Cells with Exploiting Dynamic Back-Gate Biasing," Elsevier, Integration, the VLSI Journal, March 2019. (JCR ISSN: 0167-9260)
- 15- A. Dehqan, S. Toofan, H. Lotfi, "Floating Bulk Cascode Class-E Power Amplifier," IEEE Transactions on Circuits and Systems II, April 2019. (JCR; ISSN: 1549-7747)
- 16- A. Dehqan, S. Toofan, "Resonance Gate Bias Cascode Class-E Power Amplifier in GaAs pHEMT Technology," Springer, Analog Integrated Circuits and Signal Processing, November 2018. (JCR; ISSN: 0925-1030)
- 17- M. Soleimani, S. Toofan, "Improvement of Gray ROM-Based Encoder for Flash ADCs," Journal of Circuits, Systems, and Computers, August 2018. (JCR; ISSN: 0218-1266)
- 18- A. Nasri, S. Toofan, R. Noroozian, "Design and Analysis of DC-DC Integrated Boost Converter with Time-Based Control Techniques," Journal of Electronics Industries, June 2019. (ISC; ISSN: 1683-0857)
- 19- M. Katebi, A. Nasri, S. Toofan, H. Zolfkhani "A Temperature Compensation Voltage Controlled Oscillator Using a Complementary to Absolute Temperature Voltage Reference," International Journal of Engineering, May 2019. (Scopus and Thomson Reuters; ISSN: 1025-2495)
- 20- M. Katebi, A. Nasri, S. Toofan, "A wide tuning range low-power and low-noise VCO using new capacitor bank structure," Majlesi Journal of Electrical Engineering, December 2018. (Scopus; ISSN: 2345-377X)
- 21- L. Bagheriye, S. Toofan, R. Saeidi, and F. Moradi, "Offset-Compensated Sensing-Circuit with High Sensing Margin for STT-MRAMs," IEEE Transactions on Very Large Scale Integration Systems, June 2018. (JCR; ISSN: 1063-8210)
- 22- F. Goodarzi, S. Toofan, J. Mazloun, "Improvement of PFD Based on Pulse Latched For Increasing Phase Detection Range and Operating Frequency," Tabriz Journal of Electrical Engineering, April 2018. (ISC; ISSN: 2008-7799)
- 23- M. Soleimani, S. Toofan, "High-Speed and Low-Power Flash ADCs Encoder," Iranian Journal of Electrical & Electronic Engineering, February 2018. (ISC; ISSN: 1735-2827)
- 24- L. Bagheriye, S. Toofan, R. Saeidi, F. Moradi, "A Reduced Store/Restore Energy MRAM-Based SRAM Cell for a Non-Volatile Dynamically Reconfigurable FPGA," IEEE Transactions on Circuits and Systems II, October 2017. (JCR; ISSN: 1549-7747)

- 25- A. Dehqan, S. Toofan, A. Medi, "A Highly Efficient Class-EF2 Power Amplifier in GaAs pHEMT Technology," Springer, Analog Integrated Circuits and Signal Processing, November 2017. ([JCR](#); [ISSN: 0925-1030](#))
- 26- A. Amiri, S. Toofan, "High Resolution- Low Power TDC based on Multi-path Gated Ring Oscillator," Tabriz Journal of Electrical Engineering, October 2016. ([ISC](#); [ISSN: 2008-7799](#))
- 27- M. Safarpour, M. Charmi, S. Toofan, "Spectrum Leakage Effect Mitigation in RMPI Analog to Information Convertors," International Journal of Science and Engineering Investigations, August 2016. ([ISI- Educational Resources Information Center \(ERIC\)](#); [ISSN: 2251-8843](#))
- 28- M. Safarpour, M. Charmi, S. Toofan, "Implementation of Random Modulator Per-Integrator Analog to Information Devices," International Journal of Science and Engineering Investigations, November 2015. ([ISI- Educational Resources Information Center \(ERIC\)](#); [ISSN: 2251-8843](#))
- 29- A. Dehqan, S. Toofan, "A Self-Control Technique for High Efficiency Class-E CMOS Power Amplifier," Elsevier, Microelectronics Journal, October 2015. ([JCR](#); [ISSN: 0026-2692](#))
- 30- M. Soleimani, S. Toofan, M. Yargholi, "High-Swing, High-Resolution, Low-Power, Low-Area Voltage-Mode LTA/WTA Circuits," Journal of Circuits, Systems, and Computers, April 2015. ([JCR](#); [ISSN: 0218-266](#))
- 31- Z. Mehara, S. Fazli, S. Toofan, "JPEG2000 Image Compression Using SVM and DWT," International Journal of Science and Engineering Investigations, April 2012. ([ISI- Educational Resources Information Center \(ERIC\)](#); [ISSN: 2251-8843](#))
- 32- S. Toofan, A. Rahmati, A. Abrishamifar, and G. Roientan Lahiji, "Low Power and High Gain Current Reuse LNA with Modified Input matching and Inter-stage Inductors," Elsevier, Microelectronics Journal, September 2008. ([JCR](#); [ISSN: 0026-2692](#))
- 33- S. Toofan, A. Rahmati, A. Abrishamifar, and G. Roientan Lahiji, "A Low-Power and High-Gain Fully-Integrated CMOS LNA," Elsevier, Microelectronics Journal, November 2007. ([JCR](#); [ISSN: 0026-2692](#))

#### [International Conferences:](#)

- 1- A. Nasri, S. Toofan, "Analysis MOSFET Parasitic capacitances to Class-B Power Amplifier," 27<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2019), Yazd University, Yazd, Iran, May 2019.
- 2- A. Nasri, M. Katebi, S. Toofan, M. Yargholi "13.95 GHz–15.03 GHz LC VCO using triple-coupling," 5<sup>th</sup> Conference on Knowledge Based Engineering and Innovation (KBEI), 2019.
- 3-
- 4- A. Nasri, S. Toofan, "Analysis MOSFET Parasitic capacitances to Class-B Power Amplifier," 27<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2019), Yazd University, Yazd, Iran, May 2019.
- 5- A. Nasri, M. Katebi, S. Toofan, M. Yargholi "13.95 GHz–15.03 GHz LC VCO using triple-coupling," 5<sup>th</sup> Conference on Knowledge Based Engineering and Innovation (KBEI), 2019.
- 6- L. Bagheriye, R. Saeidi, and S. Toofan, and F. Moradi "A Novel Sensing Circuit with Large Sensing Margin for Embedded Spin-Transfer Torque MRAMs," IEEE Int. Symp. Circuits and Systems (ISCAS), May 2018.
- 7- A. Sheykhi, F. Goodarzi, S. Toofan, "100uA Current Source for Nerve Stimulation Chip," 26<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2018), Sajjad University, Mashhad, Iran, May 2018.
- 8- M. Katebi, A. Nasri, S. Toofan, "Low-power VCO for K-band Applications," 26<sup>th</sup> Iranian Conference on Electrical Engineering (ICEE 2018), Sajjad University, Mashhad, Iran, May 2018.



- 9- L. Bagheriye, R. Saeidi, and S. Toofan, "Low Power and Robust FinFET SRAM cell Using Independent Gate Control," IEEE International Symposium of Circuits and Systems (ISCAS), 2016.
- 10- M. Safarpour, M. Charmi, S. Toofan, H. Nourbakhsh, "A New Scalable Image Sharing Scheme Based on Compressed Sensing," IKT2015 7th International Conference on Information and Knowledge Technology, Urmia University, Urmia, Iran, May 2015.
- 11- M. Padash, S. Toofan, M. Yargholi, "A 9-Bit, 1- Giga Samples Per Second Sine and Cosine Direct Digital Frequency synthesizer," 22th Iranian Conference on Electrical Engineering (ICEE 2014), Shahid Beheshti University, Tehran, Iran, May 2014.
- 12- M. Padash, A. Dehqan, M. Yargholi, S. Toofan, "High Efficiency Class E Power Amplifier with Drain Source Merging Technique," 22nd Iranian Conference on Electrical Engineering (ICEE 2014), Shahid Beheshti University, Tehran, Iran, May 2014.
- 13- M. Safari, S. Toofan, L. Bagheriye, "A 2.4-GHz Subthreshold Down-conversion Mixer with Improved Noise Figure," 21th Iranian Conference on Electrical Engineering (ICEE 2013), Ferdowsi University of Mashhad, Mashhad, Iran, May 2013.
- 14- S. Toofan, A. Tajari, "A Temperature-Compensated Current Source with High Output Impedance," 20th Iranian Conference on Electrical Engineering (ICEE 2012), Tehran University, Tehran, Iran, May 2012.
- 15- M. Safari, S. Toofan, A. Jalilvand, "A CMOS Broadband Sub threshold Mixer With Improved Noise Figure," International Conference on Electronics Computer Technology, PP. 122-125, April 2012.
- 16- R. Vahidi, S. Toofan, A. Afifi, "Design and simulation of small capacitor reading circuit of MEMS capacitive sensors," 19nd Iranian Conference on Electrical Engineering (ICEE 2011), Amirkabir University of Technology, Tehran, Iran, May 2011.
- 17- M. Memarian, S. Tootan, "A High Resolution, Multi-Path Gated Ring Oscillator Based Vernier Time-to-Digital Converter," IEEE Semiconductor Conference Dresden (SCD), Germany, 2011.
- 18- M. Memarian, S. Toofan, "A New Temperature Independent and High Gm gain CMOS OTA Design," in CET 2011.
- 19- M. Memarian, S. Tootan, "A high resolution first order noise-shaping Vernier time-to-digital converter," IEEE Pacific Rim Conference on Communication, Computers and Signal Processing, Canada, 2011.
- 20- S. Toofan, A. Rahmati, M. Crepaldi, A. Abrishamifar, M. Graziano, M. R. Casu, and G. Roientan Lahiji, "A Low Power 5.5 GHz Current Reuse LNA for Wireless LAN Receiver," 41st International Symposium on Microelectronics, in Providence, Rhode Island – USA, November 2008.
- 21- S. Toofan, A. Rahmati, A. Abrishamifar, M. Graziano, and G. Roientan Lahiji, "A 5.5-GHz 3mW LNA and Inductive degenerative CMOS LNA noise figure calculation," 20th International Conference on Microelectronics (ICM) 2008.
- 22- S. Toofan, A. Rahmati, A. Abrishamifar, and G. Roientan Lahiji, "A Fully-Integrated Low-Power, High-Gain and Low Noise CMOS LNA," 5th International Conference for Upcoming Engineers (ICUE 2006), Sponsored by the IEEE Kitchener/Waterloo.
- 23- S. Toofan, A. Ale Ahmad, A. Afzali Kousha, "Design of a new Low-Voltage Low-Power current mode circuit for SRAM" 13th Iranian Conference on Electrical Engineering (ICEE 2005), Zanzan University, Zanzan, Iran.

#### **Software Tool Expertise:**

Cadence Specter RF, ADS, HSPICE, L-Edit.