

# Curriculum Vitae

## Abdolreza Nabavi

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### Educational Records:

Ph.D	McGillUniversity (Canada)	Electronics	1993
M.Sc	TehranUniversity (Iran)	Electronics	1987
B.Sc	TehranUniversity (Iran)	Electronics	1985

### Experiences:

**9/1993- present**, Faculty of Electrical and Computer Engineering, Tarbiat Modares University, Tehran, currently as **Professor**. Also, a visiting professor in the Department of Electrical and Computer Engineering, Waterloo University during the 2013-2014 academic year.

### Research Interests:

Design of Analog, Digital, and RF Integrated Circuits with emphasis on mm-Wave and THz Applications, Machine learning assisted mitigation of non-ideality effects in RF Circuits and systems

### Given courses:

- 1) RFIC Design
- 2) Analog Integrated Circuit Design
- 3) VLSI Circuit Design
- 4) Low-Noise Electronic System Design
- 5) Computer Aided Design in Electronics

### Selected Industrial Design projects:

- 1) Design of **RFPA**, **LNA**, **Mixer**, **VCO**, ... with **CMOS** and **GaAs** Technology.
- 2) Design of **active/ passive MMIC** components with **CMOS**, **BICOMS (SiGe)**, and **GaAs** technology
- 3) Design of **Ka-Band** transceivers For Satellite Communications using **CMOS** and **BiCMOS (SiGe)** Technology

- 4) Design of **Ka-Band** RF-FE For Satellite Communications using BiCMOS (SiGe) Technology

### Selected Journal Papers:

- 1) **A. Nabavi**, N. C. Rumin, Simultaneous delay and maximum current calculation in CMOS gates, **IEE Electronics Letters**, Vol. 28, No. 7, pp. 682-684, 1992.
- 2) **A. Nabavi**, N. C. Rumin, Inverter models of CMOS gates for supply current and delay evaluation, **IEEE Trans. On CAD**, Vol. 13, No. 10, pp. 1271-1279, 1994.
- 3) N. Babaii, **A. Nabavi**, An accurate FIR approximation of Ideal Fractional Delay with Complex Coefficients in Hilbert Space, *Journal of Circuits, Systems, and Computers* Vol. 14, No. 3, 2005.
- 4) K. Khamei , **A. Nabavi**, S. Hessabi, and S. A. Mohseni, "Design of Variable Fractional Delay FIR Filters With CSD Coefficients Using Genetic Algorithm", *Journal of Circuits, Systems, and Computers* Vol. 14, No. 6, 2005.
- 5) M. Jalali, **A. Nabavi**, M. K. Moravvej-Farshi, A. Fotowat-Ahmady, "Low-Noise Differential Amplifier Structure based on Capacitor Cross-Coupled gm-boosting Scheme", *Microelectronics Journal*, No. 39, pp. 1843-1851, 2008.
- 6) H. Gharaee, **A. Nabavi**, Baseband implementation of OTR-UWB receiver using FPGA, In Press by Elsevier, *AEU - International Journal of Electronics and Communications*, Vol. 64, Issue 3, 258-266, 2010.
- 7) H. Gharaee, **A. Nabavi**, Performance and Complexity Evaluation of OTR-UWB Receiver, *International Journal of Interdisciplinary Telecommunications and Networking*, Vol. 1, No. 3, 62-77, 2009.
- 8) M. Parvizi, **A. Nabavi**, Low-power highly Linear UWB CMOS mixer employing simultaneous second-and third-order distortion cancellation, *Microelectronics Journal*, Vol. 41, No. 1, 2010.
- 9) M. Parvizi, A. Nabavi, Improved derivative superposition scheme for simultaneous second- and third-order distortion cancellation in LNAs, *IET Electronics Letters*, Vol. 45, No. 25, p.1323–1325 , 2009.
- 10) B. Bornoosh, A. Nabavi, Design and Analysis of a Reduced Phase Error Digital Carrier Recovery Architecture for High-order Quadrature Amplitude Modulation Signals, *IET communications*, Vol. 4 , No. 18, 2196–2207, 2010.
- 11) M. Jalali, M. Moravvej, S. Masudy-Panah, A. Nabavi, An Equivalent Lumped Circuit Model for Thin Avalanche photodiode with Nonuniform Electric Field Profile, *IEEE Journal of Light Technology*, Vol. 28,, No. 23, pp. 3395 – 3402, 2010.
- 12) M. Hajirahimi, A. Nabavi, E. Kabir, Low Power High-Speed Hybrid Wave-Pipeline Architecture for Binary Morphological Dilation, *Springer Journal of Signal Processing and Systems*, Vol.68 , No. 3, pp. 391-399 2012.
- 13) Z. Amini, A. Nabavi, Design of improved reliability nano circuits with mixed NBTI and HCI aware gate sizing formulation, Japan, to be published in *IEEJ Transactions on Electrical and Electronic Engineering*, 2013.
- 14) M. Beigzadeh, A. Nabavi, Design of a high gain and highly linear common-gate UWB mixer in K-band, *Analog Integrated Circuits and Signal Processing*, Vol. 78, pp. 501–509, 2014.
- 15) H. Seyedhosseinzadeh, A. Nabavi, A Low-power Parametric Integrator for Wideband Switched-Capacitor  $\Sigma\Delta$  Modulators", *Analog Integrated Circuits and Signal Processing*, 2013.

- 16) N. Seyedhosseinzadeh, A. Nabavi, A highly linear CMOS low noise amplifier for K-band applications, Taylor& Francis International Journal of Electronics, March 2014.
- 17) R. Sadeghpour, **A. Nabavi**, Design Procedure of Quasi-Class-E Power Amplifier for Low-Breakdown-Voltage Devices, IEEE Transactions on Circuits and System- I: Regular Papers, Vol. 61, No. 5, pp. 1416- 1428, May 2014
- 18) H. Seyedhosseinzadeh, A. **Nabavi**, *A MOS Parametric Integrator* with Improved Linearity for SC  $\Sigma\Delta$  Modulators, IEEE Transactions on Circuits and System- II, 2014.
- 19) A Nikpaik, **A. Nabavi**, Analysis of Flicker Noise Conversion to Phase Noise in CMOS Differential LC Oscillators, International Journal of Circuit Theory and Applications, 2015.
- 20) A. Salimi, R. Dehghani, **A. Nabavi**, A Digital Predistortion Assisted Hybrid Supply Modulation for Envelope Tracking Power Amplifier, the VLSI Journal of Integration, 2015.
- 21) A. Ghorbani-Nejad, **A Nabavi**, A Technique for Enhancing Varactor's Quality Factor in Millimeter-Wave Frequencies, IEEE Transactions on Circuits and Systems II, 2016.
- 22) N. Seyedhosseinzadeh, **A Nabavi**, Design of an Active CMOS Subharmonic Mixer with Enhanced Transconductance, AEU-International Journal of Electronics and Communications, 2017.
- 23) M. Haghghat, **A Nabavi**, Fully integrated CMOS power amplifier with linearity and efficiency enhancement using 2nd harmonic injection technique, Analog Integrated Circuits and Signal Processing, 2017.
- 24) A Salimi, R Dehghani, A Nabavi, A Digital Linear-Switching Hybrid Power Amplifier for Envelope Tracking Hybrid Supply Modulators, Journal of Circuits, Systems and Computers, 2017.
- 25) A. Moahammadpout, **A Nabavi**, Design and analysis of a low-noise saw-less receiver front-end resistant to strong out-of-band blocker, Analog Integrated Circuits and Signal Processing, 2017.
- 26) M. Baigiadeh, R. Dehghani, **A. Nabavi**, "Analysis and Design of a Lumped-Element Hybrid Coupler Using Limited Quality Factor of Components," AEU-International Journal of Electronics and Communications, 2017.
- 27) A. Nikpaik, A. H. Masnadi Shirazi, **A. Nabavi**, S. Mirabbasi, and S. Shekhar, "A 219-to-231GHz Frequency-Multiplier-Based VCO With ~3% Peak DC-to-RF Efficiency in 65-nm CMOS", Accepted for publication in IEEE Journal of Solid-State Circuits.
- 28) M Beigzadeh, R Dehghani, A Nabavi, Analysis and design of a lumped-element hybrid coupler using limited quality factor of components, AEU-International Journal of Electronics and Communications 82, 312-320, 2017.
- 29) N Seyedhosseinzadeh, A Nabavi, Design of an active CMOS subharmonic mixer with enhanced transconductance, AEU-International Journal of Electronics and Communications 73, 98-104, 2017.
- 30) B Abdollahi, B Mesgari, S Saeedi, A Nabavi, Stability analysis and compensation technique for low-voltage regulated cascode transimpedance amplifier, Microelectronics Journal 71, 37-46, 2018.
- 31) MG Jaliseh, A Nabavi, Z Amini-sheshdeh, A new boosted charge-steering latch for high-speed low-power applications, AEU-International Journal of Electronics and Communications 124, 153339, 2020.
- 32) HG Tamar, A Nabavi, M Haghghat, Analysis and design procedure of a mm-Wave Class-E power amplifier, Microelectronics Journal 111, 105036, 2021.
- 33) B Abdollahi, B Mesgari, S Saeedi, E Roshanshomal, A Nabavi, Transconductance Boosting Technique for Bandwidth Extension in Low-Voltage and Low-Noise Optical TIAs, IEEE Transactions on Circuits and Systems II: Express Briefs.

### Book Chapters:

- 1- **Ultra Wideband**, 2010, published by Sciyo, Chapter 19, A. Nabavi, **Ultra Wideband Oscillators**, pp. 159-214.
- 2- Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications, 2007, Published by **Springer**, **A Low Power CMOS Circuit for Generating Gaussian Pulse and its Derivatives for High Frequency Applications**, by S. Choobkar, A. Nabavi, pp. 401-404.

### Selected Conference publications:

- 1) **A. Nabavi**, K. Dabbagh, A 10-bit, 20MS/s, 22mW folding and interpolating CMOS ADC, **IEEE International Conf. On Microelectronics (ICM2000)**, pp.43-46, Oct. 2000.
- 2) M. B. Ghaznavi- Ghouschi, **A. Nabavi**, Isomorphic structured synthesis of half adder and fulladder, **IEEE Canadian Conf. on Electrical and Computer Eng.**, vol. 1, 2002.
- 3) N. Babaii and **A. Nabavi**, Design of fractional delay filters using least square error and fourier series, **IEEE Canadian Conf. on Electrical and Computer Eng.**, vol. 1, 2002.
- 4) N. Babaii and **A. Nabavi**, An approach to implement FIR filters for delta-sigma inputs, **IEEE Canadian Conf. on Electrical and Computer Eng.**, vol. 1, 2002.
- 5) **A. Nabavi**, M. Jalali, Design of a high resolution low-power CMOS time-to-digital converter, **ICEE**, pp. 37-44, May 2002.
- 6) **A. Nabavi**, N. Babaii, and M. Lotfizad, Two new methods to design FIR filters, **IEEE Asia Pacific Conf. On Circuits and Systems**, Oct. 2002.
- 7) N. Babaii, **A. Nabavi**, Design, simulation, and implementation of a low-power digital decimation filter for G. 232 standard, **IEEE Int. Workshop of System-on-Chip 2003**.
- 8) N. Babaii, **A. Nabavi**, Design and implementation of digital decimation filter for digital ADSL modems, **Int. Symposium on Telecommunications**, 2003.
- 9) K. Kameh, **A. Nabavi**, Design of a low-power fractional delay filter, **IEEE Int. Conf. On Electronics and Systems**, 2003.
- 10) S. Ghanipour, **A. Nabavi**, Design of a low-power Viterbi decoder, **IEEE Int. Conf. On Electronics and Systems**, 2003.
- 11) **A. Nabavi**, A. Mansouri, M. Jalali, Low-voltage CMOS Transconductance cell based on composite cells, **IEEE Int. Conf. On Microelectronics**, 2004
- 12) **A. Nabavi**, A. Mansouri, M. Jalali, A Novel Composite Cell Based, Constant-gm, Rail-to-Rail CMOS Input-Stage, **2004 IEEE International Conference on Semiconductor Electronics**
- 13) M. Jalali, M. Soroosh, M. K. Moravvej-Farshi, **A. Nabavi**, Transient and Frequency Analysis of PIN Avalanche Photodiode Using Circuit Model, **LFNM 2005**, Ukraine
- 14) S. Bashirzadeh, **A. Nabavi**, M. Fardis, GaAs DGMEFET Modeling Using SGMESFET Models, **IEEE International Workshop on Radio-Frequency Integration Technology**, Singapore, 2005

- 15) Zhila Amini, Sabrieh Choobkar, **A. Nabavi**, A Low Noise Amplifier for Ultra-wideband Systems in 0.13 $\mu$ m CMOS Technology, **ICCCAS-2006**.
- 16) H. Abdollahi, **A. Nabavi**, S. Mirzakuchaki, A. Hagneadar, An Energy Recovery Static RAM with MEQUL Transistor and Driving Line Technique in Voltage Mode, **ICEE, 2006**.
- 17) M. Salehi, **A. Nabavi**, A Low Power High Data Rate Modulator in Ultra- Wideband Transmitters, **ICM 2006**.
- 18) M. Salehi, **A. Nabavi**, N. Ghadimi, Design of A Low-Power High-Rate Ultra-Wideband Modulator for 5.8-10.6 GHz, **IEEE ICES 2006**.
- 19) A. Saghafi, **A. Nabavi**, An Ultra Wideband Low Noise Amplifier for 3-5-GHz Wireless Systems, **ICM 2006**.
- 20) P. Amiri, **A. Nabavi**, H. Gharaee, A 10GHz reconfigurable UWB LNA in 130nm CMOS, **ICSE 2006**.
- 21) H. Gharaee, **A. Nabavi**, B. Bornoosh, and S. M. Fakhraei, A Digital Implementation for UWB Impulse Radio Transceiver, IEEE International Conference on Semiconductor Electronics 2006.
- 22) M. Jalali, M. K. Moravvej-Farshi, and **A. Nabavi**, A Novel DC-Coupled, Single-Ended to Differential Transimpedance Amplifier Architecture Based on gm-boosting Technique, **ICSE 2006**.
- 23) Z. Amini, **A. Nabavi**, M. B. GhaznaviGhouschi, B. Eghbalkhah, Implementation of DS-Ultra wideband Timing Acquisition in System C, **ISPACS 2006**.
- 24) M. Khalilzadeh Agdam, **A. Nabavi**, A Low-Power High-Speed 4-Bit ADC for DS-UWB Communications, **IEEE ISVLSI 2007**.
- 25) S. Choobkar, **A. Nabavi**, A low Power CMOS circuit for Generating Gaussian Pulse and its derivatives for High Frequency Applications, **IEEE CISSE 2007**.
- 26) Mahdi Parvizi, Amir Khodabakhsh, **A. Nabavi**, Low-Power High-Tuning Range CMOS Ring Oscillator VCOs, **ICSE2008**.
- 27) B. Bornoosh, **A. Nabavi**, M. Ehsani Nick, A. Haghbin, A New Architecture for Reducing Phase Noise of Digital Carrier Recovery Algorithms in High-Order QAM Demodulators, **IEEE ICSPC 2007**.
- 28) A. Salimi Shahraki, **A. Nabavi**, Implementation of GSM and IS-95 Equalizers on a Reconfigurable Architecture for Software Radio Systems, IEEE Conference, PP. 336-339, 2008.
- 29) M. Yargholi, **A. Nabavi**, Analog Front-End Modules Design in Non-Coherent UWB Receivers for Sensor Networks, IEEE International Conference on Semiconductor Electronics (ICSE), PP. 64-68, 2008.
- 30) M. Parvizi, **A. Nabavi**, Low Power High tuning Range CMOS Ring Oscillator VCO, IEEE International Conference on Semiconductor Electronics (ICSE), PP. 49-53, 2008.
- 31) M. Yargholi, **A. Nabavi**, CMOS Integrator Design for Non-Coherent UWB Receivers, IEEE International Conference on Semiconductor Electronics (ICSE), PP. 59-63, 2008.
- 32) M. Mehrabian, **A. Nabavi**, N. Rashidi, A 4~7GHz Ultra Wideband VCO with Tunable Active Inductor, IEEE International Conference on Ultra-Wideband (ICUWB2008), Vol. 2, pp. 21-24, 2008.
- 33) H. Gharaee, P. Amiri, **A. Nabavi**, Baseband Implementation of OTR-UWB Receiver by FPGA, IEEE International Conference on Semiconductor Electronics (ICSE), PP. 23-26, 2008.
- 34) Siamak Abdollahi, Kambiz Hadipour, Farhad Sheikhhoseini, and **Abdolreza Nabavi**, A New Ku-Band CMOS LNA with 8.6 mW DC Power Consumption and 1.68 dB NF, **ICEE**, pp.248-253, 2009.
- 35) Kambiz Hadipour, Farhad Sheikhhoseini, Siamak Abdollahi, and **Abdolreza Nabavi**, An All-CMOS Low Power 820 MHz Variable Gain Amplifier, **ICEE**, pp.254-257, 2009.

- 36) S. Kasiri-Bidhendi, A. Nabavi, A Low-Power DLL-Based Frequency Multiplier, ICEE , pp.264-267, 2009.
- 37) Amir Nikpaik, **A. Nabavi**, A very high tuning-range Differential CMOS VCO Based on Active Inductor, ICEE , pp.329-333, 2009.
- 38) H. Gharaee, P.Tavakolian, **A. Nabavi**, Low Complexity and Low Power OTR-UWB Baseband, ICEE , pp.348-352, 2009
- 39) Pantea Tavakolian, Hossein Gharaee, **A. Nabavi**, A New 5-bit BCSE Method for Implementing Low Complexity and Low Power Reconfigurable FIR Filters, ICEE , pp.362-365, 2009.
- 40) Shahabuddin Rahmanian, S. Mehdi Fakhraie , and **A. Nabavi**, Optimal Bit-True Model for Implementation of a Digital Audio Broadcasting OFDM System, ICEE , pp.387-390, 2009.
- 41) F. Shiekh-hosseini, **A. Nabavi**, A 120dB all CMOS variable gain amplifier based on new exponential equation, Circuits and Systems (APCCAS), IEEE Asia Pacific Conference, 2010.
- 42) M. Tamaddon, M.Ataei, **A. Nabavi**, Design of a PLL based Frequency Synthesizer for Wimax Applications, ICEE2010.
- 43) N. Seidhosseini, **A. Nabavi**, Design of a new mm-Wave Low Power LNA in 0.18  $\mu\text{m}$  CMOS Technology, ICEE2011.
- 44) N. Seidhosseini, **A. Nabavi**, Low noise amplifier for near millimeter wave band applications, , ICEE2012.
- 45) M. Beigzadeh, **A. Nabavi**, A K-band Common-Source Gilbert Mixer with High gain and high linearity for UWB applications, ICEE2013, 2013.
- 46) A. Nikpaik, **A. Nabavi**, Amir Hossein Masnadi Shirazi, Sudip Shekhar, Shahriar Mirabbasi, A dual-tank LC VCO topology approaching towards the maximum thermodynamically-achievable oscillator FoM, IEEE Custom Integrated Circuits Conference (CICC), 2015.
- 47) N. Seyedhosseinzadeh, **A. Nabavi**, S. Carpenter, Z. Simon, M. Bao, and H. Zirath, A 100-140GHz SiGe-BiCMOS Sub-Harmonic Down-Converter Mixer, To be presented in European Microwave Week, 2017.

**Graduated PhD Students:** 15

**Graduated MS Students:** 60

### **Membership:**

IEEE

### **Computer skills:**

**Software:** Hspice, ADS, Cadence, Synopsys, Matlab/Simulink

**Operating system:** Windows, Unix

### **Services to Professional Society (Refree)**

IEEE Transactions on Very Large Scale Integration Systems

IEEE Wireless Communication Letters

IEEE Transaction on VLSI

Elsevier, Journal of Microelectronics

Elsevier, Journal of Signal Processing

COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronics Engineering

Journal of Circuits, Systems, and Signal Processing  
Int. Journal of Science and Engineering  
Int. Journal of communication  
Seintia Iranica Sharif University  
AmirKabir International Journal of Electrical and Electronics Engineering