Ahmad Yarahmadi

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Professional Summary:

PhD in Electrical and Electronics Engineering with expertise in CMOS analog/RF integrated circuit design, low-power sensing systems, and hardware development for embedded applications. Research focuses on low-voltage, low-power RF ICs, including low-noise amplifiers, mixers, true-time-delay cells, all-pass filters, and timed array receivers. Passionate about advancing RF technology through innovative problem-solving and continuous learning. Additional interests include neuromorphic circuits and edge AI for biomedical applications.

Education:

Ph.D. in Electrical and Electronics Engineering
Tarbiat Modares University (TMU), Tehran, Iran — Feb 2023
Thesis: "Analysis and Design of Wideband True Time Delay Cell in CMOS Technology for Antenna Arrays"
Supervisor: Dr. Abumoslem Jannesari

M.Sc. in Electrical and Electronics Engineering
Tarbiat Modares University (TMU), Tehran, Iran — Feb 2015
Thesis: "Low Power Multi-Stage CMOS Low Noise Amplifier for 10-12 GHz Band Applications"
Supervisor: Dr. Abumoslem Jannesari

B.Sc. in Electrical and Electronics Engineering
University of Kurdistan (UOK), Sanandaj, Iran — Jan 2012
Thesis: "Laser Transceiver Design"
Supervisor: Dr. M. Razaghi

Academic Experience:

- o   Adjunct Professor at Ayatollah Boroujerdi University (Jan 2022 - present)
    - o   Courses taught (B.Sc.): Electrical Circuits I & II, Electronic Circuits I & II, Linear Control Systems, CMOS Integrated Circuits, Power Electronics I, Signals and Systems, Industrial Control Systems, Introduction to Electrical Engineering, Microprocessor, Filter and Synthesis of Analogue Filters, Physics of Electronic Devices
    - o   Laboratory instruction: Linear Control Systems Lab, Electrotechnics Lab, Telecommunication Circuits Lab, Electronic Circuits Lab, Electrical Circuits and Measurement Lab, Power Electronics Lab, AVR Microprocessor Lab
- o   Research Assistant, Tarbiat Modares University — Sep 2012–Feb 2023

Professional Experience:

- o   Founder and CEO, MoshavereBargh.ir — Apr 2018–Present
    - o   Provided Persian-language consulting and educational services.
    - o   Managed online platform development, content creation, and technical training for students and engineers.

- o   Freelance Electronics Consultant — Apr 2018–Present
    - o   Provided on-demand consulting services in analog/RF circuit design, PCB layout, and microcontroller-based embedded systems.
    - o   Delivered customized solutions for academic and industrial clients, including schematic design, firmware development, and system-level debugging. Specialized in AVR-based platforms, sensor integration, and low-power circuit optimization.

Technical Skills:

- o   Analog & RF Design: CMOS analog circuits, LNA, TTD, superposition techniques
- o   EDA Tools: ADS, Cadence, HSPICE, PSPICE, Altium Designer, Proteus
- o   Programming: C/C++ for MCU (AVR, Arduino), MATLAB, Python
- o   Embedded Systems: Timers, I2C, SPI, USART, ADC, USB
- o   PCB Design & Debug: Altium Designer, Oscilloscopes, Logic Analysers

Projects:

- o Air Quality Monitoring System
- o RFID Attendance System
- o Intelligent Parking System with real-time wireless slot detection
- o Developed a wireless communication system for real-time updates
- o Line follower robot design and implementation.
- o Smart temperature control system.
- o Digital signal generator for LAB usages.
- o Smart security system design and implementation
- o Alcohol detector system.

Publications:

- o Book:
  - o Yarahmadi, Ahmad, "Chapter title: Wideband True Time Delay Cells" in "Book title: UWB Technology - New Insights and Developments, ISBN 978-1-83768-548-6, edited by: Rafael Vargas-Bernal, 2023
- o Journals:
  - o Yarahmadi, A., Jannesari, A. "Two-path inverter-based low noise amplifier for 10–12 GHz applications." *Microelectronics Journal*, 2016.
  - o Yarahmadi, A., Jannesari, A. "Design of a highly linear gain stage with complementary derivative superposition." *Wireless Personal Communications*, 2019.
  - o Yarahmadi, A., Jannesari, A. "Wideband inductorless true time delay cell based on CMOS inverter." *Circuits, Systems, and Signal Processing*, 2021.
  - o Yarahmadi, A., Jannesari, A. "A PVT resilient true-time delay cell." *IET Circuits, Devices & Systems*, 2023.
  - o Yarahmadi, A., Jannesari, A. "Combined True Time Delay System." Preprint, DOI: 10.21203/rs.3.rs-5728795/v1
- o Conference Paper:
  - o Yarahmadi, A., Jannesari, A. "A Complementary Self-Biased CMOS Amplifier for Very Low Noise X-Band Amplification." 1st Int. Conf. on Advances in Electrical and Computer Engineering, Tehran, 2016.

Academic Service & Reviewing:

- o Reviewer for:
  - o AEÜ – International Journal of Electronics and Communications
  - o Circuits, Systems, and Signal Processing
  - o Archives of Advanced Engineering Science
- o Program Committee & Reviewer for:
  - o 11th International Conference on Embedded Systems and Applications (EMSA 2022)
  - o International Conference on Electrical, Computer and Energy Technologies (ICECET 2021)
  - o 7th International Conference on Signal Processing and Pattern Recognition (SIPR 2021)
  - o 9th International Conference on Signal, Image Processing and Pattern Recognition (SIPP 2021)
  - o 1st–5th International Conference on Microelectronic Devices and Technologies (MicDAT 2020–2024)

Invited Talks and Live Sessions:

- o Researcher-app Live Session: "Researcher Live: RFIC Design"
- o ITS University (R2SEP Fall 2021): "Literature Review, Latest Tools and Methods" — Voted Most Interactive Speaker