Khaled Mohamed Hassan

Email: khassan@usc.edu
Tel: [Mobile] +(1) 424-217-9857
Address: 1219 West 27th street, Los Angeles, California, USA.

Education

- **Ph.D.** in Electrophysics, **USC**(University-of-Southern-California) (Spring 2022 ~ Spring 2027) (**Excepted)**.
- **M.Sc.** in Electronics and Communications Engineering, Ain-Shams University (**November 2019)**.
  Thesis entitled by: "Charge-Steering Circuits for Low-Power Applications" (**GPA: 3.6/4).**
  - The thesis aimed to study the design of charge-steering circuits for different applications.

  Advisors: Prof. Emad Hegazi and Dr. Sameh Ibrahim.
  M.Sc. Curriculum Emphasis: Advanced Analog, Power Management, RF Circuits and Systems, High-Speed Serial Links, and Digital IC.
- **B.Sc.** in Electronics and Communications Engineering, Ain-Shams University (**July 2013**).
  Cumulative Grade: Distinction with honor (Ranked: 7th/160).
  Graduation Project: "Sub-1GHz Transceiver for IoT Applications" sponsored by Silicon-Vision. Responsible to design a **power amplifier** plus PLL system integration.

Research AND Professional Interests

Power Management, RFICs, IoT, mmWaves, Wireline Transceivers, PLLs and Data Converters.

Publications

Papers

[1] K. M. Hassan and S. A. Ibrahim, "**Charge-Steering Flip-Flop for Ultra-High-Speed Wireline Applications**," ***2019*** *36th National Radio Science Conference (**NRSC**)*.

[2] K. M. Hassan and S. A. Ibrahim, "**A Non-Return-to-Zero Charge-Steering Flip-Flop for High-Speed Wireline Transceivers**," *2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (**JEEIT**)*.

[3] M. A. Saif, K. M. Hassan, A. Abdelati and S. A. Ibrahim, "**A 34-fJ/bit 20-Gb/s 1/8-rate Charge-Steering DFE for IoT Applications**," *2019 17th IEEE International New Circuits and Systems Conference (**NEWCAS**)*.

[4] M. A. Saif, A. T. Kotb, K. M. Hassan and S. A. Ibrahim, "**A 112-fJ/bit 10-Gb/s Charge-Steering Equalizer Utilizing a Discrete-Time Linear Equalizer**," *2020 IEEE 63rd International Midwest Symposium on Circuits and Systems (**MWSCAS**)*.

[5] M. A. Saif, K. M. Hassan and S. A. Ibrahim, " **A 20-Gb/s Charge-Steering Equalizer Utilizing Highly-Efficient Charge-Steering Linear Equalizer**," *Microelectronic Journal **2020** (**MEJ**)*. [To be published soon].

Patents

[1] High accuracy current sensing of switched capacitor DC-DC converters [In the filing process].

[2] An adaptive highly efficient startup circuitry employing a supply tracking mechanism [In the filing process].

[3] Highly efficient supply-referred rail generation using switched capacitor DCDC Converter [In the filing process].

Work Experience

- **Senior Staff Analog Design Engineer at Vidatronic, Inc.** **(Jan 2021 – Dec 2021)**
- **Staff Analog Design Engineer at Vidatronic, Inc.** **(Sep 2018 – Jan 2021)**

Founded by Prof. Edgar Sanchez-Sinencio from Texas A&M.

- **Responsibility**
  - **Top-level system design.**
  - Designed challenging blocks.
  - **Leading Analog/RF design activities**.
  - Support/Monitor the design team members and help them to reach a good design.
  - Create/Update the chip hierarchy and the **top-level schematics**.
  - Manage the **communication** with the other activities within the project (**digital/layout/PCB design**).
  - Contribute to the planning for the **verification and testing**.

– **Senior Analog/RFIC Design Engineer** at Si-Vision LLC. (Feb 2017– **Sep 2018**)
Working exclusively for **Synopsys, Inc. since wireless IPs Assets' acquisition at July 2015.**

– Analog IC Design Engineer at Si-Vision LLC. (Nov 2013 – Feb 2017)

- **Responsibility**
  - **RX system design** where each block specification was defined to meet the system requirements of sensitivity, linearity and current consumption targets
  - **Designing of matching networks, PA, LNA, Mixer, VGA, complex-filter, tuners and limiters.**
  - **EM simulation for the entire RF chain.**
  - PCB design for the RF path.
  - Owner of the **top-level chip verification.**
  - Testing and measurement including **qualification testing** for the BLE.

Honors AND Awards

1. Nominated for the best M. Sc. thesis in 2019.
2. Peer reviewer at IEEE CAS society (2019 – Present).
3. Best employee in Silicon-Vision in 2015.

Languages AND Skills

Key Skills:

- Analog Circuit Design
- RF/Mixed Signal Design
- Fin-FET Experience
- High Speed RF Transceiver Design
- Voltage Regulators/References
- Matching networks (Internal and External)
- LNA and Mixers
- Complex Filter and Limiters
- SERDES/PLL/DLL/VCO
- Switch Capacitor
- Amplifiers/Comparators
- Process evaluation and monitoring
- Low voltage and low power design
- SoC Integration
- Converters (A2D, D2A)
- DCDC converters

Hand-on experience with Lab instruments and measurements.

– Network analyzer, spectrum analyzer, oven, testing boards, … and signal generators.

Design Tools:

– Analog/Mixed-signal Tools: Synopsys, Mentor and Cadence (Virtuoso ADE, Spectre, Hspice, OCEAN scripting, Custom Designer, SAE, Eldo, Assura, QRC, Calibre).
– EM Simulators: Sonnet, HFSS, ADS and Helic (RaptorX and VeloceRF).
– Digital Simulators: Model-Sim, SimVision, VCS, Nano-sim, Silicon-Smart.
– Mathematics Tools: Matlab and Scilab.

Programming Languages: Verilog-AMS, Verilog and VHDL.