

Jesus Jimenez-Leon

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Summary

Proficient analog design engineer with extensive experience in CMOS IC design and a solid foundation in circuit theory. Familiar with EDA tools such as Cadence Virtuoso and Tanner Schematic Editor for efficient design and simulation workflow. Skilled in creating comprehensive testbenches setups for circuit verification over PVT and statistical variations using Monte Carlo Analysis. Enhanced automation and modeling capabilities through programming skills in Python. Capable to managing projects independently and collaborating effectively with teams under pressure.

Technical Skills

Electronic Design Tools: HSPICE, Cadence Virtuoso (SPECTRE/ADE, Maestro), Tanner S-Edit, T-SPICE, NGSPICE.

Reliability Tools: Quantus for EM/IR.

Other Tools: Origin Lab, COMSOL Multiphysics.

Programming Languages: Python, Verilog-A.

Operating Systems: Windows OS, Linux.

General Software Management: Microsoft Office, Microsoft Teams.

Languages: English (fluent), Spanish (native).

Experience

Analog Design Engineer, March 2023 (current job)
BigBang Semiconductors – Aguascalientes, MX

- Involved in the development of various analog building blocks, including operational amplifiers (OPAMPs), current mirrors, comparators, oscillators, phase detectors (PFD), and low-dropout regulators (LDOs).
- Performed simulations (OP, TRAN, AC) to assess critical characteristics such as gain, bandwidth, power consumption, and power supply rejection ratio (PSRR).
- Performed parasitic extractions and post-layout simulations for analog blocks in transceiver architecture.
- Experienced in the creation of test bench for EMIR simulations for analog cells.
- Carried out the creation of equivalent circuit models of analog blocks to allow faster top-level simulations.
- Utilized Python to automate routine design and analysis tasks, enhancing productivity and reducing manual errors.

Automation Electronic Engineer, Sept 2021 – Feb 2023
Servicios de Instrumentacion, Control y Automatizacion ISCA – Mexico City, MX

- Designed electronics solutions for industry.
- Carried out simulation, and implementation of electronic circuits, diagnosis and repair of electronic boards.
- Creation of PLC programs for automation of industrial equipment.
- Characterization and testing of electromechanical systems.

Doctoral Researcher, Sept 2017 – Aug 2022
National Institute for Astrophysics, Optics and Electronics – Puebla, MX

- Performed electrical characterization of semiconductor devices at the wafer level using Agilent Semiconductor Device Analyzer.
- In charge of design experiment, laboratory setup, manual and automated electrical measurements, experimental data management and processing.
- Acquired expertise in electronic device modeling and circuit simulations
- Experienced in research, documentation and publication of scientific articles.

Education

PhD in Electronics – Emphases on Modeling of Integrated Circuit Devices, Sept 2017 – Aug 2022
National Institute for Astrophysics, Optics and Electronics – Puebla, MX

Designed a novel algorithmic methodology to obtain analytic modeling expressions from experimental electrical data. Applied to reproduce the non-linear behavior of resistive switching devices using Python and HSPICE.

M. Sc in Electronics, Sept 2014 – Feb 2017
National Institute for Astrophysics, Optics and Electronics – Puebla, MX

Performed electrical characterization of TiO_2 -based Resistive Switching devices using Labview-controlled sourceme-
ter. A behavioral compact model was proposed using non-linear systems theory

BS in Electronics, Sept 2008 – May 2014
Meritorious Autonomous University of Puebla – Puebla, MX

Basic training in analog and digital integrated circuit design.

Publications

- **Jimenez-Leon, J.** & Sarmiento-Reyes, A. & Rosales-Quintero, P. (2024, October). Novel Modeling Methodology for Memristive Devices for Circuit Design and Simulation. In *2024 21st International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE)*, (pp. 1-6). IEEE.
10.1109/CCE62852.2024.10771006
- **Jimenez-Leon, J.** & Sarmiento-Reyes, A. & Rosales-Quintero, P. (2022). A compact Modeling Methodology for Experimental Memristive Devices. In *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, 41(11), 4851-4861.
10.1109/TCAD.2021.3134888
- **Jimenez-Leon, J.** & Sarmiento-Reyes, A. & Rosales-Quintero, P. (2022, July). An Electrostatic Compact Model for Experimental Memristive Devices. In *2022 IEEE Latin American Memristive Devices (LAEDC)*, (pp. 1-4). IEEE.
10.1109/LAEDC54796.2022.9907768
- **Jimenez-Leon, J.** & Sarmiento-Reyes, A. & Rosales-Quintero, P. (2021, November). A two-level modeling methodology for memristive devices. In *2021 18th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE)*, (pp. 1-6). IEEE.
10.1109/CCE53527.2021.963307
- **Jimenez-Leon, J.** & Alarcon-Angulo, J. B. & Velasquez, Y. R. & Sarmiento-Reyes, A. & Hernandez-Martinez, L. & Vazquez-Leal, H. (2017, October). Symbolic harmonic distortion analysis of op-amp based memristive amplifiers. In *2017 14th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE)*, (pp. 1-6). IEEE.
10.1109/ICEEE.2017.8108844
- **Jimenez-Leon, J.** & Sarmiento-Reyes A. & De La Cruz-Blas C. A. & Gomez-Polo, C. (2017, June). Characterization and modeling of Ag/TiO₂/ITO devices exhibiting bipolar memristive properties. In *2017 International Caribbean Conference on Devices, Circuits and Systems (ICCDACS)*, (pp. 53-56). IEEE.
10.1109/ICCDACS.2017.7959704