

Kevin Fronczak

Analog Circuit Designer

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PROFESSIONAL

Sony Electronics Inc.

Rochester, NY

Sr. Mixed Signal IC Design Engineer

July 2018 - Present

- Involved in the power management architecture for next generation ultra low power image sensors, including the design of a sub-uW LDO capable of supporting loads 1000x the quiescent current
- Responsible for the design of circuits to interface with a pixel array on a low-power CMOS imaging product

Synaptics Inc.

Rochester, NY

Sr. Mixed Signal IC Design Engineer

February 2014 - July 2018

- Experience implementing various capacitive sensing front-ends for touch and fingerprint applications, with a focus in low-noise and low-power architectures
- Designed and implemented a small area and noise-optimized capacitive fingerprint AFE to enable a 50% in die cost without impacting performance
- Designed an innovative continuous-time demodulation topology for SNR improvement in fingerprint AFEs
- Designed a sub-femtofarad resolution background cancellation circuit
- Designed a noise-optimized switched capacitor demodulator and filter for high-volume touch AFEs
- Designed a passive mixer with built-in DAC capable of arbitrary waveform mixing
- Architected and implemented a sub- μ W reference architecture to reduce wake-on-finger power by up to 50%
- Led efforts to evaluate, track, and debug new silicon for risk evaluation of metal or all-layer spin
- Designed a nW-level time-to-digital (TDC) temperature sensor capable of sub-1°C resolution
- Experience implementing designs for bandgap references, LDOs, oscillators (10kHz-100MHz), temperature sensors, general-purpose amplifiers
- Experience working closely and effectively with multidisciplinary teams to ensure smooth silicon design all the way through to production
- Focus on fundamental understanding of circuits for architectural comparisons is a strength (i.e. pencil-and-paper analysis)

Synaptics Inc.

Rochester, NY

Analog Design and Silicon Validation Contractor

June 2013 - February 2014

- Performed extensive verification and validation on LDOs, VCOM drivers, LCD level shifters, and high-speed MIPI DSI

EDUCATION

Rochester Institute of Technology

Rochester, NY

M.S. and B.S. in Electrical Engineering, August 2013

GPA: 4.0

Thesis

Stability Analysis of Switched DC-DC Boost Converters for Integrated Circuits

- Investigated small-signal modeling and stability requirements for boost converters, as well as a variety of OTA-based controller topologies, in order to aid in the measurement of boost converter stability on multiple ASICs. Also investigated the use of optimization algorithms as a way to improve controller design.

PATENTS AND PUBLICATIONS

- US 9,780,736 - Temperature compensated offset cancellation for high-speed amplifiers - Grant Oct. 3, 2017
- US 9,817,428 - Current-mode Bandgap Reference - Grant Nov. 14, 2017
- US 15/685,937 - Mixer Circuit - Application Feb. 28, 2019
- US 15/885,769 - Oscillator Temperature Coefficient Adjustment - Pending Jan. 31, 2018