

RYAN WANS

Phone Number Retracted ◇ me@ryanwans.com

EDUCATION

Purdue University

2023 - Present

B.S. Electrical Engineering (Expected)

GPA: 4.0/4.0

B.S. Mathematics Honors (Expected)

Vice Chair of IEEE MTT-S Chapter, UTA for Linear Algebra, Quantitative Finance & ML Involvement

South River High School

2019 - 2023

High School Diploma, STEM Magnet Program (Nanotechnology)

Weighted GPA: 4.32

Linear Algebra, Multivariable Calculus, Mu Alpha Theta, International Science & Engineering Fair,

Texas Solar Car Challenge, Chairperson of STEM Magnet Program, Varsity Rowing

EXPERIENCE

Research Assistant, OpenFASOC Group, University of Michigan

07/2022 - 09/2023

Inductor Test Structure Characterization on SKY130 with NIST, 20GHz VCO Design, C-V/I-V Characterization, Automated Opamp Layout and Simulation Generator, Published Results

Research Apprentice, Kinget Group, Columbia University

09/2021 - 04/2022

Automatic Gain Control (AGC) on SkyWater's open-source 130nm CMOS process

TECHNICAL SKILLS

CMOS PDK

SKY130, GF180MCU, SG13G2

IC Design

Cadence ICFB/Virtuoso, AWR Microwave Office, ADS, FOSS Toolchain

PCB Design

Altium, Xpedition

Simulation

Spectre, SPICE, Ansys HFSS, CST Studio, AWR Microwave Office, Keysight ADS, Genesys, ASITIC

Languages

Python, C, Java, Golang, Verilog, JavaScript

Scripting

MATLAB, UNIX shell, LaTeX, gdsfactory, Tcl

RESEARCH PROJECTS

07/2023 - 09/2023

Automated Opamp Generator: OpenFASOC Group

Advisor(s): Mehdi Saligane, Ali Hammoud

Assisted in the construction of a large Python- and gdsfactory-based automated generator for opamps of any specification. Utilized reinforcement learning for opamp derivation & selection, gdsfactory for layout, and Python for orchestration and SPICE simulation. PDK-Universal. Paper in progress.

- 09/2022 - 02/2023 **SKY130 Inductor Characterization:** OpenFASOC Group
 Advisor(s): Mehdi Saligane
 Worked with UMich and NIST to autonomously create and characterize inductor test structures on SKY130. Structures included multiple geometries of planar inductors, baluns, and VCOs. Summarized in ISSCC notebook.

- 09/2021 - 04/2022 **Baseband, Inductorless AGC:** Kinget Group
 Advisor(s): Rui Xu, Peter Kinget
 A 800MHz - 1GHz Automatic Gain Control feedback system fully designed, laid out, and tested using MWO and the FOSS ecosystem on SKY130.

- 05/2021 - 08/2021 **26GHz Automotive FMCW Radar Board:** Self
 Created a 6cm × 6cm antenna-on-board FMCW Ka-band radar on Rogers 4350B substrate. Realized using CST, MWO, and Altium. Operates at 27.5dBm peak output power with a 80m/s max detection speed

AWARDS AND HONORS

- 2022 **Finalist:** ISSCC (IEEE’s Journal of Solid-State Circuitry) 2023 Student Notebook/Paper Competition.
- 2022 **Awardee:** Fort Meade Alliance - STEM Innovation Grant
- 2021 **Semi-Finalist:** Intel International Science & Engineering Fair
- 2021 **Finalist:** Diamond Challenge - Entreprenurialship Competition

PUBLICATIONS

- [1] **Ryan Wans**, “Open Source 2.4GHz LC-VCO in SKY130,” in *ISSCC 2023 Student Notebook Competition*, November, 2022.