

Chinyu Lin (林秦宇)

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I am a motivated, passionate and fast learner with a positive attitude and strong work responsibility. My expertise can bring value to the team and I constantly seek new challenges and opportunities for growth.

Skills

- EE: TCAD, Ledit, Matlab, COMSOL, HSPICE, Labview
- CS: Python, TensorFlow, Excel macro, TCL, VB, Verilog, C++, Java
- Expertise: Pixel Characterization, CMOS/CIS design/analysis/process, ML, Semiconductor Physics, Process Integration, FEOL/BEOL/CIS Reliability

Experience

2013	2016	2017	2019	2021
NCTU EE	TSMC TCAD	CISD	TQR	vivo ST
vivo Communication Technology	2021.03-present			vivo
● 2021.03-present	Sr. Camera Module Engineer - CIS design/dev./characterization			
Taiwan Semiconductor Manufacturing Company	2016.01-2021.03			tsmc
● 2019.12-2021.03	CIS Reliability Engineer - CIS reliability analysis/optimization			
● 2017.08-2019.12	CIS R&D Engineer - Stacked BSI CIS and new tech dev.			
● 2016.01-2017.08	TCAD R&D Engineer - N3/N5/N7 FinFET/GAA model dev.			

Achievement

- Built CIS/EVS/SPAD pixel meas sys & optical platform (QE/AR) w/ successful deployment
- Developed a pixel-level full simulation chain (early-stage sensor selection/spec determination)
- Engineered vivo X70-X100 series camera models with multiple technologies
- Developed high-efficiency machine learning model for defect image recognition
- Pioneered TSMC's 1st 0.8um pixel image sensor
- Elevated WAT leakage measurement resolution to from 1pA to 10fA
- Developed TSMC's highest density stacking capacitors
- Constructed 1st N3 nano-sheet FET simulation model for TSMC
- Developed advanced N5 SiGe defect interface model

Education

- 2013.06-2015.09 MS EE @ NCTU GPA: 4.27/4.3, Ranking 15/168
Thesis: "Numerical Modeling of Filamentary and Non-filamentary RRAM" 2015
- 2009.09-2013.06 BS Physics @ NSYSU GPA: 3.64/4.3, Ranking 3/53
Project: "CF Rupture Mechanism of HfO₂ bipolar RRAM" 2013

Personality

- An aggressive, positive, fast learner, diligent, enthusiastic, and capable team player. Enjoy basketball, jogging. Interested in ML, drones, 3D printing, crypto and the cutting-edge tech.

Professional Experience



vivo – Senior Camera Module Engineer

Sensor team 2021.03-present

Prod. node: X70/X80/X90/X100

- Established CIS Pixel Level Testing System for pixel characterization (PTC/Noise/DC/image lag... etc.), successfully implemented in production
- Built 1st a Photonics Measurement Platform encompassing QE analysis, angular response measurement, and high-temperature testing, along with an integrated automation system
- Developed a pixel-level full simulation chain, effectively integrating early-stage sensor selection and specification determination
- Designed, planned, and implemented X70-X100 series camera technology with positive feedback from market users
- Developed sensor-related technologies, designed pixels, and implemented vcs/SHCG/LOFIC/SPAD imaging
- Established EVS / SPAD Testing System, successfully implemented in production

TSMC – CIS Reliability Engineer

CIS TQR 2019.12-2021.03

Proc. node: N22/N45/N55/N65

- Conducted process quality and reliability analysis in 3D Stacked BSI sensors development
- Reliability pattern design and process optimizing for Si/Ge Sensors and 3DMIM/BDTI modules
- Researched Si/Ge SPAD PN junction reliability
- Developed bare die testing/final testing platform and image analysis/WAT testing algorithms
- Developed ML-based process defect image recognition model

TSMC – CIS R&D Engineer

CISD R&D 2017.08-2019.12

Proc. node: N22/N45/N65

- Developed small pixel image sensors (0.8, 0.9, 1.1um) and test pattern, calibrated TCAD models
- Developed N22, N65 high-density stacked capacitance special modules (21fF/um², 30~100fF/#)
- Developed WAT algorithms and automation programs, analyzed electrical/physical properties of image sensor
- Provided customer support: OVT/ON-Semi/AMS/Brillnics/Quanergy/SmartSense/Artlux/Fresco

TSMC – TCAD R&D Engineer

TCAD R&D 2016.01-2017.08

Proc. node: N3/N5/N7/N10/N16

- Evaluated FinFET and Nano-sheet process in N3, developed simulation models
- Developed N5 SiGe defect model and evaluated feasibility of SiGe channel
- Designed N5/N7 reference models, simulated and calibrated electrical verification, optimized process
- Specified and optimized Power-Performance-Area (PPA).
- Developed automation programs and component analysis by Python/TCL
- Developed calibrated physical models (GIDL, BTBT, TAT, SRH, etc.)



Academic Experience

NCTU – Graduate Researcher

Nano ST 2013.06-2015.09
Project: RRAM

- Simulation of the non-filamentary RRAM characteristics
Construct the HBM/Trapping-Detrapping model on Ta/TaOx/TiO2/Ti devices
- Simulation of the filamentary RRAM characteristic
Utilize percolation/TAT model to construct filamentary model on TiN/HfO2/Pt devices
- Award: Presidential awards x2, TSMC research foundation award
- Publication:
 - TP L, YF W, and TH H, "Simulation of Nonpolar Resistive-Switching Memory," IEDMS, Oct. 2014.
 - YF W, YC L, IT W, TP L and TH H, "Characterization and Modeling of Nonfilamentary Ta/TaOx/TiO2/Ti Analog Synaptic Device." Scientific reports, 2015.

NSYSU – Undergraduate Researcher

SC Lab 2010.05-2013.06
Project: RRAM

- Dedicated to figuring out the conduction mechanisms of RRAM
Analyzing the illustration of CF (conductive filaments) rupture process in HfO₂ bipolar RRAM
- Award: Presidential awards x4, project excellence award of China/Taiwan NSYSU academic exchange, 2nd place of NCKU/NSYSU/NCHU fundamental physics competition

Others

- Side project
 - TTYGT LineBot development (prompt message with incentive poem/image by AI to user)
 - Assembly of FPV, hexapod drone
 - Application development of Arduino/Raspberry-Pi camera module by OpenCV
 - Assembly of CNC writing machine
 - Assembly of 3D printer (Prusa i3 MK3s)

- Autodidacticism (MOOC/Coursera/Workshop) in various fields

Raspberry Pi workshop	2016.04	Arduino workshop	2016.08
LittleBits workshop	2016.08	Logic Design	2017.02
Xilinx FPGA System Design	2017.03	ML Foundations	2017.06
ML Techniques	2018.11	TensorFlow workshop	2020.02
CIS development workshop	2020.07	Python AI trading workshop	2020.10
ccClub – Python club	2022.10	Quadcopter drone workshop	2022.11

