Chenyu **Hu**

R&D Engineer · Semiconductor Devices Expert

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"When God Closes a Door, He Opens a Window."

Summary

3+ years semiconductor device R&D in UMC, familiar with device characterization and process integration for eHV(embedded high voltage).

Experienced with 40nm, 28, and 22nm nodes process development.

Good analysis skills and programming ability on data analysis and visualization.

A super fan who loves devising a better problem-solving method and automation for tasks in company and life, and enjoys learning new technologies and tools if the need arises.

A patient with Berger's disease(IgA nephropathy) but a life figher. (Class 6, Internal Organ Loss Function and Related Disabilities)

Work Experience

United Microelectronics Corporation(UMC)

Hsinchu, Taiwan

Device Engineer

August. 2018 - Present

- Solve technical issues with devices and processes in eHV(embedded high voltage) environment.
- Develop devices including design, simulation, optimization.
- Perform design/layout, wafer processing, and simulation design of experiments(DOE) to determine the optimum process and device performance characteristics.
- Work with fab and product engineers in yield enhancement, circuit, and CP testing, reliability and mismatch, etc.
- Design testkey layout and set up test program for analysis.
- Operate mask design with layout editing and **auto-generation codes development.**
- Define design rules, develop DRC, and help DRC debugging.
- **Optimize standard operation procedure(SOP) and implement automation for routine tasks and complicated tasks.**

Key Achievement

in United Microelectronics Corporation(UMC)

2022 **Up to 50% experiments cost reduction**, by wafer quantity reduction with co-cut methodology

2022 **20% cost reduction**, on 22eHV technology node by sharing implants with different devices.

2021 **4% yield enhancement**, from 90% to 94% by photomask auto-generation codes.

2021 **22eHV technology**, node released and entered volume production.

2020 **10% cost reductin**, on I/O devices by masks reduction.

2019 **Up to 50% time cost reduction**, on mask auto-generation codes development by optimzing SOP with VBA.

2018 **Layout design invention**, to measure Kelvin resistance applicable to all metal options.

Education

NTHU(National Tsing Hua University)

Hsinchu, Taiwan

M.S. in Material Science and Engineering

Sep. 2015 - Aug. 2018

- Thesis: Production of Graphite from Catalytic Liquid Cast Iron Bath
- GPA: 3.97

NTHU(National Tsing Hua University)

Hsinchu, Taiwan

B.S. in Material Science and Engineering

Sep. 2011 - Aug. 2015

- Top 10 and best popularity award in 2015 Yamaha Asian Beat Unplugged.
- 3rd Place in SCU Golden String Award.
- Guitar Teacher in guitar club.
- Vice team leader in basketball team.
- Member in Chung-yo club to help and educate kids in Taichung.
- Member in Blue-sky club to held educative activities for juveniles in juvenile detention houses.

Centification

TOPIK I (Test of Proficiency in Korean)

180/200 as Level 2

TOEIC (Test of English for International Communication)

775/990 as Level Blue

Skill

Language

- Chinese (Native)
- English (Good)
- Korean (Conversational)

Programming

- Java
- VBA
- C/C++
- Python
- Verilog
- Git

Tool

- DRC & iVerilog & gtkwave
- Laker & KLayout
- TCAD
- Vim & VSCode & Eclipse

Project

IDAS+ (Integrated Data Analysis System Plus)

UMC

VBA, Java, HTML, JavaScript

2020 - Present

- Generate Summary Table for daily reports.
- Mailing system for summarized reports.
- Charts ploting including scatter plots, box charts, cummulatvie charts, wafer mapping distribution, etc.
- Mismatching calculation.
- Model corner calculation.
- Device universal behavior calculation.
- Cp, Cpa, Cpk calculaton.
- PPT File report generation.
- WAT file content query.
- Data coordinates derivation.

KPlug (Macros for layout viewer KLayout)

UMC

Python, Ruby

2019 - Present

- .gds file Layer area, perimeter, density calculation by selecting layers
- Testkey coordinates output as csv file.
- Load layer names and shown in layer box.

U2C (UMC Auto-Generation Codes to Calibre Deck Transformer)

UMC

VBA, SVRF, Python, Ruby

2019 - Present

- **Awarded valuable tool/document in UMC KM.**
- Transform UMC auto-generation codes to Calibre deck.
- Transform UMC auto-generation codes to KLayout DRC engine codes.
- UMC auto-generation codes syntax check

IV_Cur

UMC

VBA

2018 - Present

- Data visualization
- Data arrangement for Agilent 4156
- Data integration