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Summary

I have over 5 years of experience in the semiconductor industry, first 4 years as a R&D Engineer and then transitioned into a Software Engineer role in the Smart Manufacturing(SMG) department. Leveraging my expertise and domain knowledge, I was assigned to develop the UI for database entry. This involved integrating data from various equipment sources from different sites. The entry should be equipped with authorization controls to manage access from different departments and optimized on database queries. I utilized the C# .NET Framework with Spotfire SDK for the further data usage, including data summary, visualization and analysis with big data and AI provided by SMG. Also, I collaborated with other team members to integrate multiple databases into a centralized data center, aimed to standardize the data format across all sites and distribute system resources efficiently to them. Additionally, I worked closely with R&D clients from my previous department, providing smart manufacturing solutions. This involved developing tools for GDS layout design and delivering custom services for advanced data analysis with Python, DRC language, etc.

Education

National Tsing Hua University   Hsinchu, Taiwan
MS Material Science and Engineering, GPA: 3.97   *Sep 2014 | Aug 2018*

National Tsing Hua University   Hsinchu, Taiwan
BS Material Science and Engineering, GPA: 3.61   *Sep 2010 | Aug 2014*

Work Experience

UMC   Hsinchu, Taiwan   *Device R&D Engineer*   *August 2018 | August 2022*

- Semiconductor devices and process development for eHV applications. (e.g. OLED, Display IC)
- Device characteristics tuning and development on 40, 28, 22nm technology node, including poly gate and HKMG, etc.
- WAT analysis, test-key layout design, DRC coding and evaluation, product yield rate enhancement.
- Production yield rate enhancement.
- Basic IC circuit analysis, (e.g. Ring Oscillator Analysis)

UMC   Tainan, Taiwan   *Software Engineer*   *August 2022 | Present*

- Smart manufacturing solutions for semiconductor production.
- EDA software development.
- Process automation development.
- Yield rate enhancement, waste and expenses reduction.
- Big data analysis(virtual metrology).
- Data labeling for ML with AI Engineers.

Skills

Programming Languages C/C++, Java, C#.Net, Oracle SQL, VBA

Languages Chinese (Native), English, Korean (Basic)

Engineering Semiconductor Device and Physics, DRC, Layout Design, WAT, SPC, Verilog

Tool Laker, Calibre, Sentaurus TCAD, Git, Visual Studio, Vim, Eclipse, VS Code

Key Achievement

UEDA 5.0 C#, .Net, IronPython, JavaScript, Oracle SQL, ...
A database integrated software development for usage of all processes, including multiple functions like auto-report, data visualization, statistics, and AI on analysis.

Co-cut project SVRF, DRC
The more efficient wafer utilization by arranging test chip layout with the assistance of computer languages. (More than 50% experiments cost reduction.)

22eHV Compact Project Semiconductor Devices
Including I/O devices mask reduction and LV share implants plan. (About 20% cost reduction)

22eHV Project Semiconductor Devices
New technology node development for eHV applications.

NWR project Semiconductor Devices, DRC
A method to optimize devices isolation and decrease current leakage for eHV environment. (4% yield rate enhancement, from 90% to 94% on 28eHV production. Current BKM for eHV platforms)

U2C Project DRC, Python, VBA   *https://github.com/intervalrain/U2C*
A tool development for translation from one DRC language to the other DRC language. Helping CAD engineers to develop Boolean logic on masking by tooling layers.

IDAS+ VBA, Oracle SQL   *https://github.com/intervalrain/IDAS*
An integrated data analysis tool, and report mailing system. Including data retrieval from database, data visualization, and statistics of data.

Certification

TOEIC (Test of English for International Communication)
775/900 as Level Blue

TOPIK I (Test of Proficiency in Korean)
180/200 as Level 2