



Geneva College Speaker Series

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Sr. Applications Engineer, Cadence Design Systems

4/13/2021

cā dence®

Industries

Technologies

Learn about the solutions to these industries' leading design challenges



5G Communications



Aerospace and
Defense



Automotive



AI / Machine
Learning

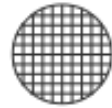
Industries

Technologies

Learn about technologies that address the industry's leading design challenges



3D-IC Design



Advanced Node



Arm-Based Solutions



Cloud Solutions



Low Power



Mixed Signal



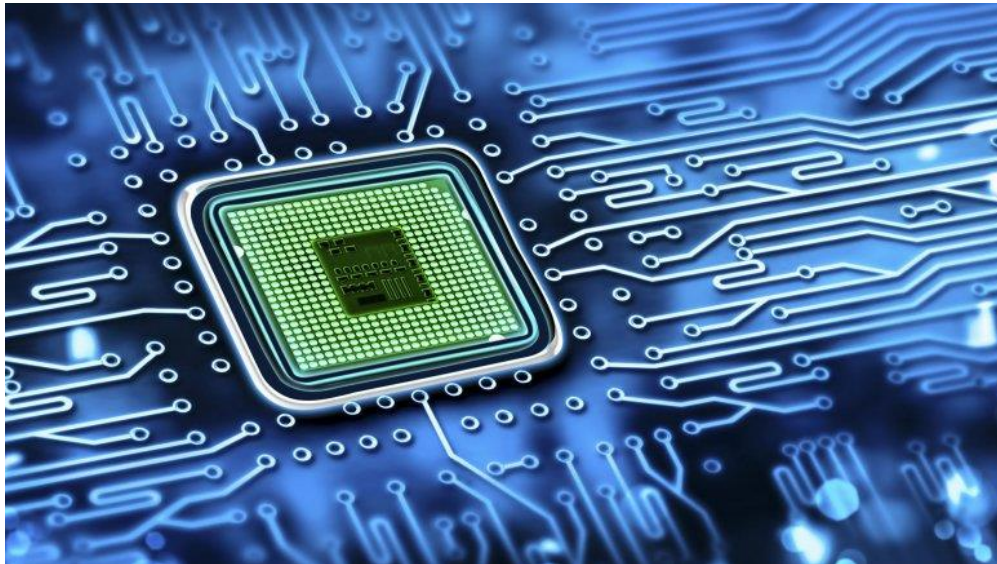
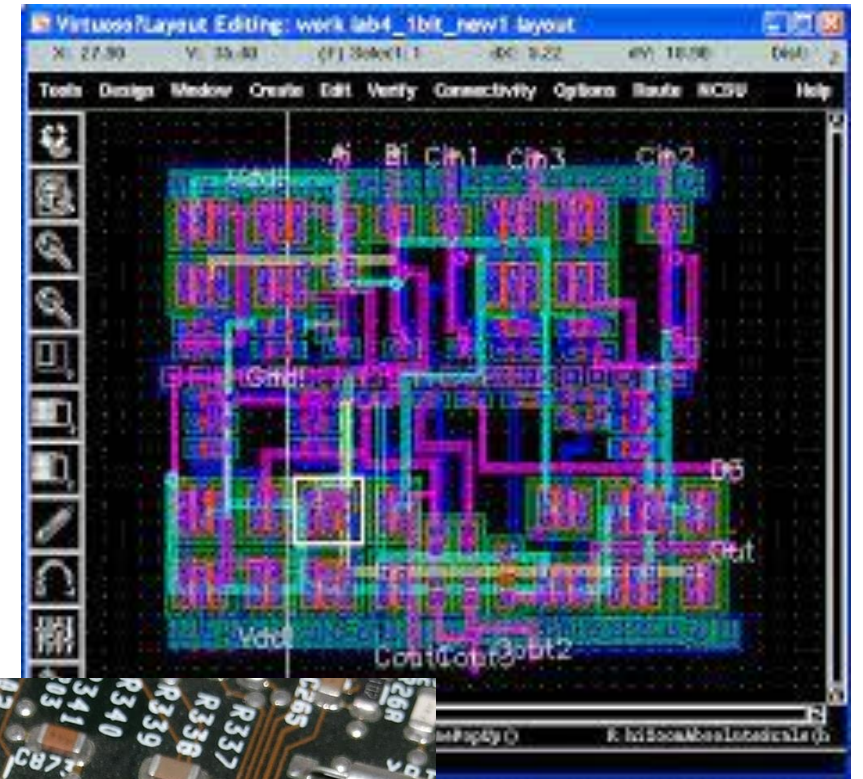
Photonics



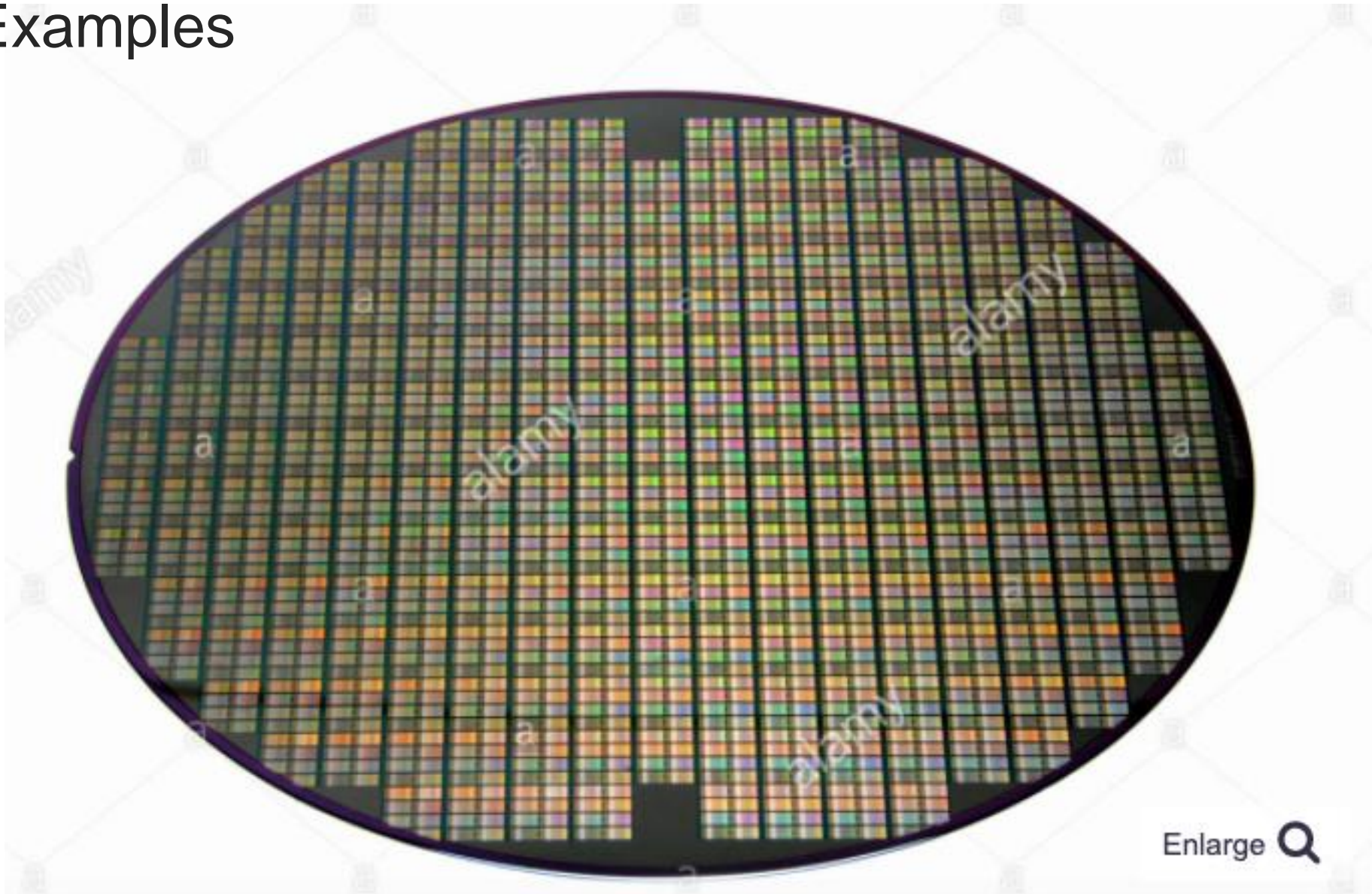
RF/Microwave


Very Large Scale Integration

Very large-scale integration is the process of creating an integrated circuit by combining millions of MOS transistors onto a single chip. VLSI began in the 1970s when MOS integrated circuit chips were widely adopted, enabling complex semiconductor and telecommunication technologies to be developed.

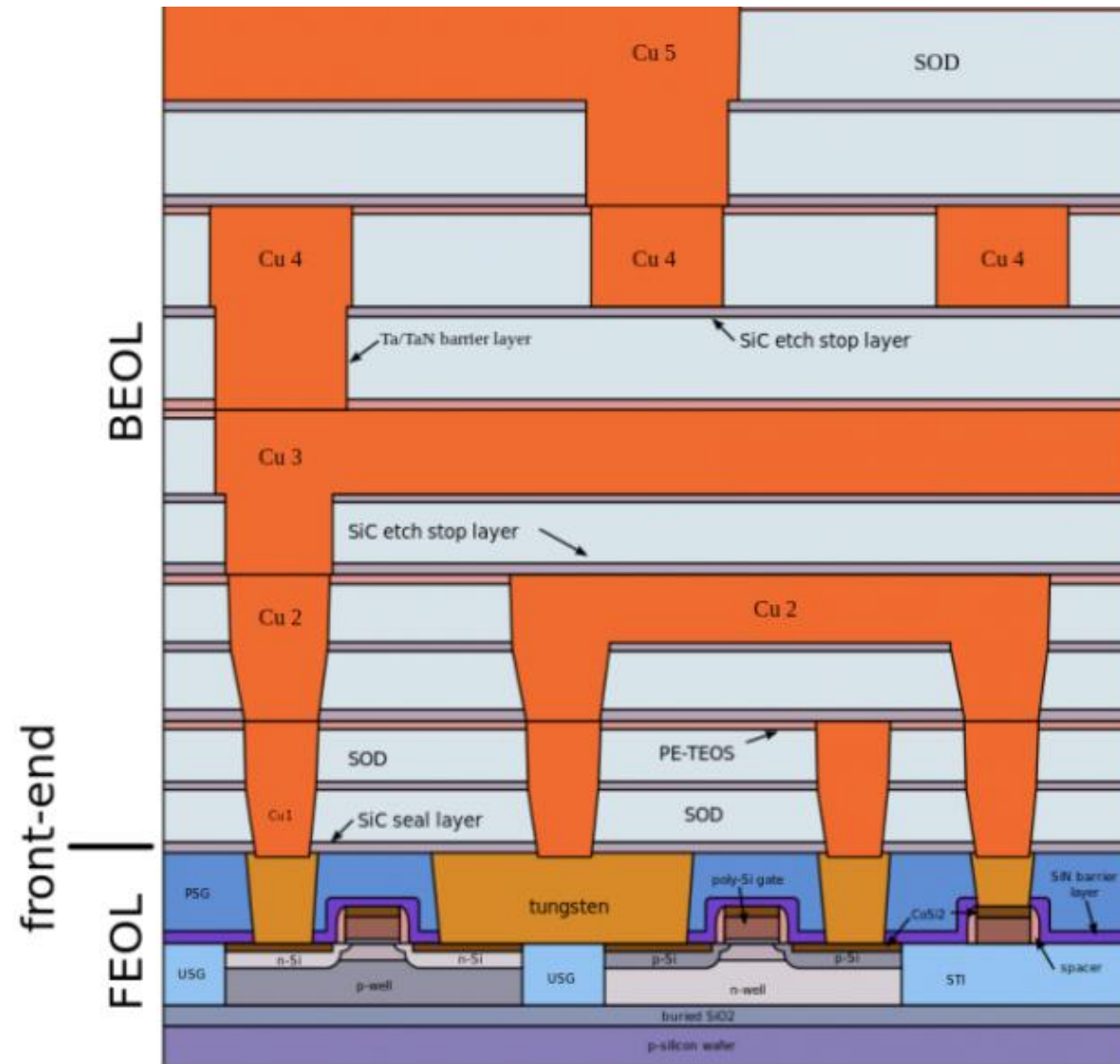


VLSI: Examples



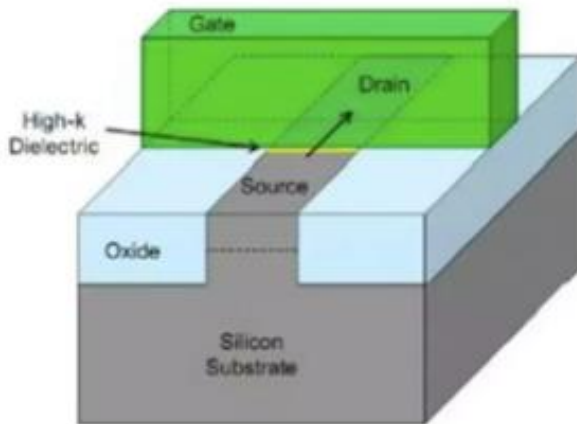
Enlarge 

The stack



Planar vs Fin FETs

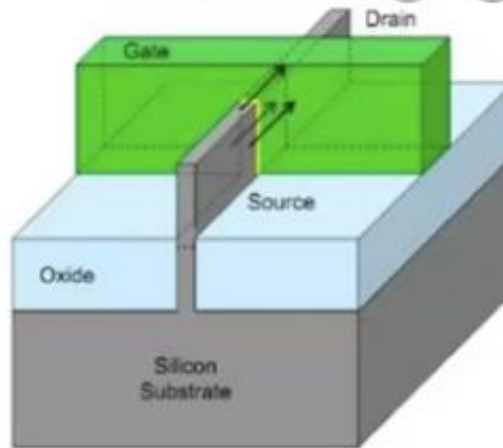
✕ Traditional Planar



Traditional 2-D planar transistor form a conducting channel in the silicon region under the gate electrode when in the "on" state

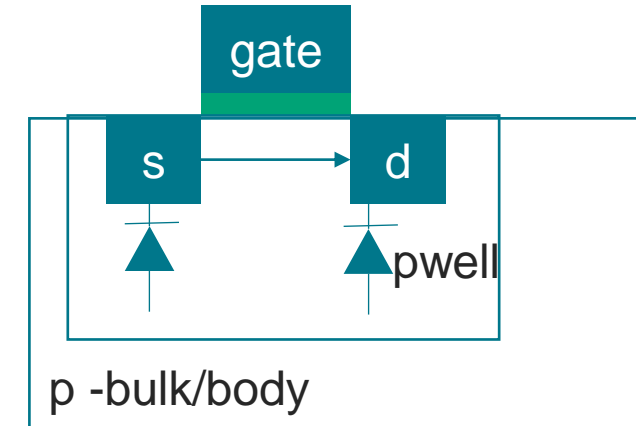
602 × 370

3D FinFET < >

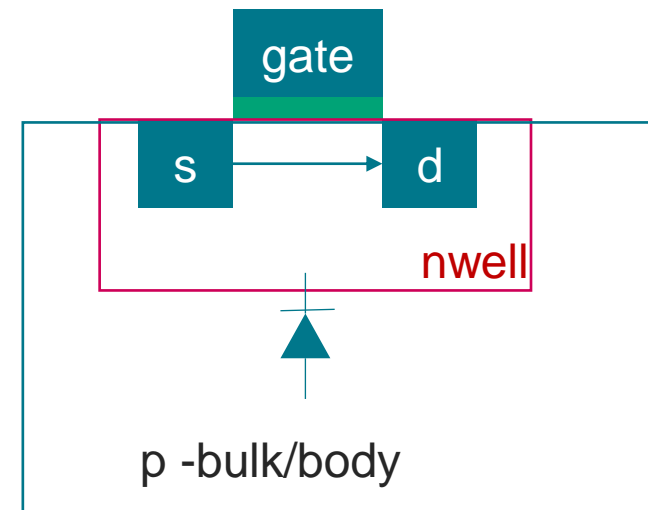


3-D Tri-Gate transistor form conducting channels on three sides of a vertical fin structure, providing "fully depleted" operation

nmos



pmos



Semiconductor processing

An etch system shapes the thin film into a desired patterns using liquid chemicals, reaction gases or ion chemical reaction. An etch system is used in manufacturing lines for semiconductors and other electronic devices. Fig. 7-1 shows the flow of the etching process.

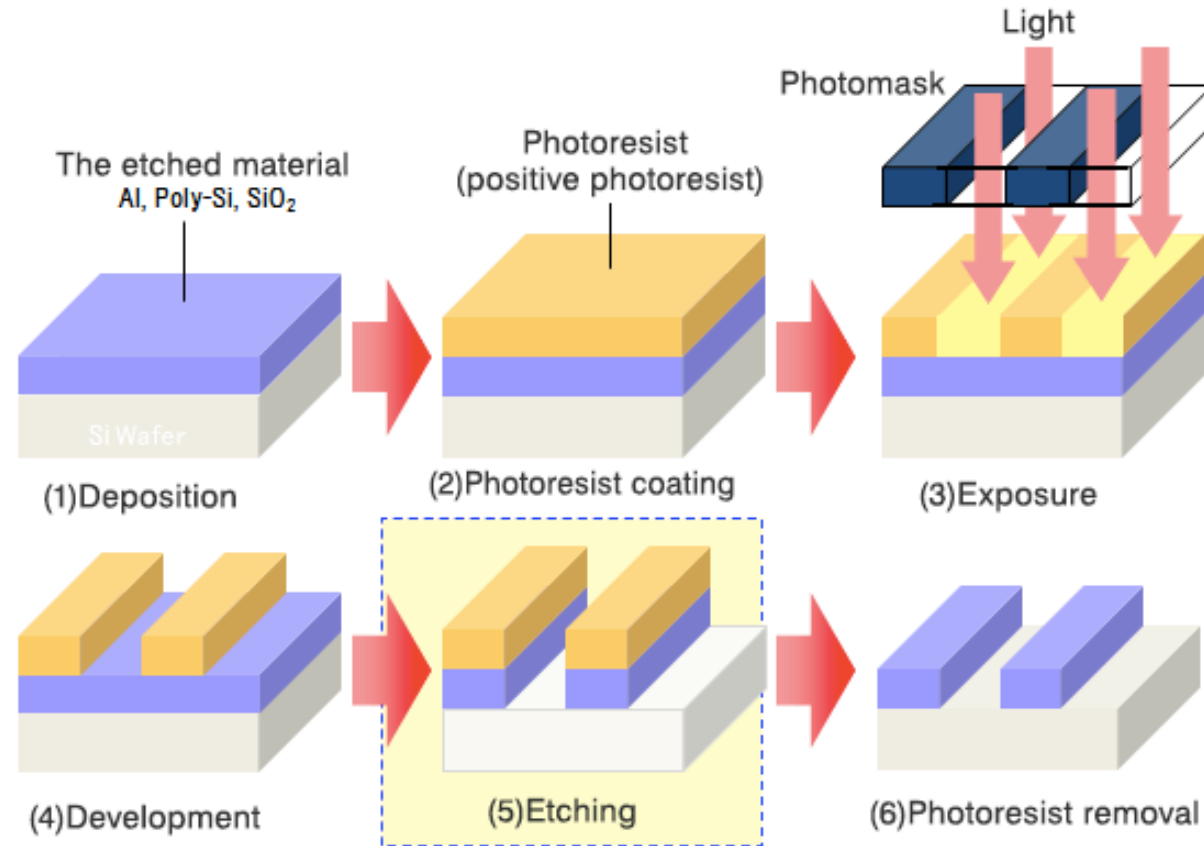
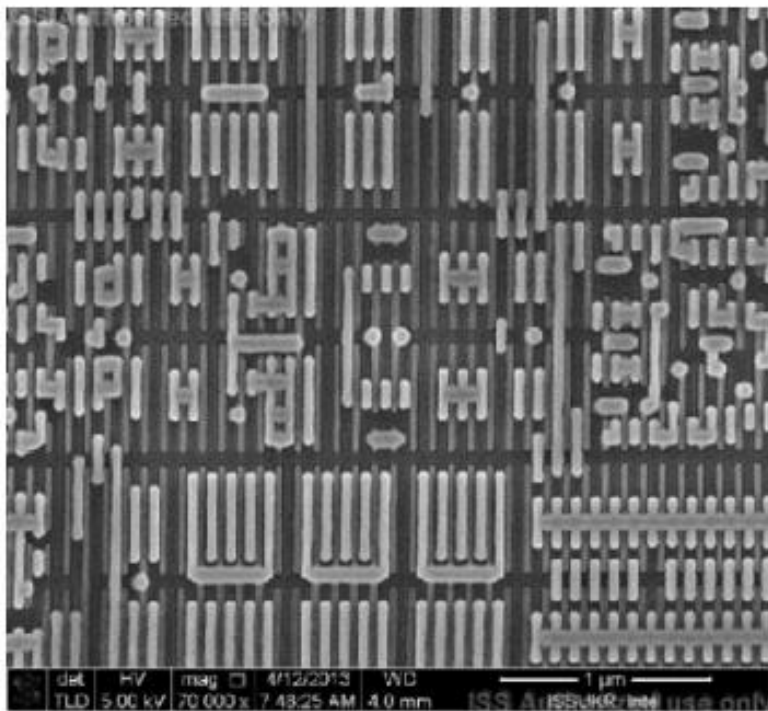
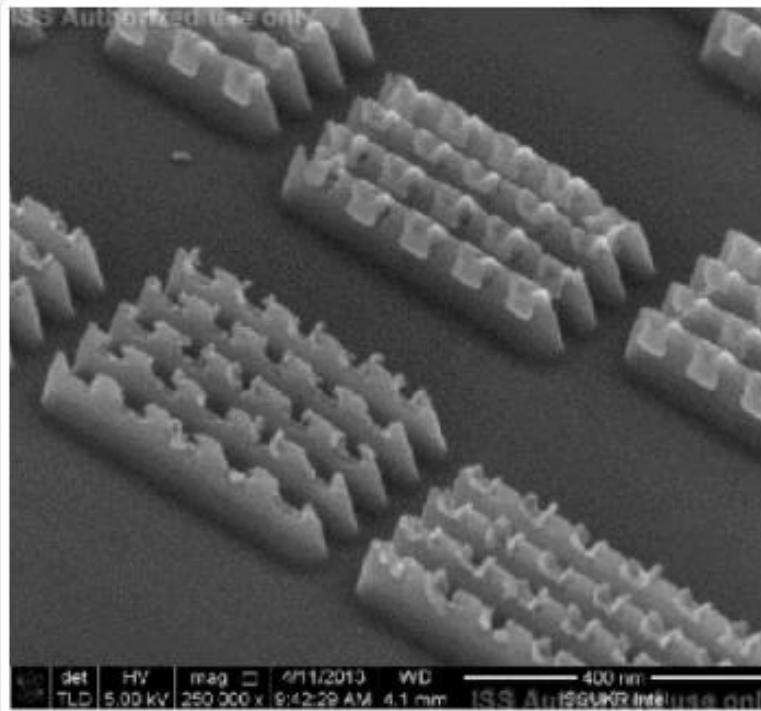


Fig.7-1. Flow of the etching process

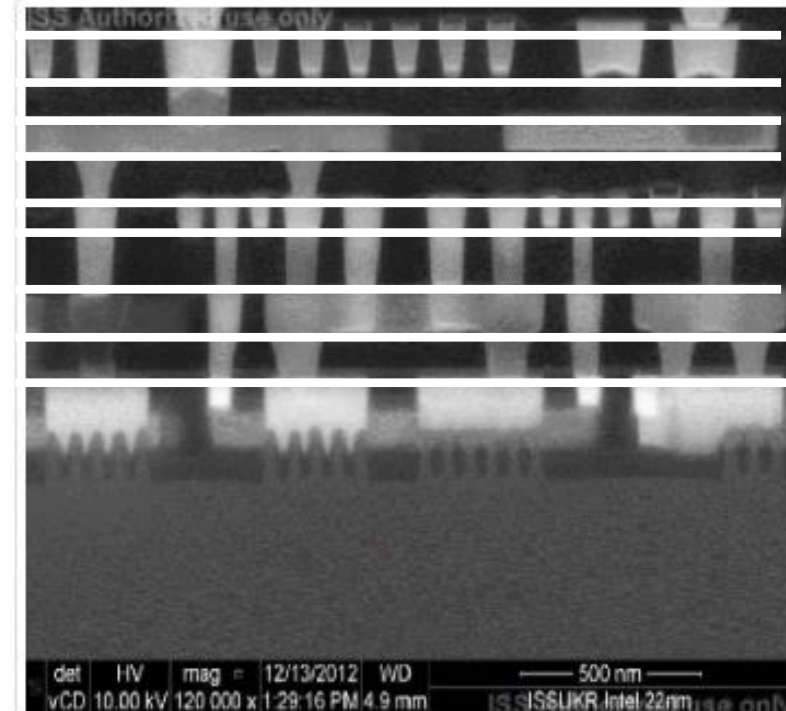
Scanning Electron Microscope Images



SEM top-down view of redistributive tungsten layer

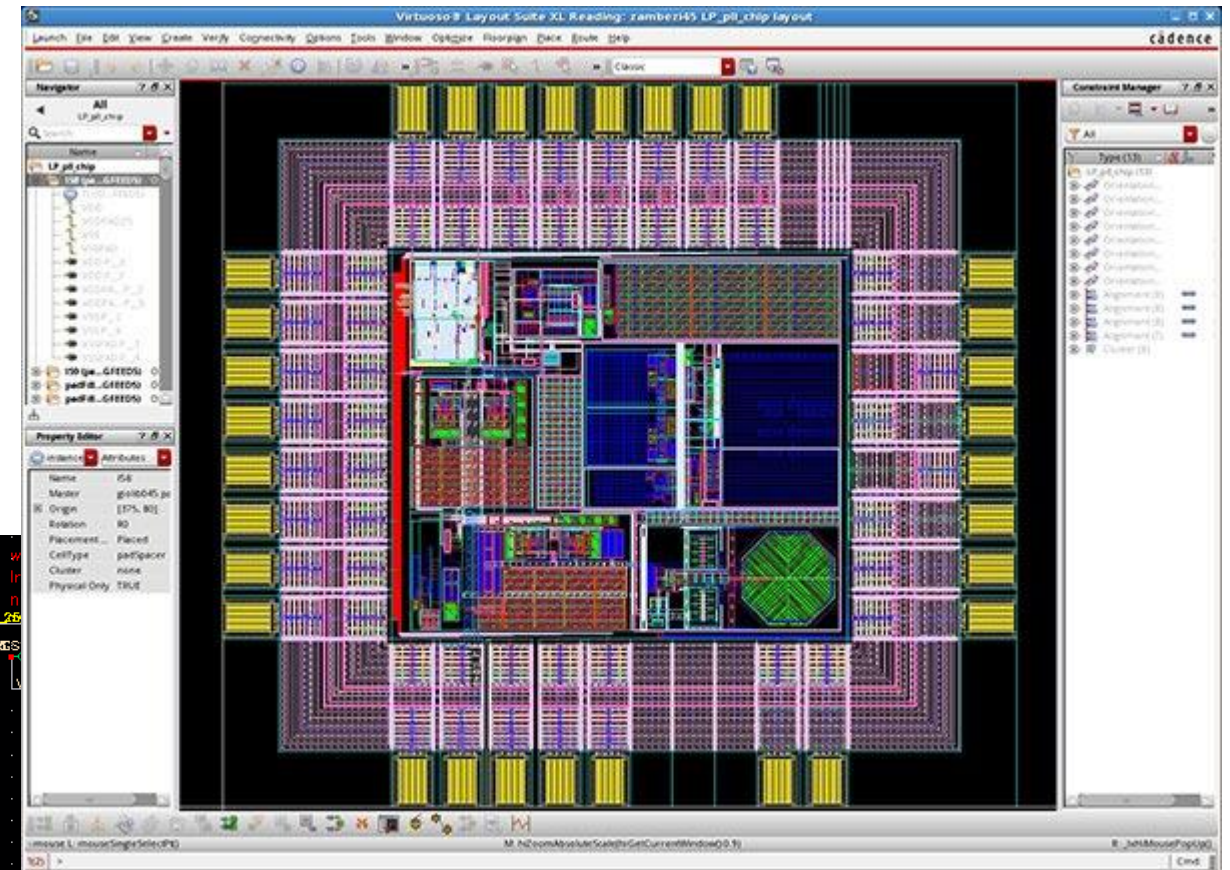
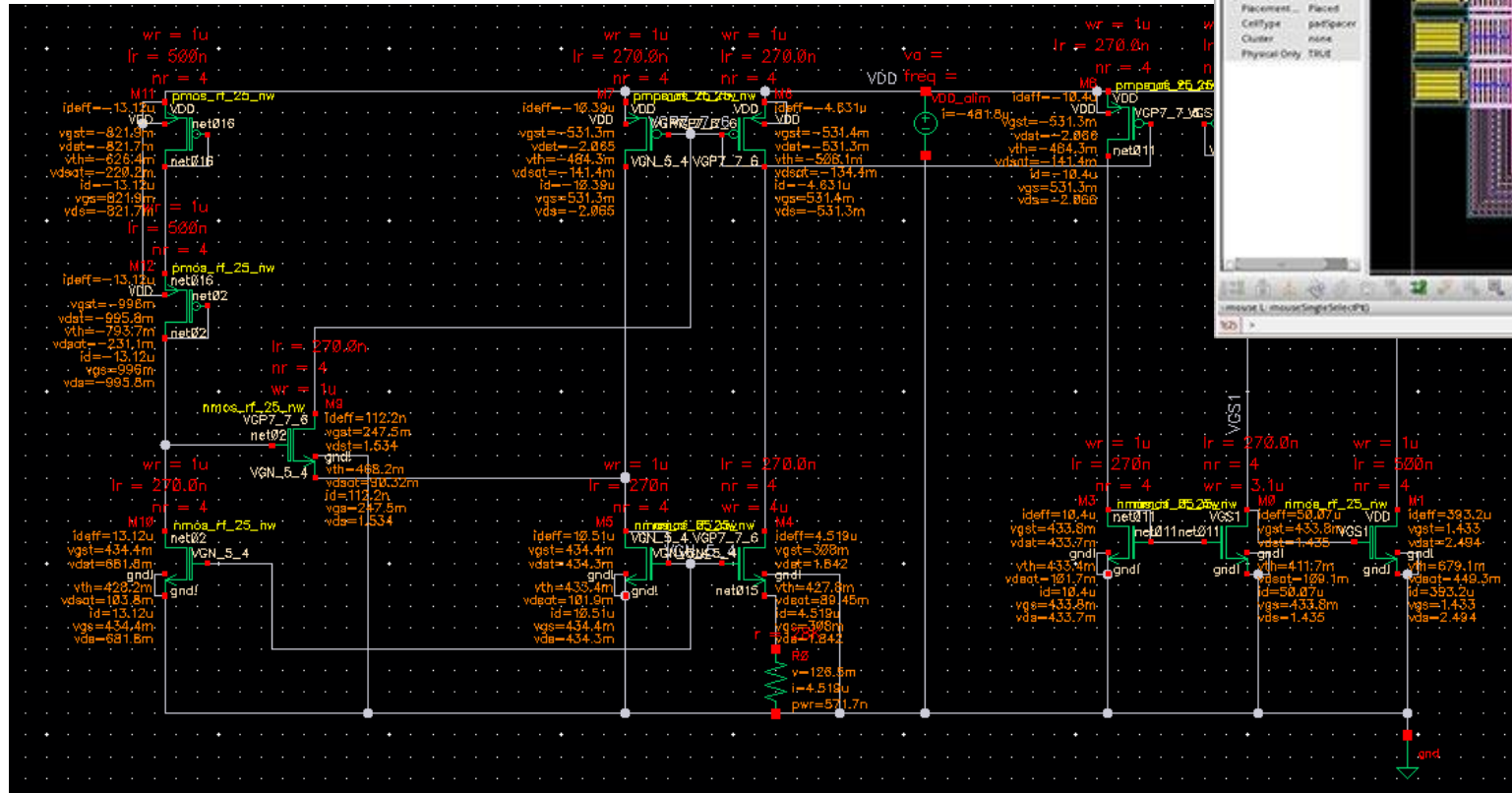


SEM tilted view of Tri-gate fingers



SEM section of Tri-gate transistors across fins

Schematic and Layout Editor





North America: FAST

Focused Accounts Solutions Team



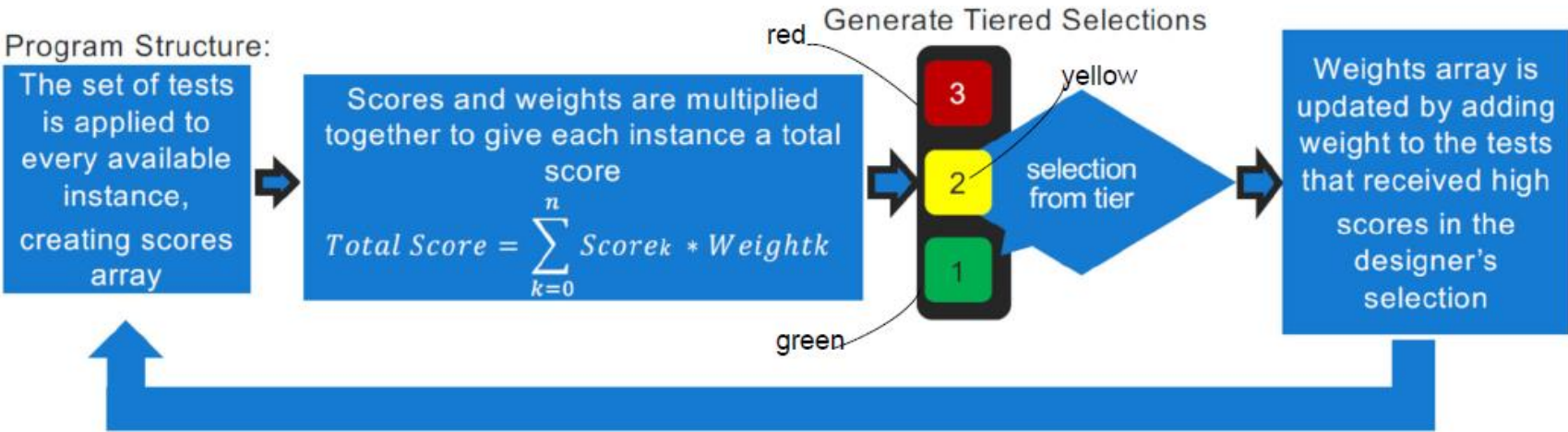
Intern -> Sr. Application Engineer

Writing software and programs for various customer needs

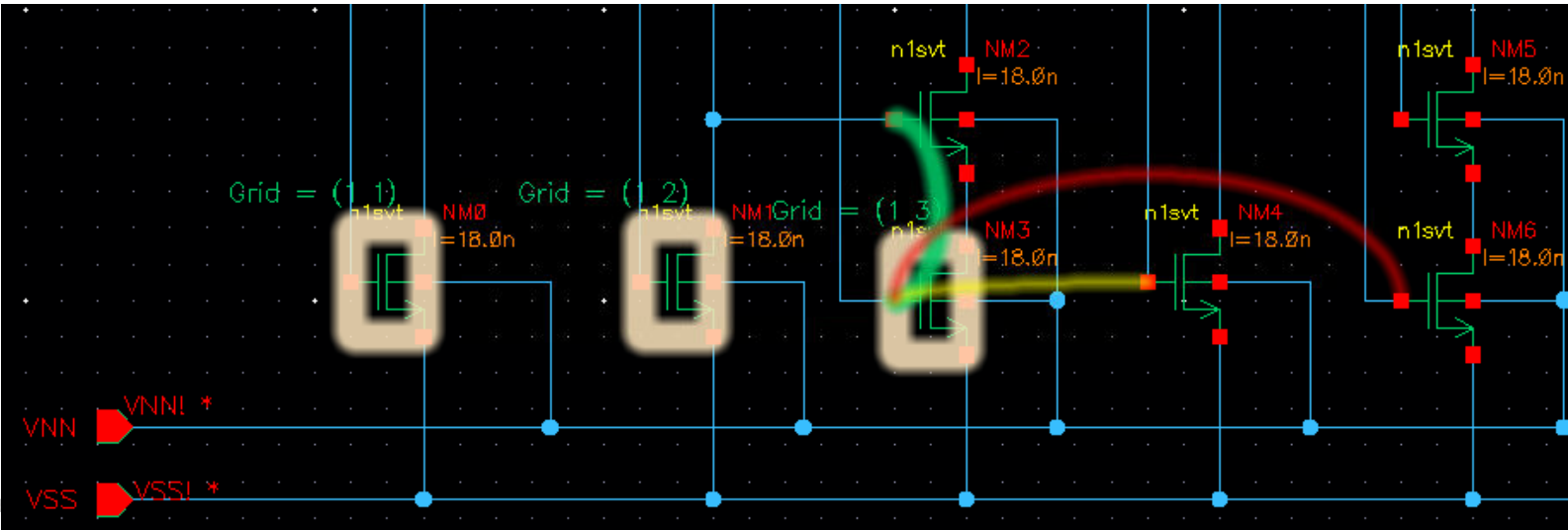
Machine Learning Project

Patent Pending:

“System and Method for Device Placement”

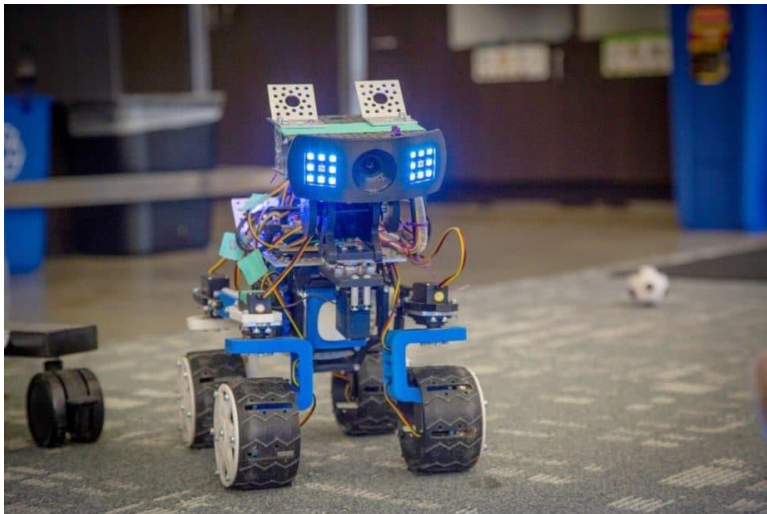


Data Set					
scores	Score 1	Score 2	Score 3	Score 4	Score 5
weights	Weight 1	Weight 2	Weight 3	Weight 4	Weight 5



Getting That First Job: Tips and Tricks

1. Network
2. Side Projects
3. Network (more)
4. Interview: Prepare personal summary, be passionate, honest, Get to Know Company, have good questions,





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