Electrical Engineer in the age of Artificial Intelligence: Semiconductor, Software, and Algorithms

Sunghee Yun

Head of R&D @ Gauss Labs / VP - Fellow @ SK hynix
Adjunct Professor @ Sogang University / Advisory Professor @ DGIST

What will be covered today

- Introduction to myself
- Introduction to Gauss Labs
- AI for Semiconductor Manufacturing

- Dreams to dream as Electrical Engineer
- Difference between companies in Korea and companies in US
- Humble advice for students who want to work in Silicon Valley
- Lives in Korea, Canada, and USA

- What would I do if I could go back to fresh year of college?
- Q&A

Introduction to myself

- Head of R&D & CTO of Gauss Labs and VP - Fellow of SK hynix (currently)

- Senior Applied Scientist @ Amazon

- Principle Engineer @ Software Research Center, Samsung Electronics

- Principle Engineer @ Strategic Sales and Marketing Team - Samsung Electronics

- Principle Engineer @ DRAM Development Laboratory

- MS and Ph.D. @ Stanford University

- BS @ Seoul National University

Introduction to Gauss Labs

- industry (manufacturing) AI company with strong R&D

- apply AI techniques to reduce cost, improve throughput, and reduce production time

- attracts great AI/ML scientists, software engineers, program managers!

Gauss Labs

- Vision: make it smarter than people

- aiming for the best industry AI company in the world!

AI for Semiconductor Manufacturing

- vision: make it smarter than people

- aiming for the best industry AI company in the world!

Dreams to dream as Electrical Engineer

- subjects: communication, semiconductor device, circuit design, computer science/engr., software development

- related topics: optimization, numerical methods, statistics, hardware, machine learning

- electrical engineer can do virtually anything!
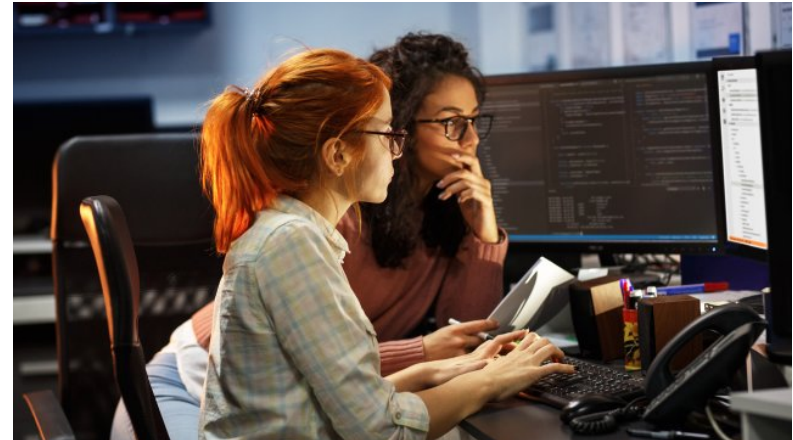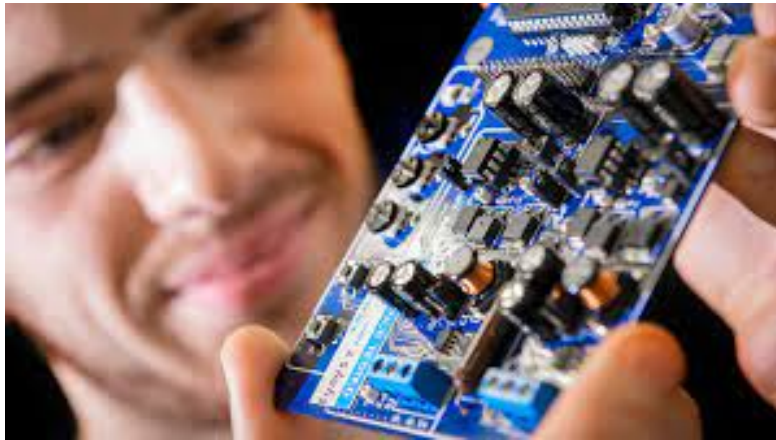
Difference between companies in Korea and companies in US

- company/corporate culture, competition

- technical competence, career growth

- flexibility of labor market

Humble advice for students who want to work in Silicon Valley

- your technical skill set is who you are and how much you get paid
- but there are universal rules by which you get along with people
- never afraid to talk about money; your value is determined by salary in job market
- *you will GROW a lot (as much as you suffer)!*

Lives in Korea, Canada, and USA
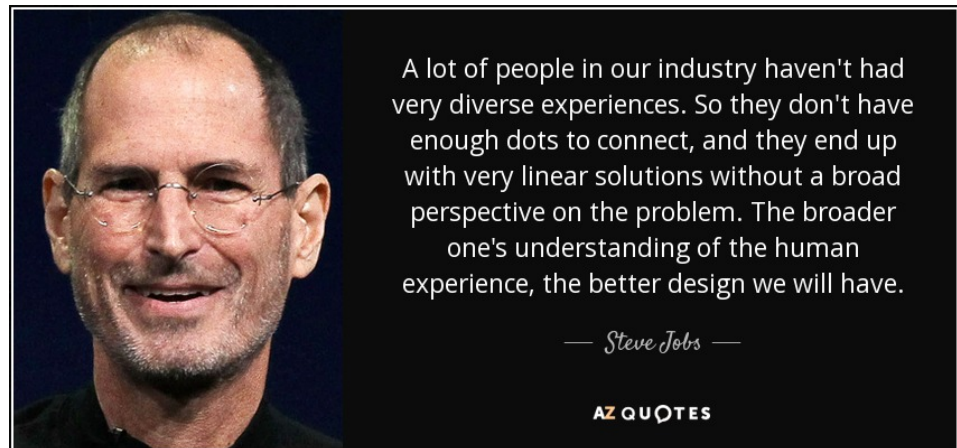
- Korea: competitive, diligent people, best memory makers

- USA: competitive (in a different way), many diligent people

- Canada: not very competitive, not very diligent, respect many values, great social security system

What would I do if I could go back to fresh year of college?

- First, I would NOT! because
  - (philosophical reasoning) I would've lived the same (or similar) way
- But if I did, I would
  - live a richer life by having diverse experience
  - try to think deeply, stay in the zone for longer
  - never regret my past in any circumstances

A lot of people in our industry haven't had very diverse experiences. So they don't have enough dots to connect, and they end up with very linear solutions without a broad perspective on the problem. The broader one's understanding of the human experience, the better design we will have.

— Steve Jobs —

AZ QUOTES

Q&A

- Q) Should I go to graduate school?

- Q) Should I go abroad for advanced degrees?

- Q) Should I improve software development skills?

- Q) Should everyone study ML/AI?