

[Samsung Insight-Sharing Session]
Insights from Silicon Valley - Innovation, Leadership, and
AI in the Global Tech Ecosystem

Sunghee Yun

Co-founder & CTO - AI Technology & Biz Dev @ [Erudio Bio, Inc.](#)

About Speaker

- *Co-founder & CTO @ Erudio Bio, San Jose & Novato, CA, USA*
- Advisor & Evangelist @ CryptoLab, Inc., San Jose, CA, USA
- Chief Business Development Officer @ WeStory.ai, Cupertino, CA, USA
- Advisory Professor, Electrical Engineering and Computer Science @ DGIST, Korea
- Adjunct Professor, Electronic Engineering Department @ Sogang University, Korea
- Global Advisory Board Member @ Innovative Future Brain-Inspired Intelligence System Semiconductor of Sogang University, Korea
- *KFAS-Salzburg Global Leadership Initiative Fellow @ Salzburg Global Seminar, Salzburg, Austria*
- Technology Consultant @ Gerson Lehrman Group (GLG), NY, USA
- *Co-founder & CTO & Head of Global R&D & Chief Applied Scientist & Senior Fellow @ Gauss Labs, Inc., Palo Alto, CA, USA* *2020 – 2023*

- Senior Applied Scientist @ Mobile Shopping Team, Amazon.com, Inc., Vancouver, BC, Canada – 2020
- Principal Engineer @ Software R&D Center of DS Division, Samsung, Korea – 2017
- Principal Engineer @ Strategic Marketing & Sales Team, Samsung, Korea – 2016
- Principal Engineer @ DT Team of DRAM Development Lab, Samsung, Korea – 2015
- Senior Engineer @ CAE Team - Samsung, Korea – 2012
- MS & PhD - Electrical Engineering @ Stanford University, CA, USA – 2004
- Development Engineer @ Voyan, Santa Clara, CA, USA – 2001
- BS - Electrical Engineering @ Seoul National University, Seoul, Korea – 1998

Highlight of Career Journey

- BS in EE @ SNU, MS & PhD in EE @ Stanford University
 - *Convex Optimization - Theory, Algorithms & Software*
 - advised by *Prof. Stephen P. Boyd*
- Principal Engineer @ Samsung Semiconductor, Inc.
 - AI & Convex Optimization
 - collaboration with *DRAM/NAND Design/Manufacturing/Test Teams*
- Senior Applied Scientist @ Amazon.com, Inc.
 - e-Commerce AIs - time-series anomaly detection, deep reinforcement learning & recommender system
 - Jeff Bezos's project - increase sales by *\$200M* via Amazon Mobile Shopping App
- Co-founder & CTO & Head of Global R&D & Chief Applied Scientist & Senior Fellow @ Gauss Labs, Inc.
- Co-founder & CTO - AI Technology & Business Development @ Erudio Bio, Inc.

Today

- my journey - from Samsung, Amazon & Gauss Labs to Erudio Bio
- innovation ecosystem of Silicon Valley
- case study: Amazon - amazing differentiators of big techs
- founding and scaling startups
- AI in shaping future of semiconductor and beyond
- bridging Silicon Valley & Korea
- closing thoughts

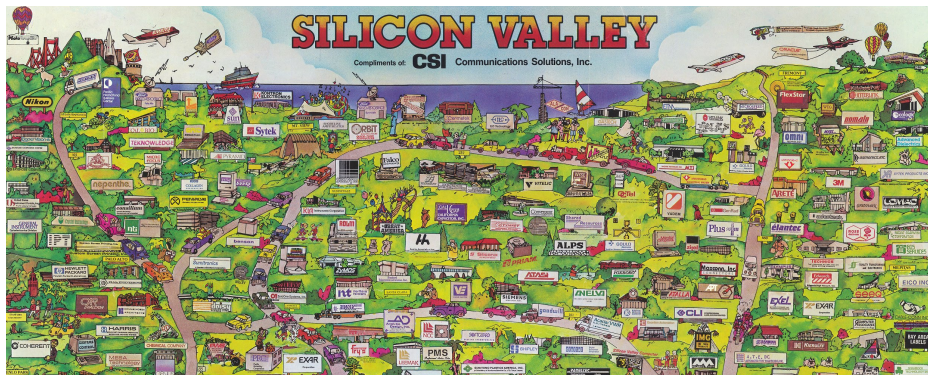
My journey - from Samsung, Amazon & Gauss Labs to Erudio Bio

- Samsung Semiconductor, Inc.
 - inception into industry from academia
 - work with amazing engineers and leaders of the world's best memory chip maker!
- Amazon.com, Inc.
 - experience so-called Silicon Valley big tech culture and technology
 - set tone for my future career trajectory!
- Gauss Labs, Inc.
 - found & operate AI startup, shaping corporate culture & spearheading R&D as CTO
 - inherent challenges of Korean conglomerate spin-off startup - cultural constraints, over-capitalization, and leadership limitations
- Erudio Bio, Inc.
 - concrete & tangible bio-technology in addition to AI
 - good decisions about business models, market fit, go-to-market (GTM) strategies



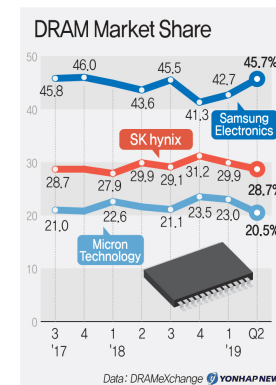
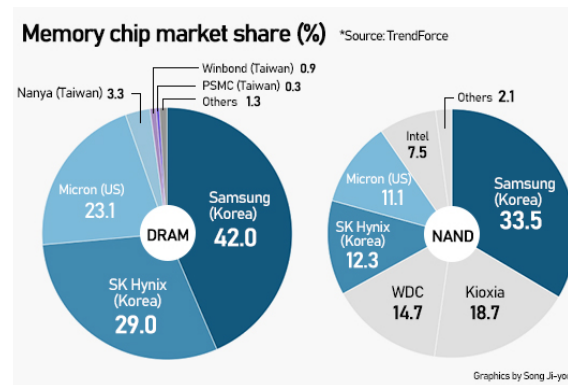
Innovation ecosystem of Silicon Valley

- key characteristics
 - risk-taking culture, trust in technology
 - easy access to huge capital - VCs, angel investors alike
 - talent density - engineers, entrepreneurs, researchers, scientists
 - diversity, “collision density” of ideas
 - ecosystem of collaboration and competition - startups, academia, industry leaders
- what they mean for global big tech
 - set trends in AI, software & hardware innovation
 - act as testing ground for disruptive ideas



Case study: Amazon - amazing differentiators of big techs

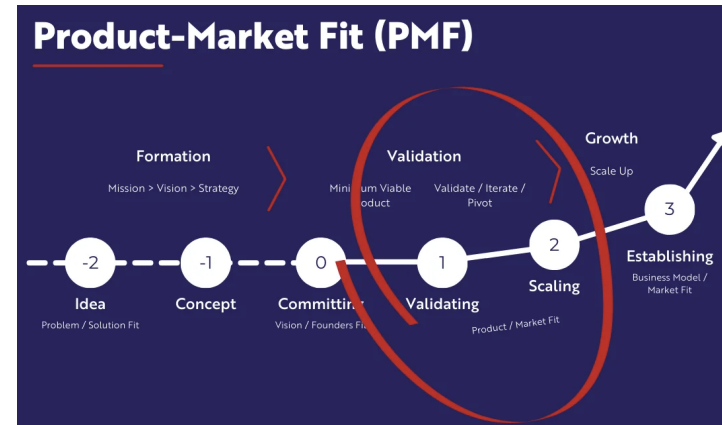
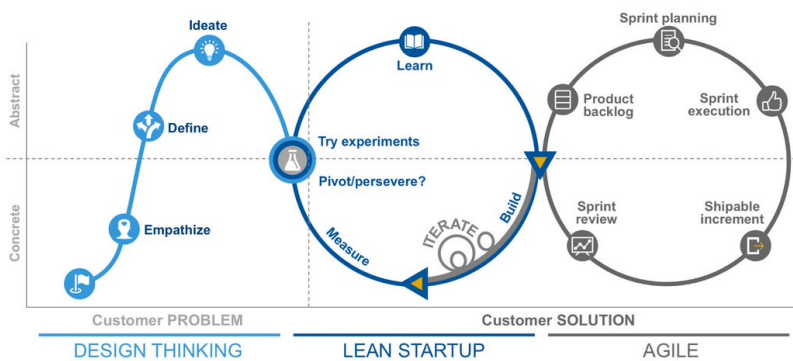
- Amazon's culture & leadership principles
 - customer obsession as driver of innovation
 - high standards & ownership culture
 - bias for action and long-term thinking - sounds contradictory?
 - mechanisms like “two-pizza teams” & “Day One” for scalability
- lessons for Samsung
 - applying customer-centric innovation in hardware & AI, *e.g.*, on-device AI
 - balancing agility with long-term R&D
 - *build / adapt / apply on the core strength of Samsung that no other company has!*



Founding and scaling startups

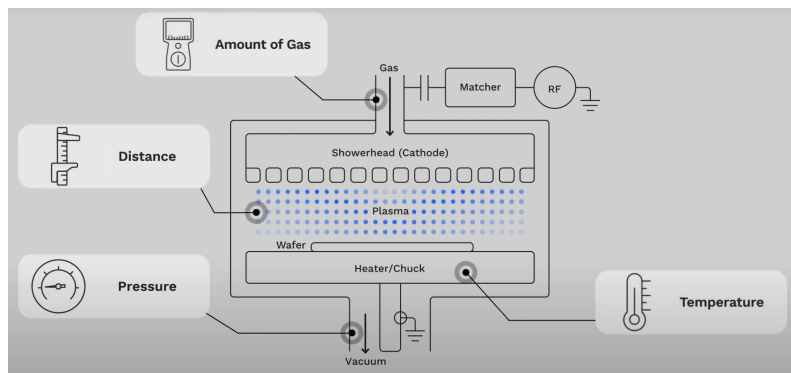
- challenges
 - competence of and chemistry among co-founders crucial
 - technology & great team are *necessary*, but *not sufficient (at all!)* for success
 - business models, market fit, timing, agility, flexibility for pivoting and perseverance
- insight
 - importance of domain expertise in addition to AI
 - balancing innovation with good business decisions

Combine Design Thinking, Lean Startup and Agile



AI in shaping future of semiconductor and beyond

- opportunities
 - computer vision applications, *e.g.*, defect inspection, (failure) pattern classification
 - AI-driven optimization in manufacturing, quality control
- challenges
 - data quality, accessibility, *e.g.*, integration with legacy systems
 - demand for extreme accuracy, concept drift & shift
- *bad* examples
 - predictive maintenance - extremely hard (or impossible) problem



Bridging Silicon Valley & Korea

- cultural differences
 - risk appetite & failure tolerance
 - decision-making speed and hierarchy
 - innovation vs execution focus
- opportunities for collaboration
 - leveraging Korea's manufacturing expertise with Silicon Valley's software/AI strengths
 - building global teams with diverse perspectives



Closing thoughts

- embrace customer-centric mindset in innovation and for business decisions
- balance agility with long-term vision
- foster cross-cultural collaboration for global impact
- ((very) strategically and carefully) leverage AI to solve real-world industrial challenges



Thank You