SUNGHEE YUN
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Summary

I am Co-Founder & CTO @ Erudio Bio, Inc., CA, USA, Co-Founder & CEO @ Erudio Bio Korea, Inc., Korea, a KFAS-Salzburg Global Leadership Initiative Fellow @ Salzburg Global Seminar, Salzburg, Austria, an Adjunct Professor @ Sogang University, Seoul, South Korea, an Advisory Professor @ Daegu Gyeongbuk Institute of Science & Technology (DGIST), South Korea, Global Advisory Board Member @ Innovative Future Brain-Inspired Intelligence System Semiconductor of Sogang University, Network Expert @ Gerson Lehrman Group, Inc., Chief Business Development Officer (CBDO) @ WeStory.ai, CA, USA, and Advisor @ CryptoLab, Inc., CA, USA.

Before founding the new AI biotech company, I co-founded Gauss Labs, Inc., an industrial AI company, built and ran the US Headquarters of Gauss Labs, spearheaded research & development of the core technology & products. Before Gauss Labs, I drove various AI technology and product developments and productionizations in the field of e-Commerce @ Amazon.com, Inc. where one of the projects created a 200 USD revenue increase via the Amazon Mobile Shopping App. Before Amazon, I worked for Software Research Center, Strategic Sales & Marketing Team, Design Technology Team & Computer-Aided Engineering (CAE) Team of Samsung Semiconductor, Inc. where I developed diverse AI and optimization tools for semiconductor chip designers, manufacturing engineers & test engineers where more than 200 engineers still use the circuit optimization tools and generic AI optimization platform, dubbed iOpt, every day.

I received a BS degree in Electrical Engineering (EE) from Seoul National University (SNU), Seoul, South Korea and MS & Ph.D. degrees in EE from Stanford University, CA, USA under supervision of Prof. Stephen Boyd, who is a legendary figure in the field. (Having him as my advisor was one of the luckiest things that have ever happened to my life!)

I specialize in Artificial Intelligence (AI) and Convex Optimization leading cutting-edge projects across diverse sectors including semiconductor design, strategic marketing with market intelligence, e-commerce, industrial AI, and biotech while driving business development, connecting people, and consulting people in diverse industries. My focus is on leveraging the AI technology especially around AI agents which essentially based on the recent breakthroughs of large language models (LLM) and multimodal generative AI (GenAI) to drive business innovation, predict industry trends, assess their broad impacts on society, economy, and policy, provide policy and technology recommendations by understanding and having differentiated insight into technology, industry, business, and markets.

As the Leader of Silicon Valley Privacy Preserving AI Forum (K-PAI), I foster collaboration between industry leaders, researchers, and policymakers to advance responsible AI technologies and establish ethical frameworks for AI deployment across critical sectors including healthcare, finance, and biotechnology. K-PAI serves as a vital bridge connecting cutting-edge AI research with real-world applications, where my experience at companies like Erudio Bio, Gauss Labs, Amazon, and Samsung provides unique insights into the practical challenges of implementing secure and trustworthy AI solutions at scale. Through K-PAI's seminars, workshops, and policy discussions, I work to ensure that as AI systems become more pervasive, they are built with responsible design principles that balance innovation with societal benefits, particularly addressing the complex regulatory landscapes across the US, Europe, and Asia-Pacific regions where different technological standards and cultural expectations around AI governance create both challenges and opportunities for sustainable AI development that serves humanity's long-term interests.

As a KFAS-Salzburg Global Leadership Initiative Fellow, I develop actionable solutions for the challenges posed by a rapidly changing world by AI. My work focuses on "Technology, Growth, and Inequality: The Case of AI," within the broader theme of "Uncertain Futures and Connections Reimagined: Connecting Technologies." I also actively contribute to AI and semiconductor technology policy making, advising state and national governments while considering the geopolitical dynamics of key players like the US, China, Japan, Taiwan, and South Korea.

I also dedicate to fostering knowledge, insight, and experience transfer and innovation by serving as an Adjunct Professor of Department of Electronic Engineering @ Sogang University, Seoul, South Korea, an Advisory Professor of Department of Electrical Engineering & Computer Science (EECS) @ Daegu Gyeongbuk Institute of Science & Technology (DGIST), South Korea, and Global Advisory Board Member @ Innovative Future Brain-Inspired Intelligence System Semiconductor of Sogang University.

My life goal is to help build a future where humanity thrives through the advancement of health, safety, liberty, and equality—foundational elements that pave the way to genuine happiness.

Experience

Co-Founder & CEO - AI Technology & Biz Dev Erudio Bio Korea, Inc. Jul-2025 – Present

Co-Founder & CTO - AI Technology & Product Strategy Erudio Bio, Inc. Dec-2023 – Present

- AI Technology, and Product Strategy to develop and productionize AI-enhanced multiplomic multiplexing bio data platform

Advisor & Evangelist CryptoLab, Inc. Jan-2025 – Present

Chief Business Development Officer WeStory.ai Jan-2025 – Present

Leader Silicon Valley Privacy Preserving AI Forum (K-PAI) Oct-2024 – Present

KFAS-Salzburg Global Leadership Initiative Fellow Salzburg Global Seminar Aug-2024 – Present

- Address the challenges posed by our rapidly changing world in the working group, "Technology, Growth, and Inequality: The Case of AI" under the bigger theme "for Uncertain Futures and Connections Reimagined: Connecting Technologies!"

Network Expert Gerson Lehrman Gruop (GLG), New York City, U.S.A. Feb-2022 – Present

- Help clients solve their toughest business and technical challenges around manufacturing profit and sales improvement, e-commerce customer engagement level improvement, and AI technology in biotech industry

Adjunct Professor Electronic Engineering Department, Sogang University Mar-2020 – Present

Advisory Professor Information and Communication Engineering, DGIST Feb-2020 – Present

Global Advisory Board Member Innovative Future Brain-Inspired Intelligence System Semiconductor of Sogang University Aug-2020 – Present

- Consult on academic direction, industry trend in Silicon Valley, social scientific / ethical / legal issues of AI & special lectures and seminars

Co-Founder & CTO - Senior Fellow Gauss Labs, Inc., Palo Alto, CA. U.S.A May-2000 – Nov-2023

VP - Fellow SK hynix Sep-2020 – Jun-2021

- Drive technology innovation and business strategies & lead Gauss Labs US Headquarters in Silicon Valley

Senior Applied Scientist Amazon.com, Inc., Vancouver, BC, Canada Nov-2018 – Aug-2020

- AI for Mobile Shopping App Main Menu Personalization system creating revenue by 200MM USD
- TestBot AI agents patching and updating software test scenarios

Principal Engineer Software R&D Center, Samsung Electronics Dec-2016 – Jun-2017

- Decentralized Federated AI for Internet of Things (IoT)

Principal Engineer Strategic Sales & Marketing Team, Samsung Electronics Dec-2015 – Dec-2016

- AI for Sales Forecasting of world-wide NAND Flash and DRAM markets

Principal Engineer Design Technology Team, Samsung Electronics Mar-2012 – Nov-2015

- AI for Optimal Scheduling System for Test & Package Factories in Suzhou, China,
- Generic AI & Optimization Platform for automatization of semiconductor design & manufacturing

Senior Engineer CAE Team, Semiconductor R&D Center, Samsung Electronics Dec-2004 – Feb-2012

- NAND Flash Memory Core Operation Optimization achieving 10% accuracy improvement
- Generic Digital/Analog/Mixed-signal Circuit Optimization
- High density DRAM failure rate estimation achieving > 100X prediction time reduction

Research Assistant EE Department, Stanford University, CA, U.S.A. Mar-1999 – Nov-2004

- Multi-objective Logic Circuits Design using Convex Optimization

Development Engineer Voyan Technology, Santa Clara, CA, U.S.A. Sep-2000 – Aug-2001

- Digital Subscriber Line (DSL) Diagnosis & Length Adjustable Transmission Line Emulator

Education

Ph.D., Electrical Engineering, Stanford University, CA, U.S.A. Sep-2001 – Nov-2004

M.S., Electrical Engineering, Stanford University, CA, U.S.A. Sep-1998 – Jun-2000

B.S., Electrical Engineering, Seoul National University, Seoul, Korea Mar-1994 – Feb-1998

Honors and Awards

- Best Invention Award at Amazon.com, Inc. 2019
- Best Paper Award at Samsung Semiconductor Technical Paper Award 2011
- Best Paper Award at Samsung Group Best Paper Award 2005
- Best Paper Award at International Symposium on Quality Electronic Design (ISQED) 2005
- Full Scholarship from Samsung Electronics 2001–2004
- Samsung Frontier Membership 1999
- Ranked 2nd in the Ph.D. Qualifying Examination, Stanford University 1999
- Full Scholarship from Korean Foundation for Advanced Study (KFAS) 1998–2000
- Graduated with Honors - Magna Cum Laude, Seoul National University (SNU) 1998
- Full Scholarship from Seoul National University (SNU) 1994–1998
- Ranked 2nd in University Entrance Examination, Seoul National University (SNU) 1994
- Graduated with Honors - Summa Cum Laude, Seoul Science High School 1993
- Bronze Medal at Asian Pacific Mathematical Olympiad (APMO) 1992
- Silver Medal at Korea Mathematical Olympiad (KMO) 1992

Invited Seminars and Lectures

- "[Samsung AI Seminar] AI - Technologies, Industry Transformations, Societal Impacts, and Future Trajectories with Focus on Semiconductor Manufacturing Applications" invited by Foundry CMP Technology Team, Samsung Semiconductor 05-Mar-2025
- "[KAIST AI Seminar] AI in Action: Biotechnology and Industrial Applications" invited by Department of Mechanical Engineering @ Korea Advanced Institute of Science and Technology (KAIST) 28-Feb-2025
- "[Sogang University BK Intelligence System Semiconductor Invited AI Seminar] The AI Metamorphosis: From Silicon Valley to Global Society - Technology, Consciousness, and Human Impact" invited by Sogang University 26-Feb-2025
- "[K-PAI Seminar] The AI Knight Rises - From Deep Learning to Flourishing Societies" invited by Silicon Valley Korea Private AI Forum 22-Jan-2025

- "[Christmas Seminar] The AI Knight Rises - From Deep Learning to Flourishing Societies" hosted by Jisun in New York 27-Dec-2024
- "[Texas A&M Seminar / Intro to Semiconductor & Microelectronics] Industrial AI - Technological Innovations and Impacts on Semiconductor Manufacturing" invited by Texas A&M University 18-Oct-2024
- "AI for Fusion Biweekly Seminar: Industrial AI & Biotechnology - Technology, Market, and Future" invited by EnableFusion 08-Aug-2024
- "Applied Statistics Invited Seminar LLM & genAI - Technology, Industry, and Market" invited by Yonsei University 10-Jul-2024
- "Samsung Flash Design Team Invited Seminar - Industrial AI & its applications in manufacturing" invited by Samsung Semiconductor 27-Jun-2024
- "SNU CSE Invited Seminar - LLM & genAI - Technology, Industry, and Some Important Questions" invited by Seoul National University (SNU) 25-Jun-2024
- "BK Intelligence System Semiconductor Invited Seminar - LLM & genAI - Technology, Industry, and Some Important Questions" invited by Sogang University 24-Jun-2024
- "2024 LINC 3.0 + GSAI Joint Seminar - Industrial AI - Best Practices in Semiconductor Manufacturing" invited by Pohang University of Science and Technology (POSTECH) 19-Jun-2024
- "SAIT AIRC Seminar: LLM & getnAI - Technology, Business, and AI Markets" invited by Samsung Advanced Institute of Technology (SAIT) 24-Apr-2024
- "DGIST Seminar: LLM & getnAI - Technology, Business, and AI Markets" invited by EE Department of Daegu Gyeongbuk Institute of Science and Technology (DGIST) 06-Feb-2024
- "Cryptography Seminar: Industrial AI Technology in Manufacturing" invited by SNU Mathematics Department 02-Feb-2024
- "SNU Data Science (DS) Seminar: Industrial AI Technology" invited by Seoul National University (SNU) Data Science (DS) Graduate School 01-Nov-2023
- "Time-series Learning and Software Platform for Manufacturing AI" invited by EE Department of Daegu Gyeongbuk Institute of Science & Technology (DGIST) 23-Jun-2022
- "BK4 Seminar: Manufacturing AI Problems and Solutions" invited by Sogang University 13-Jun-2022
- "EE/CS Seminar: Manufacturing AI Problems and Solutions" invited by SNU EE/CS Departments 13-Jun-2022
- "Time-series Machine Learning in Manufacturing" invited by POSTECH 08-Apr-2022
- "AI Frontier Summit: AI in Manufacturing and Industry Areas" invited by Korean Institute of Communications and Information Sciences (KICS) Conference 2021
- "Special Lecture: Electrical Engineer in the age of AI" invited by Sogang University 26-Mar-2021
- "Future Creation Seminar: The Future of AI" invited by Amorepacific 20-Oct-2020
- "Introduction to AI and Machine Learning" invited by Consulate General of Republic of Korea @ Vancouver 17-May-2019
- "Reinforcement Learning and its Applications" invited by University of British Columbia (UBC) Sauder School of Business 26-Apr-2019
- "Convex Optimization for Machine Learning (ML)" invited by SNU EE Department 22-Aug-2018
- "Convex Optimization for Artificial Intelligence (AI)" invited by Amazon Machine Learning (ML) Meetings 02-Feb-2018
- "KCC Tutorial: Convex Optimization for Decentralized Machine Learning" invited by Korea Computer Congress (KCC) 2017 18-Jun-2017
- "Convex Optimization for Machine Learning" invited by Samsung Semiconductor DRAM Development Lab 2017

- "Convex Optimization for Machine Learning" invited by EE Department of Daegu Gyeongbuk Institute of Science & Technology (DGIST) 2017
- "Convex Optimization for Machine Learning" invited by EE Department of Ulsan National Institute of Science & Technology (UNIST) 2017
- "Introduction to Convex Optimization and its Applications" invited by Kyung Hee University 2013
- "Convex Optimization and its Applications" invited by Seoul National University (SNU) 2008
- "Circuit Design via Geometric Programming" invited by Seoul National University (SNU) 2005
- "Convex Optimization and its Application in Circuit Design" invited by Samsung Semiconductor Memroy Business Computer-aided Engineering (CAE) Team 2002

Publications

- Sangyoun Lee, Juho Jung, Changdae Oh, and Sunghee Yun. "Enhancing Temporal Action Localization: Advanced S6 Modeling with Recurrent Mechanism", https://arxiv.org/abs/2407.13078, 2024
- S. Zabrocki, P. Jo, C. Park, D. Yim, S. Yun, and B. Lee. "Adaptive Online Time-Series Prediction for Virtual Metrology in Semiconductor Manufacturing", 34th Annual SEMI Advanced Semiconductor Manufacturing Conference (ASMC), May 2023
- M. Karpusha, S. Yun, and I. Fehervari. "Calibrated neighborhood aware confidence measure for deep metric learning", (https://arxiv.org/abs/2006.04935), June 2020
- J. Lee, S. Yun, J. Kim, D. Kang, J. Kim, and S. Lee. "Multiple shift-vector importance sampling method using support vector machine and clustering for high-density DRAM designs", 17th International Symposium on Quality Electronic Design (ISQED), pp. 430–436, March 2016
- J. Jeon, I.H. Park, M. Kang, W. Hahn, K. Choi, S. Yun, G. Yang, K. Lee, Y. Park, and C. Chung. "Accurate compact modeling for sub-20-nm NAND Flash cell array simulation using the PSP model", IEEE Transactions on Electron Devices, Vol. 59, No. 12, pp. 3503–3509, December 2012
- S. Yun, I.H. Park, N.H. Lee, and J.K. Jeong. "New design methodology for efficient NAND Flash development using multiobjective evolutionary algorithm", Samsung Semiconductor Technical Paper Award, August 2011 (Best Paper Award)
- S.-J. Kim, S. Boyd, S. Yun, D. Patil, and M. Horowitz. "A heuristic for optimizing stochastic activity networks with applications to statistical digital circuit sizing", Optimization and Engineering, Vol. 8, No. 4, pp. 397–430, December 2007
- S. Yun, D.H. Kim, and S.H. Jung. "Statistical parameter estimation methodology for statistical circuit analysis", Samsung Group Paper Award, November 2005 (Best Paper Award)
- D. Patil, S. Yun, S.-J. Kim, A. Cheung, M. Horowitz, and S. Boyd. "A new method for design of robust digital circuits", 6th International Symposium on Quality Electronic Design (ISQED), San Jose, pp. 676–681, March 2005 (Best Paper Award)
- S. Boyd, L. Vandenberghe, A. El Gamal, and S. Yun. "Design of robust global power and ground networks", Proceedings ACM/SIGDA Symposium on Physical Design (ISPD), pp. 60–65, April 2001

Patents

- Systems and Methods for Process Monitoring and Control 2024
- Testbot AI agent: automatic software test scenario patch and modification system 2020
- Method of testing semiconductor memory device, test device, and computer readable recording medium for recording test program for semiconductor memory device 2017
- Method and system for designing 3D semiconductor package 2014
- Methodology for estimating statistical distribution characteristics of physical parameters of semiconductor device 2009
- Methodology for estimating statistical distribution characteristics of product parameters 2007

- Length adjustable transmission line emulators with simple RLC circuits 2001

Teaching Experience

Amazon Lecturer Machine Learning University, Amazon 2018–2020

- AI Mathematical Fundamentals, AI Data Science, Advanced Machine Learning Courses

Samsung Electronics Lecturer Samsung Electronics 2005–2017

- Convex Optimization for AI, Machine Learning & AI
- Numerical Linear Algebra for ML, Advanced Statistics

Teaching Assistant Stanford University 1999–2002

- Linear Dynamical Systems, Convex Optimization