

James Hun Kim (Junghun James Kim)

AI Researcher & Engineer

✉ jonghean12@snu.ac.kr | 🏠 jonghean11.github.io | 📧 jonghean11 | 📄 james-hun-kim-a4682b106 | 📍 Junghun James Kim

Summary

I am an AI researcher specializing in differentiable rendering, generative models, and 3D vision. My work focuses on building optimization-driven systems that connect research with large-scale production, covering scalable engineering and real-world deployment. At Samsung, I led the end-to-end development of a range of AI-powered camera features, from model design to commercialization, deploying real-time vision systems across smartphones, tablets, and foldable devices under strict latency, memory, and power constraints across diverse hardware environments. I am particularly interested in developing efficient and scalable AI systems that translate advanced research into production.

Work Experience

Samsung Electronics (MX)

Seoul, Republic of Korea

Visual AI Group

Jan. 2019 – Present

- Worked on Portrait Video (Jan. 2019 – Feb. 2025), a real-time AI-based video bokeh system supporting humans, pets, and objects across diverse camera configurations including single, dual, and ToF cameras.
- Led end-to-end development and commercialization.
- Deployed across multiple Galaxy product lines from Galaxy S10 5G to Galaxy S25.
- Developed core modules including detection, depth estimation, segmentation, tracking, and visual effects (Blur, Big Circle, Colorpoint, and Glitch).
- Solely planned, designed, and developed an on-device MLOps platform (Apr. 2024 – Feb. 2025) that automatically deploys and benchmarks every new model release on real devices, adapting to constantly changing Android OS, firmware, framework, and camera module environments, built across both Windows and Ubuntu systems.

Samsung Electronics (MX)

Seoul, Republic of Korea

Visual S/W R&D Group

Aug. 2017 – Dec. 2018

- Worked on Bixby Vision, an AI-based visual search system.
- Managed and scaled production systems for Shopping, OCR, and Landmark services.
- Deployed across multiple Galaxy product lines from Galaxy S8 to Galaxy Note 10.
- Established user-feedback-driven evaluation pipelines and survey frameworks for systematic preference analysis.

Samsung Electronics (MX)

Seoul, Republic of Korea

SE Team

Jul. 2016 – Aug. 2017

- Worked on SCM (Software Configuration Management), including version release management, firmware management, and Perforce-based version control workflows.
- Owned the full lifecycle from design through development of SimSimE, an automated release process system.
- Automated the firmware release pipeline, reducing required manpower from about 30 engineers to 3.

Publications

HyFL-CLIP: Hyperbolic Fine-Tuning of CLIP for Robust Long-Context Understanding

ECCV

Ji Ha Jang*, Hayeon Kim*, Chulwon Lee, Junghun James Kim, Se Young Chun (*co-first authored)

2026

A hyperbolic fine-tuning framework that distills the well-established image-text alignment of Euclidean CLIP into hyperbolic space via cross-manifold similarity distillation.

Human Interaction-Aware 3D Reconstruction from a Single Image

CVPR, Highlight

Gwanghyun Kim*, Junghun James Kim*, Suh Yoon Jeon*, Jason Park, Se Young Chun (*co-first authored)

2026

A holistic framework for reconstructing physically plausible, high-fidelity textured 3D humans from a single image, explicitly modeling group and instance level cues to handle perspective distortion, occlusion, and inter-human interactions.

DiffBMP: Differentiable Rendering with Bitmap Primitives

CVPR

Seongmin Hong*, Junghun James Kim*, Daehyeop Kim, Insoo Chung, Se Young Chun (*co-first authored)

2026

A scalable differentiable renderer for bitmap primitives that optimizes thousands of elements via a highly parallelized custom CUDA pipeline, enabling practical image/video composition, layered export, and artist-friendly creative workflows.

Uncertainty-guided Compositional Alignment with Part-to-Whole Semantic Representativeness in Hyperbolic Vision-Language Models

CVPR, Highlight

Hayeon Kim*, Ji Ha Jang*, Junghun James Kim, Se Young Chun (*co-first authored)

2026

An uncertainty-guided hyperbolic vision-language framework that models part-to-whole semantic representativeness via adaptive uncertainty, improving hierarchical compositional understanding and performance on zero-shot classification, retrieval, and multi-label classification.

One-Shot Item Search with Multimodal Data

arXiv preprint

Jonghwa Yim, Junghun James Kim, and Daekyu Shin

2018

A multimodal item retrieval method that jointly searches over image and text features rather than handling them separately, improving similar-item search on large-scale shopping datasets with only minimal additional computational overhead.

Patents

Electronic device and method for increasing resolution of digital bokeh image

Mar, 2024

US 20250272806, EP 4604568A4

An image processing method for digital bokeh photography that identifies blur-heavy regions around a user-selected subject and selectively increases local resolution for clearer portrait-style results.

Electronic device and method for generating image

Mar, 2023

US 2024/0314429, KR 10-2794879

An adaptive camera pipeline that switches between stereo and AI-based bokeh generation according to the subject, balancing image quality with lower power consumption and heat.

Electronic device for providing information on item based on category of item

Nov, 2022

US 11500918B2, KR 10-2734142

A category-aware visual retrieval method that matches a query item using both image features and hierarchical category labels, then re-ranks results with brand, logo, and attribute cues.

Electronic device, method, and computer-readable medium for providing bokeh effect in video

Feb, 2022

US 11258962B2, EP 3925206A4, CN 113647094B, KR 10-2835449

A multi-camera video bokeh method that tracks frame-to-frame subject distance and adaptively updates background blur regions to maintain stable, high-quality bokeh rendering in video.

Honors & Awards

Jul. 2026 **Representative Student of SNU**, Presented HUG3D at the 2026 Korea AI Innovation Talent Connect

COEX, Seoul

Jun. 2026 **3rd Place**, SNU IPAI Research Exchange Meeting (DiffBMP)

Seoul, Korea

May 2015 **Grant (KRW 50,000,000)**, Science & Engineering Startup Nurturing Program, a national grant by NIPA

Korea

May 2014 **Grant (KRW 100,000,000)**, Creative Challenge SW R&D Program, a national R&D grant by NIPA

Korea

Projects

Coachtroop

Outsourced

EID Studio

Aug. 2015 – Oct. 2015

An Airbnb-style coach (tour bus) rental platform for the UK, connecting bus rental companies with travel agencies and travelers; developed the user account and management system. (Java, Spring, MySQL)

Global Aptitude Test System

Outsourced

Samsung SDS

Aug. 2015 – Oct. 2015

An Android tablet app for a personnel management system, built by a three-member team. (Java, Android)

SmartVoca

Outsourced

EID Studio

Jul. 2015 – Sep. 2015

An Android app that helps students learn English vocabulary; built the backend server and the administrator website covering student account management and per-student learning statistics. (C#, ASP.NET, MS-SQL)

July 30, 2026

James Hun Kim · Curriculum Vitae

2

Quest

Samsung Electronics (DS)

Outsourced

Apr. 2015 – Aug. 2015

A web-based program that lets engineers manage their tasks in a waterfall process; developed both the client and the server. (Java, Spring, MySQL)

Excellizer

Samsung Software Membership

Startup Competition

Jun. 2015 – Jul. 2015

A solo-built Excel plugin that converts arbitrary web pages into spreadsheet tables; unlike existing tools limited to table tags, its engine detects table-like structures across all tags via depth and layout analysis, with a web viewer for parsing selected regions. (C#, VSTO, WinForm)

369 Flower

EID Studio

Outsourced

Jun. 2015 – Jul. 2015

A flower shopping mall service; extended features and helped with maintenance as an outsourced engineer. (ASP, MS-SQL)

WAU

Microsoft Student Partners

Microsoft Imagine Cup

Dec. 2014 – Feb. 2015

An emergency reporting service for violent crimes, spanning a Windows Phone app, a PC app, and custom Arduino hardware with an Azure backend. (C#, XAML, Arduino, Azure)

Expandable

Samsung Software Membership

Service Development

Dec. 2014 – Jan. 2015

A virtual desktop utility for Windows 7/8 with a map overview of running windows and fast task switchers; designed the object-oriented architecture and developed DWM Aero Peek customization, API hooking, and switchers. (C++, Win32 API, MFC)

Bean-box

Bean-box

Outsourced

Oct. 2014 – Dec. 2014

A web platform that helps coffee lovers, such as baristas and home roasters, get information about coffee; served as the first developer of the project. (C#, ASP.NET, MS-SQL, Azure)

Keep On Going

Samsung Software Membership

Service Development

Aug. 2014 – Sep. 2014

An Android app that helps civil-service exam candidates form and run study groups with chat, quizzes, and study timers; served as team leader and built the RESTful server and an asynchronous socket-based chat server. (Java, Android, MySQL)

Sullivan

Microsoft Student Partners

Microsoft Imagine Cup

Nov. 2013 – Feb. 2014

A Windows tablet app that helps visually impaired students learn from visual materials through voice guidance and vibration feedback with custom Arduino hardware; served as team leader for planning and development. (C#, XAML, C, Arduino)

Education

Seoul National University

M.S. in IPAI(Interdisciplinary Program in Artificial Intelligence)

Seoul, Republic of Korea

Mar. 2025 – Present

Hongik University

B.S. in Computer Science & Engineering

Seoul, Republic of Korea

Feb. 2016

References

Prof. Se Young Chun (Advisor)

Professor, ECE

sychun@snu.ac.kr

Seoul National University

Sunwoong Im

Principal Engineer

sunwoong.im@samsung.com

Visual AI Group, Samsung MX

Pandey Subash

Senior Engineer

pande.subash@samsung.com

Visual AI Group, Samsung MX