

Sanghyun Byun

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MAIN RESEARCH INTERESTS

4D Reconstruction - 3D Semantic Reconstruction - VLM - Feature Descriptor - Medical AI

EDUCATION

M.S. Computer Science - Artificial Intelligence, University of Southern California (USC) May 2025
Los Angeles, California, USA

B.S. Computer Science and Engineering, University of California - Irvine (UCI) Jul 2023
Irvine, California, USA

RESEARCH EXPERIENCE

AI Researcher May 2024 - Present
Emerging Tech Department - LG Electronics (*Supervisor: Dr. Woo Seong Chung & Jacob Song*) *Santa Clara, CA, USA*

- Researched audio-facial-sync involving real-time pose estimation and blending. (*Description limited by NDA*)
- Led sub-1% error real-time indoor-scene reconstruction project. (*Description limited by NDA*)
- Co-headed multi-purpose AI agent project through leveraging multi-agent systems. (*Description limited by NDA*)

Graduate Research Assistant Feb 2024 - Apr 2024
University of Southern California *Los Angeles, CA, USA*

- Developed ICP-based propagation algorithm for projecting 2D Grounded SAM labels onto dense point clouds of the USC campus with 10 billion COLMAP points from 360 drone camera footage to form movable 3D assets.

Undergraduate Researcher Nov 2021 - Jul 2023
University of California - Irvine (*Supervisor: Prof. Aditi Majumder*) *Irvine, CA, USA*

- Designed a novel rectification preprocessing layer for predicting cleft facial landmarks given a few images in cooperation with UCI Medical surgeons, achieving a 39.3% error reduction.
- Deployed an online annotation tool for labeling images with 21 craniofacial cleft key points.

PUBLICATIONS

Byun, S., Ibrahim, M.T., Gopi, M. Majumder, A., Sayadi, L.R., Hamdan, U.S., and Vyas, R.M. “Automated Landmark Detection for AR Based Craniofacial Surgical Assistance System,” *International Conference on Artificial Intelligence and Virtual Reality (AIVR)*, Jul. 2023. [[Link](#)]

PROFESSIONAL AFFILIATION

IEEE HKN Zeta-Omega Member Jan 2020 - Present

OTHER EXPERIENCE

Controls Lead

Aug 2022 - Jun 2024

UCI CanSat

Irvine, CA, USA

- Implemented robust flight software on STM32 PCB, incorporating multiple fail-safes through monitoring numerous sensors to ensure reliability in the event of signal disruptions given an estimated max height of 1km.

Software Development Intern

Jun 2021 - Aug 2022

OptumRx

Irvine, CA, USA

Worked in a cross-functional team to optimize internal data pipelines.

- Created a portable VM benchmark for network and distributed computing evaluation, reducing test time by 85%.
- Built automatic renewal for internal SSL, reducing the risk of an outage by 95% from a manual system.
- Enhanced the information-update pipeline by implementing a lightweight React web service, handling over 100 daily updates related to significant regional legal changes and customer practice modifications.

Co-Founder (Technical CFO)

Nov 2021 - Jun 2022

Foodpool

Irvine, CA, USA

- Managed a team of 13 to deliver nightly deployment, review site analytics, and grow social media.
- Founded a food delivery startup aimed at college communities, leveraging carpooled delivery to cut up to 80% of costs compared to mainstream services like Doordash and Uber Eats.
- Deployed REST API with Rust/AWS RDS backend to Heroku for storefront web applications.

HONORS AND AWARDS

9x Dean's Honor List, University of California - Irvine

Sep 2019 - Jun 2023

2nd Place in Butterworth Design Competition, University of California - Irvine

May 2022

SKILLS

Tech Stack

CUDA	PyTorch	Tensorflow	ONNX	OpenCV	AWS Lambda	React
REST API	React	XCode	STMCube	Android Studio		

Programming Languages

Python3	CUDA	C++	C	Java	Javascript	Rust
Bash	Powershell	R	Swift			

Languages

English (Native)	Korean (Native)	Japanese (Conversational)
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