

Project Portfolio: Jeayoung Jeon

MLOps/DevOps and AI Engineer (Updated at 2024-12-27)

NOTE

My name is Jeayoung Jeon [전제영], and I'm an MLOps engineer in Seoul, South Korea. I also specialize in:

- 🚀 Developing **MLOps (APIs, Pipelines)** and **AI/LLM Platforms** in cloud-native environments.
- 🏠 Building **Hybrid Kubernetes Clusters** for **High Availability** and **GPU Cost Reduction**.
- 🧠 Contributing decisions for **MLOps/DevOps** using backgrounds in **ML, Computer Vision, Automotive**.

I'm always open to new challenges and opportunities for various fields including **ICT, AI, and Automotives**. Please feel free to contact me. If you're looking for my brief resume and works, please see my [resume](https://jyje.live/profile/resume) and [portfolio](https://jyje.live/works).

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🐙: [Github](http://github.com/jyje)

📦: [StackShare](https://stackshare.io/jyje/jyje-pro-stack)

Work

Mar 2024 – Nov 2024 (9 Months)

👤 **Intermediate Software Engineer [책임연구원] at MAXST** (<https://maxst.com/ENG/main>)

Roles: Lead MLOps/DevOps Engineer at Technology Division, MAXST

- **MLOps** Developing ML APIs, data pipelines, and AI Platforms for research team using open sources.
- **LLMOps** Building chatbots using self-hosted RAG+LLM systems for internal documents.
- **SRE** Site reliability engineering for web services. Service reliability engineering for ML workloads.

Jan 2021 – Feb 2024 (3 Years and 2 Months)

👤 **Software Engineer [선임연구원] at MAXST** (<https://maxst.com/ENG/main>)

Roles: Associate Researcher and DevOps Engineer at Technology Division, MAXST

- **Algorithm Research** Reviewing computer vision algorithms in state-of-art papers and implementing prototypes
- **Hybrid Clusters** Building hybrid clusters with AWS EKS and on-premise Kubernetes for digital twin project
- **DevOps** Building on-premise clusters and data pipelines for company's inbound/outbound projects

Mar 2012 – Aug 2020 (8 Years and 6 Months)

👤 **Graduate Student Researcher in Computer Vision at POSTECH** (<https://eee.postech.ac.kr/>)

Roles: Ph.D Integrated Student at Department of Electrical Engineering, POSTECH

- **Computer Vision** Research on hyperparameters for accurate and efficient computer vision algorithms
- **Automotives** Principal computer vision technologies for autonomous driving including ADAS and SLAM; Participated in the development of the Korean government's ADAS research projects
- **FPGA** Efficiently implemented computer vision and machine learning algorithms with real-time parallel matrix processing; SoC-type GPU/NPU accelerator

Projects



Jan 2024 – Oct 2024 (10 Months)

Widearth: Digital Twin & AR Content Platform at Widearth, MAXST (<https://widearth.world>)

Roles: Lead ML/Infra Roles ~ MLOps/DevOps + ML Backend + SRE [contrib 75%]

- **DevOps & SRE** IaC, GitOps, CI/CD Pipelines, Monitoring, Logging, Notifications, Multi-Deployment, Emergency Response
- **Hybrid Clusters** Public Cloud + On-Premise Kubernetes, API Gateway Pattern, Dynamic VMs, GPU Cost Optimization
- **ML Workloads** ML APIs, ML Pipelines, Data Lakes, Dockerizing, Model CI/CD

Results: Service Launch ~ Small Team, Full Features, More Availability, Less Cost

- **Launch** Launched/Operated a platform as 1 **infra engineer** with 15 people, 8 developers in 10 months.
- **Low Cost** Reduced cloud costs by **15M KRW (70%)** by using hybrid clusters for **300+ maps**.
- **Robust Infra** Achieved **96% availability/year and 14d downtime** using hybrid clusters and damage control.

Skills: Skill Stack for Project Widearth

AWS EKS **Kubespray** **Python/FastAPI** **Argo Workflows** **Argo CD** **Bitbucket Pipelines** **Karpenter**

Jan 2024 – Jun 2024 (6 Months)

MLOps: On-Premise MLOps with Open Source Projects at MAXST (<https://maxst.com/ENG/main>)

Roles: Lead MLOps Engineer ~ Planning + VoC + PoC + ML Workloads/Infra + Operation [contrib 90%]

- **Kubeflow** Integrated Argo Workflows; AutoML, Distributed Training, Model Registry; 16 GPUs Acceleration
- **JupyterHub** Integrated JupyterHub with IDE; Remote GPU Notebook, 4 GPUs Acceleration
- **VectorDB** Milvus, ChromaDB, RAG+LLM Chatbot
- **ML Infra** Setup CI/CD, NAS, Data Lake, Image Registry for ML Workloads

Results: Improved research environment and resource management ~ Increased availability and capacity by merging resources and automating management.

- **Improved Env.** Consolidated servers managed by researchers into k8s to stable infra capacity and stability; Decision-making using PoC.
- **AI Platform** Expanded from VoC of 2 researchers, gradually increased users to 10. Resolved technical debt through continuous MLOps upgrades.
- **GPU Utilization** GPU usage increased by **3 times** and successfully commercialized as a result of performing over **800** AutoML experiments

Skills: Skill Stack for On-Premise MLOps

Kubeflow **Katib** **Training Operator** **Model Registry** **JupyterHub** **Argo Workflows** **Milvus** **ChromaDB** **Ollama** **Open WebUI** **Grafana Stack**
TensorBoard

Dec 2022 – Dec 2023 (13 Months)

DevOps: Hybrid Clusters for Internal/External Projects at MAXST (<https://maxst.com/ENG/main>)

Roles: DevOps Engineer ~ Hybrid Clusters + CI/CD + Chatbot + Data Pipelines [contrib 50%]

- **Hybrid Clusters** Public Cloud, On-Premise Kubernetes, Multi-Cluster, API Gateway, IaC, GPU Operator
- **CI/CD** Public CI Platform, On-Premise Custom CI, GitOps CD, ChatOps for Results/Issues
- **Pipelines** Data Pipelines for ML Research, Production Pipelines for ML Inference

Results: Hybrid Cluster Initiation ~ Increased On-Premise Resource Utilization + Reduced Public Resource Costs + DevOps Culture Propagation

- **Cost Reduction** Maintained public availability while reducing costs by **50%** compared to pure cloud infrastructure using on-premises cost-effectiveness.
- **Resource Utilization** Utilized **90% of idle on-premises resources**, provided multi-cluster for prototyping in other departments
- **DevOps Culture** Introduced cloud-native development environment. Propagated DevOps culture including app modernization and CI/CD. Decision support through monitoring.

Skills: Skill Stack for DevOps and Hybrid Cluster

Kubernetes **AWS EKS** **IaC** **Ansible** **Terraform** **CI/CD** **Bitbucket Pipeline Runners** **Argo CD** **Argo Workflows** **Python/FastAPI** **Python/Bolt (Slack)**

Jan 2021 – Dec 2022 (2 years)

 **Computer Vision Engineer at MAXST** (<https://maxst.com/ENG/main>)

Roles: Associate Researcher ~ Algorithm research for digital twin systems and prototyping [contrib 50%]

- **Digital Twins** Digital twin system implementation using algorithms for converting perspective and 360 images to 3D space.
- **AR/XR** Camera calibration and AR/XR prototype development for various smart glasses
- **Automation** Development of automated pipelines for data acquisition and analysis
- **Military Service** Engaged in position related to graduate school majors and performed alternative military service.

Results: Development of computer vision algorithms and construction of digital twin systems

- **Digital Twins** Research and development of Visual-SLAM and ICP algorithms for digital twin systems
- **Automation** Development of automated pipelines for data acquisition and analysis

Skills: Skill Stack for computer vision research

Computer Vision Visual-SLAM SfM ICP Python OpenCV .NET/C# Unity

Jan 2012 – Aug 2020 (8 Years)

 **Computer Vision and ADAS Researcher (Integrated Program) at POSTECH** (<https://eee.postech.ac.kr/>)

Roles: Graduate Student Researcher ~ Computer Vision and ADAS Research [full-time]

- **2018-2020** *Computing and Control Engineering Lab. (Prof. SH, Han)*
Digital Twins and Simultaneous Localization and Mapping (SLAM) Research
 - Visual-SLAM Research using Multiple Cameras for Autonomous Driving
 - Prototyping of Digital Twins for ADAS and SLAM
 - Virtual Visual-SLAM for Real-World Environments
- **2012-2018** *Advanced Signal Processing Lab. (Prod. H, Jeong)*
Advanced Driver Assistance Systems (ADAS) and Edge Computer Vision Research
 - High-Performance, Efficient FPGA Implementation of ADAS
 - High-Speed Algorithm Development for Traffic Signs and Road Terrain Detection
 - Research on Stereo Vision Algorithm for 3D Depth Estimation
 - Stereo Vision-based Online Calibration for Vehicle Cameras
 - Optimization Algorithm Research for Computer Vision using Cost Aggregation Table

Results: Projects and Research Papers ~ Studying on Automotive Simulations in Virtual Environments and ADAS On-Edge.

- **Digital Twins** Virtual Visual-SLAM for Real-World Environments
- **Edge ADAS** Research of ADAS including Traffic Sign Detection & Lane Terrain Detection with FPGA

Skills: Skill Stack for Computer Vision and ADAS Research

Computer Vision Digital Signal Processing Automotives Autonomous Driving Advanced Driver Assistance Systems (ADAS)
Finite Programmable Gate Array (FPGA) Traffic Sign Detection Lane Terrain Detection MATLAB/Simulink C/C++

Skills



NOTE

Here are my skills and highlighted items are industry-ready.

MLOps & LLMOps :

Ollama OpenAI API RAG AutoRAG Kubeflow AutoML Katib Training Operator JupyterHub Data Pipelines

DevOps & SRE :

Kubernetes On-Premise AWS EKS GCP GKE Hybrid Clusters ARM64 IaC Kubespray Terraform Ansible Istio Grafana Stack Karpenter

CI/CD/CT/CT :

Argo Projects Bitbucket Pipelines GitHub Actions Self-Hosted Runner Kaniko Buildah Locust Litmus

ML Backend :

Python/FastAPI Ollama Milvus PostgreSQL Redis

Computer Vision :

Automotives SLAM PyTorch OpenCV FPGA

UI/UX :

Slackbot Python/FastUI Open WebUI Chainlit .NET/MAUI .NET/WPF Unity

FinOps & BizOps :

Kubecost Continuous BI

Programming languages :

Python .NET/C# C/C++ MATLAB

Education



Mar 2012 – Aug 2020

Master's Degree (Integrated Program) in Department of Electrical Engineering, Signal Processing & Computer Vision from Pohang University of Science and Technology (POSTECH) with GPA of 3.2/4.3

- Thesis: *Virtual Visual-SLAM for Real-World Environments, 2020*

Mar 2008 – Feb 2012

Bachelor's Degree in School of Electronic Engineering, Electronic Communication from Kumoh National Institute of Technology (KIT) with GPA of 4.3/4.5

- Thesis: *A Study on a Visible Light Communication using LED in Under-water Environment, 2011*

Awards



May 2014

Altera Design Contest 2014, Excellence Prize from Intel-Altera Korea

[System] *FPGA, Vision-Based Driver Support Navigation System*

May 2014

Best Poster Session in Workshop from KYUTECH-POSTECH Joint Workshop

[Poster] *Iterative Polygon Detection using Harris Corner Space Method for Finding Traffic Signs*

May 2013

Altera Design Contest 2013, 2nd Prize from Intel-Altera Korea

[System] *FPGA, Vision-Based Traffic Sign Recognition System*

Feb 2012

Highest Honors in Undergraduate School from Kumoh National Institute of Technology

[Summa Cum Laude] *Highest Honors in Undergraduate Electronic Engineering School*

Jan 2012

NAVER Power KiN 2011 (<https://m.site.naver.com/1y6qP>) from NAVER

[Activity] *Knowledge Export in `Electronics Engineering, Mathematics and Programming fields`. Active 2009-2011, Selected as a MVP in 2012 / Total number of answers 723, Selection ratio 98.1%*

Publications



Jul 2020, POSTECH, Thesis (1st)

Virtual Visual-SLAM for Real-World Environments (<http://postech.dcollection.net/common/orgView/200000341295>) by **Jeayoung Jeon**

Nov 2014, ISVC, Advances in Visual Computing, 10th International Symposium (2nd)

Cost Aggregation Table: Cost Aggregation Method Using Summed Area Table Scheme for Dense Stereo Correspondence

(https://doi.org/10.1007/978-3-319-14249-4_78) by **JeongMok Ha, Jeayoung Jeon, GiYeong Bae, SungYong Jo & Hong Jeong**

Oct 2014, ICCAS, 14th International Conference on Control, Automation and Systems (1st)

Polygonal symmetry transform for detecting rectangular traffic signs (<https://doi.org/10.1109/ICCAS.2014.6987934>) by **Jea Young Jeon, JeongMok Ha, Sung Yong Jo, Gi Yeong Bae, Hong Jeong**

Apr 2011, ICS-KIEE (1st, equivalent)

A Study on a Visible Light Communication using LED in Under-water Environment (<https://www.dbpia.co.kr/Journal/articleDetail?nodeId=NODE01951197>) by **Daehee Lee, Ki-Sung Park, Jea-Young Jeon, Yeon-Mo Yang**

Certifications



Nov 2024 (Expired in Nov 2027)

GitHub Foundations (<https://www.credly.com/badges/876fa6b3-0b27-4ddf-bbb3-a9d853918566>) from **GitHub**

Sep 2024 (Expired in Sep 2026)

CAPA: Certified Argo Project Associate (<https://www.credly.com/badges/ee42c2c7-2ac3-411f-8713-cc26cbec8022>) from **The Linux Foundation**

Jun 2024 (Expired in Jun 2026)

CKAD: Certified Kubernetes Application Developer (<https://www.credly.com/badges/9e072a3a-57d0-403e-8bef-5831d618675c>) from **The Linux Foundation**

Mar 2024 (Expired in Mar 2027)

CKA: Certified Kubernetes Administrator (<https://www.credly.com/badges/d944bde7-222a-4ce5-b4e6-4e6c84df0ef8>) from **The Linux Foundation**

Interests



Research/Dev :

Agentic RAG Digital Twins AMD-to-ARM Transition Hybrid Clusters

DevOps Culture :

Coop First, Tech Next Automate as Possible Internal Development Platform

Home Clusters :

Raspberry Pies Personal RAG Live Demo

Languages



Korean :

Native

English :

Working Proficiency