

Résumé: Jeayoung Jeon

MLOps and Cloud-Native Engineer (Last modified at 2024-07-24)



SUMMARY

My name is Jeayoung Jeon [🇰🇷 전제영], and I'm a software engineer in South Korea.
Currently, I'm working at **MAXST** as an **MLOps**, **DevOps**, and **Cloud-Native Software Engineer**. I also specialize in:

- 🛠️ Developing **Digital Twin Platforms** using **Cloud-Native APIs** and **ML pipelines**.
- 🌐 Building **Hybrid Kubernetes Clusters** with **On-Premise** and **Public Cloud**.
- 👥 Creating **Team Services** to enhance productivity through **GitOps**, **ChatOps**, and **Argo Workflows**.
- 🔗 Leveraging background in **Computer Vision**, **Automotives**, and **ML** to contribute DevOps and decision aligned with business objectives.

I'm trying to identify the best practices to bridge **team culture** and **new technologies**. And also, I'm balancing **performance** and **cost reduction** optimally.
From my experience and achievements, I hope to have a good career. For more details, please visit my **portfolio** (<https://jyje.live>).

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- 🌐 : **LinkedIn: jyje** (<https://www.linkedin.com/in/jyje>)
- 🎓 : **Google Scholar: Jeayoung Jeon** (<https://scholar.google.com/citations?user=gwCPQM8AAAAJ>)

- 🐙 : **Github** (<http://github.com/jyje>)
- 📦 : **StackShare** (<https://stackshare.io/jyje/jyje-pro-stack>)

Projects

Jan 2024 – Jul 2024 (7 Months)
Widearth: Digital Twin Platform with Spatial Map & AR Contents at MAXST (<https://maxst.com/ENG/main>)

- Results: Built Hybrid Clusters, ML Pipelines, and CI/CD Pipeline [contrib 75%+]**
- Robust Hybrid Cluster** Achieved '96% availability/year and 50% costdown' using hybrid multi cluster
 - ML Pipeline** Designed **ML APIs and data pipelines** in the multi-cluster environments. Reduces costs of the public cloud by 50%.

- Roles: Development of ML pipelines, APIs and Infrastructure**
- DevOps** Designed CI/CD pipelines for web servers and ML workloads. Set **dev/test/prod** environments with GitOps.
 - Hybrid Cluster** Built hybrid clusters with AWS EKS and bare-metal Kubernetes. The ML pipelines are executed on on-premise clusters to optimize GPU costs. Backup pipelines are configured on EKS to increase availability.
 - ML Pipeline & API** Designed Argo Workflows based ML data pipelines to generate spatial maps. Developed cloud-native API endpoints managing lifecycle of pipelines.

Skills: Core Skills for Project Widearth (<https://widearth.world>)

AWS EKS Karpenter Python FastAPI Argo Workflows Argo CD

Jan 2024 – Apr 2024 (6 Months)
On-premise MLOps with the Latest Open Source Projects at MAXST (<https://maxst.com/ENG/main>)

- Results: Improve GPU utilization for AI research using Argo Workflow, Kubeflow, and JupyterHub [contrib 90%+]**
- MLOps** Applied latest open sources to improve the on-premises research environment.
 - GPU Utilization** Via 24/7 GPU usage, Increased GPU utilization by 3 times and conducted more than 800 AutoML experiments.

- Roles: Built Core MLOps Platform using CNCF Open Source Projects**
- AutoML** Making AutoML tuning hyperparameters with Katib and Argo Workflows without pre-build.
 - Distributed Training** Developing distributed learning environments using Kubeflow Training Operator.
 - JupyterHub** Generating On-Demand JupyterNotebook to distribute resources for ML researchers.

Skills: Core Skills for On-Premise MLOps

Kubeflow/Katib Kubeflow/Training Operator Argo Workflows Grafana TensorBoard

Skills

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

- MLOps & LLMOps :**
- Kubeflow Data Pipeline AutoML Katib
- Training Operator JupyterHub PyTorch
- OpenCV Ollama RAG

- DevOps :**
- Kubernetes Argo Workflows AWS EKS
- Kubespray IaC Terraform Ansible
- Grafana Karpenter

- GitOps :**
- CI/CD Argo CD Bitbucket Pipelines
- GitHub Actions Kaniko Docker/Multi-stage
- Slackbot

- Application Development :**
- Python/FastAPI Unit Testing .NET/WPF
- .NET/MAUI Unity

- Programming languages :**
- Python Go C# C/C++ MATLAB

- Tools :**
- Visual Studio Code Visual Studio
- Jupyter Notebook MATLAB/Simulink

- OS and Hardware :**
- Windows WSL2 Ubuntu Alpine MacOS
- ARM64/Raspberry Pi AMD64/Bare Metal FPGA

Jan 2023 – Dec 2023 (12 Months)

Hybrid Cluster DevOps with Chatbot and CI/CD at MAXST (<https://maxst.com/ENG/main>)

Results: Developed Hybrid Clusters using AWS EKS and On-Premise [contrib 75%+]

- Hybrid Achieved 50%+ cost reduction compared to pure cloud infrastructure using on-premises cost-effectiveness.
- DevOps Culture Propagation of DevOps culture including app modernization and CI/CD. Decision support through monitoring.

Roles: Development of Hybrid Clusters, CI/CD Pipelines, and Chatbot

- Hybrid Cluster Built a hybrid cluster with AWS EKS and on-premise Kubernetes. GPU workloads are executed on on-premise clusters to optimize costs. Web and backup workloads are configured on EKS to increase availability.
- IaC IaC with Terraform and Ansible to manage the cluster infrastructure: Terraform to set up AWS EKS cluster. Ansible-based Kubespray to set up on-premises cluster.
- CI/CD Configured fast CI for collaboration using Bitbucket Pipeline. Configured high-performance custom CI using on-premises Argo Workflows. Implemented CD using GitOps with Argo CD and Slackbot. IaC was also configured as CI/CD and pipeline to set up declarative infrastructure.

Skills: Core Skills for Hybrid DevOps

Kubernetes Argo Workflows AWS EKS IaC Terraform Python/FastAPI Python/Bolt (Slack)

Jan 2021 – Dec 2022 (2 years)

Digital Twin Research Engineer at MAXST (<https://maxst.com>)

Results: Algorithm research for digital twin systems [contrib 50%]

- 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

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

- Visual-SLAM & SfM Developed digital image processing algorithms for Visual-SLAM and SfM. Constructed a digital twin system using image processing algorithms.
- Technical Research Personnel Engaged in computer vision positions related to graduate school majors and performed military alternative service.

Skills: Core skills for digital twin research

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

Jan 2012 – Aug 2020 (8 Years)

Digital Signal Processing and ADAS Researcher (Integrated Program) at POSTECH

(<https://eee.postech.ac.kr/>)

Results: Studying on Automotive Simulations in Virtual Environments and ADAS On-Edge.

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

Roles: Studying and researching in the field of digital signal processing and computer vision

- 2018 - 2020 Computing and Control Engineering Lab. (Prof. SH, Han)
 - Thesis: Virtual Visual-SLAM for Real-World Environments (https://postech-primo.hosted.exlibrisgroup.com/permalink/ff1031dvf/82POSTECH_INST21232402040003286)
- 2012 - 2018 Advanced Signal Processing Lab. (Prod. H, Jeong)
 - Real-Time Advanced Driver Assistance Systems using FPGA
 - Research on Traffic Sign & Lane Terrain Detection
 - 1st Author: Polygonal symmetry transform for detecting rectangular traffic signs (IEEE ICASS 2014) (<https://ieeexplore.ieee.org/abstract/document/6987934>)
 - Research on Stereo Vision & Markov Random Fields
 - 3rd Author: Cost aggregation table: A theoretic derivation on the Markov random field and its relation to message passing (IEEE ICIP 2015) (<https://ieeexplore.ieee.org/abstract/document/7351196>)

Skills: Core Skills for ADAS Research

Computer Vision Digital Signal Processing Markov Random Fields ADAS Traffic Sign Detection
Lane Terrain Detection MATLAB/Simulink C/C++

Interests



Edge :

Raspberry Pi Cluster

Cluster Optimization :

Karpenter

BI using Grafana (PLG)

CNCF Projects :

Kubeflow

Argo Projects

Languages



Korean :

Native

English :

Working Proficiency

Work



Mar 2024 – present

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

Roles: Developed On-Premise Clusters Providing MLOps for Technology Division in MAXST

- MLOps Developing on-premise clusters providing MLOps for the AI team.
- DevOps Building hybrid clusters with AWS EKS and bare-metal Kubernetes.
- Hybrid Building on-premise clusters with IaC tools such as Ansible and Kubespray.

Skills

Kubernetes On-Premise AWS Argo Workflows Data Pipeline CI/CD Computer Vision OpenCV

Jan 2021 – Feb 2024 (3 Years)

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

Roles: Associate R&D Engineer for Technology Division in MAXST

- Algorithm Research Reviewing computer vision algorithms in state-of-art papers and implementing prototypes.
- DevOps Building hybrid clusters and providing data pipelines for digital twins.
- Technical Research Personnel Serving as a substitute for military service for 3 years, engaging in the industry in the related field of computer vision major.

Skills

Kubernetes On-Premise AWS Argo Workflows Data Pipeline CI/CD Computer Vision OpenCV

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

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

Certifications



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