Résumé: Jeayoung Jeon

MLOps and Cloud-Native Engineer (Last modified at 2024-09-08)

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:

- 👨‍🔧 Contributed to the launch of a **Digital Twin Platform** project by developing **Cloud-Native APIs** and **ML Pipelines**.
- 🐳 Developing and operating a **Hybrid Kubernetes Cluster** for **High Availability** and **GPU Cost Reduction**.
- 👨‍🔧 Supporting **Internal Services** and **Deployment Cycles** using **MLOps/DevOps**.
- 💂 Leveraging background in **Computer Vision, ADAS, and ML** to contribute DevOps and decision aligned with business objectives.

I'm passionate about **collaboration culture** and **automation** that can achieve the **best results** with **fewer people**. And I'm looking for the **best way** to achieve both **performance improvement** and **cost reduction**. Based on my experience and achievements, I hope to have a career that grows with the company. For more details, please visit my **portfolio** (https://jyje.live) .

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in : **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)

Roles: Development of ML pipelines, APIs and Infrastructure

- DevOps Designed CI/CD pipelines for web servers and ML workloads. Set git-flow environments with GitOps and led decision-making for deployments.
- 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.

Results: 'Contribute Dev & Ops' ← Built Hybrid Clusters, ML Pipelines, and CI/CD Pipeline [contrib 75%+]

- **Main DevOps** Manage CI/CD for **Widearth** (https://widearth.world) project. Leading **40+ deployments** for **3 months**.
- **Robust Hybrid Infra** Achieved **'96% availability/year and 14d downtime'** using hybrid clusters and DevOps support.
- **ML Pipeline** Designed **ML APIs and data pipelines** in multi-clusters. Reduces costs of public cloud by **50%**.

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

AWS EKS | Karpenter | Python FastAPI | Argo Workflows | Argo CD

Jan 2024 – Apr 2024 (6 Months)

👨‍🔧 MLOps: On-premise MLOps with the Latest Open Source Projects at MAXST (https://maxst.com/ENG/main)

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.

Results: 'Initiate MLOps' ← Improve GPU utilization for AI research using Kubeflow, JubeterHub [contrib 90%+]

- **MLOps** Applied latest open sources to improve the on-premises research environment.
- **GPU Utilization** Increased GPU utilization by **3 times** and conducted more than **800 AutoML experiments**.

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 | C# | C/C++ | Go | 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)

👨‍🔧 DevOps: Development of Hybrid Clusters Providing CI/CD and Chatbot at MAXST (https://maxst.com/ENG/main)

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.

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

- **Robust Hybrid Cluster** 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.

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)

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.

Results: 'Proof of Concepts' ← 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

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/)

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/f/1031dvf/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)

Results: 'R&D' ← 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: 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**