Résumé: Jeayoung Jeon

MLOps and Cloud-Native Engineer (Last modified at 2024-08-05)

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 daily growing career. 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)

👷 Project 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 Infra Achieved '**96% availability/year and 50% costdown**' using hybrid multi cluster
- ML Pipeline Designed **ML APIs and data pipelines** in multi-cluster environments. Reduces costs of 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)

👨‍🏭 MLOps: 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 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 | 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)

Results: 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.

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/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)

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**