Résumé: Jeayoung Jeon

MLOps and Cloud-Native Engineer (Last modified at 2024-10-12)

SUMMARY

My name is Jeayoung Jeon [^{10]} 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. I'm always looking for the optimal 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 $\label{eq:continuous} \textit{details, please visit my } \textbf{portfolio}_{\textit{(https://jyje.live)}} \, \textit{and } \textbf{blog (Korean)}_{\textit{(https://blog.jyje.live)}} \, .$

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 - Oct 2024 (10 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 onpremise 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

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 Developed a platform for managing on-demand Jupyter Notebooks, allowing researchers to instantly configure their required research environment.

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 onpremise clusters to optimize costs. Web and backup workloads are configured on EKS to increase availability.
- IaC laC 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 onpremises 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://postechprimo.hosted.exibirisgroup.com/permalink/l/1031dv/l/82P0STECH_JNST21232402040003286)
- 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.leee.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)

$Results: 'R\&D' \leftarrow Studying \ on \ Automotive \ Simulations \ in \ Virtual \ Environments \ and \ ADAS \ On-Edge.$

- 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++

Edge: Raspberry Pi Cluster Cluster Optimization: Karpenter BI using Grafana (PLG)

Languages

CNCF Projects:

Kubeflow Argo Projects

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Korean : Native
English : Working Proficiency



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 Architecting and optimizing on-premise Kubernetes clusters to deliver comprehensive MLOps solutions
- DevOps Building hybrid clusters with AWS EKS and bare-metal Kubernetes. Participated in projects as a DevOps role, contributing to service launches. Propagated DevOps culture, including CI/CD configuration and app modernization.
- Hybrid Implemented and operated hybrid clusters combining AWS EKS and on-premises Kubernetes. Built on-premises
 clusters using Ansible and Kubespray, and configured AWS EKS clusters using Terraform.

Skills

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

Jan 2021 - Feb 2024 (3 Years)

iii 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

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-5831d618675e) 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