Résumé: Jeayoung Jeon

MLOps and Cloud-Native Engineer (Last modified at 2024-08-06)

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:

- 1 Developing Digital Twin Platforms using Cloud-Native APIs and ML pipelines.
- Building Hybrid Kubernetes Clusters with On-Premise and Public Cloud.
- Reading 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).

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)

Proiects

Jan 2024 - Jul 2024 (7 Months)

Project Widearth: Digital Twin Platform with Spatial Map & AR Contents at MAXST

(https://maxst.com/ENG/main)

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

- 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%.

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.
 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 cloudnative 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)

 $^{rac{1}{N}}$ MLOps: On-premise MLOps with the Latest Open Source Projects at ${ t MAXST}$

(https://maxst.com/ENG/main)

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.

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

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Skills

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
 (laC)
 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: '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.

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.

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: '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

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/)

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

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

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-

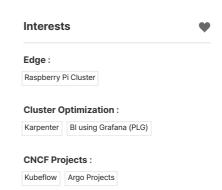
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- 2012 2018 Advanced Signal Processing Lab. (Prod. H, Jeong)
 - Real-Time Advanced Driver Assistance Systems using FPGA
 - Research on Traffic Sign & Lane Terrain Detection
 - 1st Author: Polygonal symmetry transform for detecting rectangular traffic 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++



Languages



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 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

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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

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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)

KKA: Certified Kubernetes Administrator (https://www.credly.com/badges/d944bde7-222a-4ce5-b4e6-4e6c84df0ef8)

from The Linux Foundation