# Jinwoo Park


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## Professional Summary


Machine Learning Engineer & Technical Lead with a record of driving measurable business impact, including 440% sales growth through AI-powered services at SNOW. Skilled in designing generative AI solutions for image synthesis/personalization/editing, reinforcement learning, and real-time model deployment. Experienced in leading cross-functional teams, architecting scalable infrastructure, and mentoring engineers. Recognized for open-source leadership and bridging research with industry needs.


## Skills

- **Programming:** Python, Golang, C/C++, Erlang
- **Generative AI (Image):** Stable Diffusion, LoRA, DreamBooth, Textual Inversion, Instruction-based Image Editing
- **Deep Learning Techniques:** Model Compression (Quantization, Pruning, Knowledge Distillation), GNN, Reinforcement Learning (Rainbow, PPO, SAC)
- **Deep Learning Frameworks:** PyTorch, Diffusers, ComfyUI, Kohya
- **Model Deployment**: Triton Inference Server, BentoML, KServe
- **Backend**: Traefik, Authentik, FastAPI, Echo
- **Test & Monitoring**: Locust, Prometheus, Grafana, Loki, Promtail
- **Infrastructure & DevOps**: Docker, Kubernetes (k8s), K3S, Helm, ArgoCD, Harbor

## ML Engineer Experience

**Aug 2023 - present** — **SNOW Corporation (Seongnam) - Project Lead, ML Engineer**

- Directed a team of ML engineers to launch the “ID Photo” service, leveraging advanced text-to-image personalization and driving a 440% increase in purchases compared to the previous product (AI Business Profile).
- Architected and deployed a Kubernetes-based GPU cluster that reduced content development barriers for cross-functional teams.
- Developed and implemented generative AI pipelines for image editing, boosting output quality and decreasing inference latency by 90%.

**Jan 2022 - Jul 2023** — **Annotation-AI (Seoul) - Tech Lead, ML Engineer**

- Served as technical lead, mentoring team members and owning the deployment pipeline for real-time image segmentation.
- Optimized Segment Anything’s Everything inference by 80% (from 1024 to 200 calls), enabling real-time operation on CPUs.
- Designed and deployed model serving and CI/CD systems on a k3s cluster.

**Oct 2020 - Jan 2022** — **MakinaRocks (Seoul) - Project Owner, ML Engineer**

- Led a GNN/RL-based FPGA/ASIC placement optimization project, achieved performance (WNS +0.7%) on par with ICC2AutoPlacement and HumanPlacement for a single-core CPU design with 18 macros and 120,000 cells and nets. (presented at Deview 2021)

**Sep 2019 - Oct 2020** — **J.MARPLE (Seoul) - Project Lead, ML Engineer**

- Researched and developed model compression and model predictive control methods for non-linear dynamical systems.
- Secured 1st place in the model compression track of the AI Grand Challenge 2020, winning a prize of 200 million KRW.

**Nov 2018 - Aug 2019** — **Medipixel (Seoul) - ML Engineer**

- Led the guide-wire control automation project for PCI (Percutaneous Coronary Intervention), developing and applying off-policy reinforcement learning and behavior cloning algorithms.
- Self-developed Rainbow IQN RL algorithm, achieving SOTA performance and open-sourced. (GitHub: medipixel/rl_algorithm)

## SW Developer Experience

**Oct 2014 - Jan 2017** — **Ericsson (Anyang)**

- Developed and tested LTE RBS L3 features such as Mobility and Load Balancing.
- Improved memory usage by over 20% through enhancements in User Equipment Context in L3.
- Recognized as a specialist in L3 test automation at the Korea R&D center and gained experience with world-class CI/CD and collaboration systems.

**Nov 2013 - May 2014** — **Smilegate (Seongnam)**

- Developed distributed load testing tool, enabling rapid incident response for global services.

## Education

**2006 - 2014** — **Bachelor’s Degree, Computer Science**; Dongguk University (Seoul)

- Teaching Assistant, Research Assistant in Visual Simulation Lab, Honors student for years.

## OpenSource

Active contributor and creator of widely adopted open-source projects in reinforcement learning, model serving, and computer vision.

- **rainbow-is-all-you-need** ★**1.9k+** Creator; comprehensive RL tutorial, adopted by practitioners and educators globally.
- **pg-is-all-you-need** ★**900+** Co-creator; accessible guide to Policy Gradient methods, referenced in academic courses.
- **rl_algorithms** ★**500+** Lead developer; implemented self-developed Rainbow IQN, achieving SOTA results and community recognition.
- **segment-anything-with-clip** ★**300+** Creator; an advanced resource combining segmentation with CLIP, offering practitioners versatile segmentation tools.
- **model_compression** ★**200+** Contributor; efficient model compression algorithms for embedded systems.

Additional Contributions: PyTorch, Huggingface, BentoML, KServe, GoCV, PyG, and more.

## Publications

**Dec 2021** — **Deep Reinforcement Learning for Guidewire Navigation in Coronary Artery Phantom**; IEEE Access

Jihoon Kweon; Kyunghwan Kim; Chaehyuk Lee; Hwi Kwon; Jinwoo Park; Kyoseok Song

- Proposed and validated a deep reinforcement learning approach for autonomous guidewire navigation in coronary artery models, demonstrating improved precision and safety for medical robotics applications.

## Patents

**Dec 2022** — **[1] METHOD FOR AUTOMATING SEMICONDUCTOR DESIGN BASED ON ARTIFITIAL INTELLIGENCE**; 1024748560000

Jinwoo Park; Tod Myung; Jiyoon Lim; Kyeongmin Woo

- Invented an AI-driven method to automate and optimize semiconductor design processes, enhancing design efficiency and reducing manual intervention.

**Jul 2022** — **[2] METHOD FOR AUTOMATING SEMICONDUCTOR DESIGN BASED ON ARTIFITIAL INTELLIGENCE**; 1024200710000

Jinwoo Park; Tod Myung; Jiyoon Lim; Kyeongmin Woo

- Developed a novel artificial intelligence solution for automating key stages in semiconductor design, enabling faster and more reliable chip development.