Yeon Kyoung Choi

Computer Vision Engineer
natasha9646@gmail.com · https://github.com/tash46 · https://www.linkedin.com/in/yeon-kyoung-choi-8232b6265/
https://drive.google.com/drive/folders/18_OMFF6Ix7UcY0JbXuAzFgT_M8cIXYdy?usp=sharing

Computer Vision Engineer experienced in medical and industrial image analysis. Specialized in developing deep learning models and computer vision applications for segmentation, detection, and image enhancement. Passionate about deploying real-world AI solutions across diverse domains to solve complex visual problems.

SKILLS

Languages: Python, MATLAB

Tools & Frameworks: PyTorch, TensorFlow, Keras, ONNX, MONAI, 3D Slicer

EXPERIENCE

02/2024 - Present **Computer Vision Engineer & CMO (Chief Marketing Officer)**
SliceMind, Seoul, Korea.

- Lead AI engineer of MetaFusion, an AI-driven multimodal medical imaging software integrating CT and PET data for unified medical imaging analysis.
- Designed deep learning models for multimodal image fusion, enabling precise spatial-functional analysis of organs and tumors across whole-body scans.
- Built pipeline for tumor detection, mask refinement, and organ-specific metabolic interpretation, reducing diagnostic variability.
- Formulated and executed marketing strategies to position SliceMind in the competitive AI healthcare market, targeting radiology and oncology sectors.
- Directed grant applications, investor presentations, and strategic communications, contributing to over $140K in combined funding and partnership growth.

04/2023 - Present **Computer Vision Engineer (Assistant Manager)**
AI Development Department, PARMI, Daejeon, Korea.

- Lead AI engineer for developing AI-driven 3D Automated Optical Inspection (AOI) systems for printed circuit board (PCB) and semiconductor inspection.
- Built segmentation pipelines tailored for high-resolution PCB and wafer images under varying conditions.
- Pioneered dynamic patching techniques to improve robustness and accuracy across diverse production lines.
- Developed and deployed segmentation models for foreign matters on semiconductor bumps, enhancing yield in high-precision manufacturing.
- Directed the development of an end-to-end automated inspection system now integrated into AOI machines deployed globally, including by clients such as SpaceX and General Satellite.
- Delivered technical presentations on the 3D AOI AI functions at Productronica 2023 and IPC APEX EXPO 2024, engaging global industry audiences and showcasing cutting-edge inspection capabilities.

EDUCATION

03/2021 - 02/2023 **M.S., Nuclear and Quantum Engineering**
Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea.
Thesis title: *Automatic Teeth Segmentation of Panoramic Dental Radiographs Using Multi-Frequency Processing*

08/2015 - 02/2021 **B.S., Nuclear and Quantum Engineering**
Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea.

PROJECTS

12/2022 - 08/2023 **Gingiva Segmentation for Edentulous Patients**
Seung H. Baek D.D.S, Buena Park, CA, USA.

- Developed a deep learning algorithm to segment gingiva in edentulous patients using cone-beam CT (CBCT) scans to replace manual delineation.
- Designed a customized segmentation pipeline with anatomical preprocessing to handle irregular oral anatomy and complex gingival boundaries.
- Addressed a key bottleneck in denture fabrication workflows, improving clinical efficiency and minimizing patient discomfort.

10/2022 - 02/2023 **X-ray Battery Image Enhancement**
Innometry, Seoul, Korea.

- Developed a self-supervised framework to improve the visibility of foreign matters in low-quality X-ray images of lithium-ion batteries.
- Proposed an algorithm tailored for industrial radiography, addressing low contrast and high noise commonly found in battery X-ray images.

PUBLICATIONS

CONFERENCE

1. **Choi, Y. K.** (2025). XrayDentNet: A Hierarchical Attention Multi-Scale Network for Dental Radiograph Segmentation. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*. Under review
2. **Choi, Y. K.**, Lee, S., & Cho, S. (2023). Automatic Instant Teeth Segmentation of Panoramic Radiographs Using Multi-Frequency Processing. In *AAPM 65th Annual Meeting & Exhibition*. AAPM.
3. **Choi, Y. K.**, Lee, S., Kim, H., Hwang, J., & Cho, S. (2023). Automatic Teeth Segmentation of Panoramic Dental Radiographs. In *International Forum on Medical Imaging in Asia 2023*. IFMIA.
4. **Choi, Y. K.**, Kwon, T., Kim, H., Lee, S., & Cho, S. (2022). Automatic Teeth Segmentation of Teeth CBCT Images. In *64th Korean Society Medical Physics*. KSMP.
5. Choi, D. I., Kwon, T., Hwang, J., Hwang, J. I., **Choi, Y.K.**, & Cho, S. (2022). Virtual non-metal network for metal artifact reduction in the sinogram domain. In *7th International Conference on Image Formation in X-Ray Computed Tomography* (Vol. 12304, pp. 480-487). SPIE.

JOURNAL

1. Park, J., Song, G., Kim, W., Shin, K., **Choi, Y. K.,** & Cho, G. (2025). Comparison of Liquid Radioactive Waste Characteristics using CeBr3, LaBr3(Ce), and NaI(Tl) Scintillators for On-Site Applications. *Radiation Measurement*. Under review
2. Park, J., Song, G., Kim, W., Shin, K., **Choi, Y. K.**, & Cho, G. (2025). Uncertainty estimation of minimum detectable activity through sparse spectrum using kernel-based Gaussian process regression. *Radiation Physics and Chemistry, 233*, 112667.

PROFESSIONAL ACTIVITIES

REVIEWER

Conference
Flexible Automation and Intelligent Manufacturing
Journal
IEEE Transactions on Instrumentation & Measurement

RESEARCH ADVISOR

KAIST-Khalifa University Internship Program

QUALIFICATIONS

2024 **Artificial Intelligence Entrepreneur Advisor**, Korea.

2024 **Artificial Intelligence Data Expert Level 1**, Korea.

2024 **Artificial Intelligence Data Expert Level 2**, Korea.

AWARDS & HONORS

2024 **Excellence Award**, Challenge! K-Startup 2024, Seoul, Korea.

2024 **First Place**, 2024 University-Industry Collaboration Expo Student Demo Day, Seoul, Korea.

2024 **Excellence Award**, E5 KAIST, Daejeon, Korea.

2024 **Second Place**, Shin Kyuk-ho Startup Competition, Seoul, Korea.

2024 **First Place**, Value-Up Incubating Startup Idea Competition, Incheon, Korea.

2024 **Merit Award**, Chung Ju-yung Startup Competition, Seoul, Korea.

2024 **Third Place**, X-IST Startup Competition, Gwangju, Korea.

2024 **Excellence Award**, Hongneung Innopolis Campus GRaND-K Startup School, Seoul, Korea.

2024 **Second Place**, DMC Innovation Camp Startup Competition, Seoul, Korea.

2024 **First Place**, Nuclear Innovation Startup Competition, Seoul, Korea.

2023 **Best Presentation Award**, International Forum on Medical Imaging in Asia, Jeju, Korea.

2022 **Achievement Scholarship**, KAIST, Daejeon, Korea.

2021 **Excellence Award**, Nuclear-AI Integrated Conference, Seoul, Korea.

Fall 2018 **Excellent Academic Performance Scholarship**, KAIST, Daejeon, Korea.

Spring 2018 **Excellent Academic Performance Scholarship**, KAIST, Daejeon, Korea.