

Yeon Kyoung Choi

Computer Vision Engineer

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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.