

# Yeon Kyoung Choi

## Computer Vision Engineer

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<https://tash46.github.io/>

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**  
Medical Imaging & Radiotherapy Laboratory, Prof. Seungryong Cho.  
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

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- 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

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### CONFERENCE

1. **Choi, Y. K.** (2025). Lightweight Real-time Semantic Segmentation of Submicron Defects in High-resolution Wafer Inspection. In *2025 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*. IEEE.
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., **Choi, Y. K.**, Shin, K., & Cho, G. (2025). Comparison of Liquid Radioactive Waste Characteristics using CeBr<sub>3</sub>, LaBr<sub>3</sub> (Ce), and NaI (Tl) Scintillators for On-Site Applications. *Radiation Measurement*, 107503.
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

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### REVIEWER

*Conference*

Flexible Automation and Intelligent Manufacturing

*Journal*

IEEE Transactions on Instrumentation & Measurement

### RESEARCH ADVISOR

KAIST-Khalifa University Internship Program

## QUALIFICATIONS

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- 2024 **Artificial Intelligence Entrepreneur Advisor**, Korea.
- 2024 **Artificial Intelligence Data Expert Level 1**, Korea.
- 2024 **Artificial Intelligence Data Expert Level 2**, Korea.

## AWARDS & HONORS

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- 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.

## TEACHING EXPERIENCE

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- 12/2022 - 02/2023 **Advanced English Reading**, KAIST.
- 09/2022 - 12/2022 **Introduction to Medical Physics**, KAIST.
- 06/2021 - 12/2022 **English Presentation & Discussion**, KAIST.
- 03/2021 - 12/2021 **Scientific Writing**, KAIST.