CHENG WANG

Postdoctoral Researcher | Nagoya University

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Researcher in medical and biomedical image analysis, computer vision, deep learning, and multimodal AI. Research experience covers computer-assisted intervention, bronchoscopic navigation, confocal microscopy, plant phenotyping, 3D CT analysis, vision-language models, and remote-sensing image processing.

EDUCATION

Nagoya University — Ph.D., Information Science
Oct 2016 – Sep 2021 | Nagoya, Japan

Nagoya University — Research Student
Oct 2015 – Mar 2016 | Nagoya, Japan

Preparatory School for Chinese Students to Japan
2014–2015 | Japanese Language Course | Changchun, China

Changchun University of Science and Technology — M.S.
Sep 2011 – Apr 2014 | Computer Applications and Technology

Qiqihar University — B.S.
Sep 2007 – Jul 2011 | Mathematics and Applied Mathematics

AWARDS & SCHOLARSHIPS

Poster Award — IFMIA 2025
IAPB Congress Award / Recognition — 2023
Japanese Government (MEXT) Scholarship — 2015
Outstanding Master's Thesis of Jilin Province — 2014
Excellence Award, Graduate Student Mechanical Intelligence Challenge — 2013
Third Prize, University Student NAO Online Programming Contest — 2013

SELECTED RESEARCH PROJECTS

- 2016–Present Bronchoscopic navigation, visual SLAM, CT registration, and anatomical guidance.
- 2021–Present Confocal microscopy analysis of blood vessels, thrombi, and biological structures.
- 2021–Present Plant microscopy, stomatal/root analysis, and automated plant phenotyping.
- 2024–Present Medical vision-language models, VQA, and automated radiology report generation.
- 2025–Present Mediastinal lymph-node segmentation and anatomical mapping from 3D CT.
- 2011–2014 Remote-sensing satellite image enhancement, restoration, and resolution improvement.

TECHNICAL SKILLS

Methods: Computer vision, deep learning, image segmentation, 3D reconstruction, multimodal AI, VLM/LLM, SLAM
Programming: Python, PyTorch, C++, MATLAB

SELECTED PRESENTATIONS

- JAMIT 2026 — Mediastinal lymph-node mapping; weakly supervised segmentation; DS-QFormer; surgical-instrument detection.
- JSCAS 2025 — Blood vessel and thrombus segmentation with Transformer-based encoder-decoder models.
- JAMIT 2025 — 3D blood-vessel reconstruction and RLHF-based Q&A generation.
- IFMIA 2025 — RLHF-based Q&A generation for abdominal CT reports.

ACADEMIC APPOINTMENT

Nagoya University — Postdoctoral Researcher
Oct 2021 – Present | Nagoya, Japan
Medical and biomedical image analysis, computer-assisted intervention, bioimaging, deep learning, and multimodal AI.

RESEARCH EXPERIENCE & COLLABORATIONS

Olympus Corporation — bronchoscope navigation
2018 –2021
Video-based bronchoscope navigation, visual tracking, and computer-assisted intervention.

Tokyo University of Science — Biological structure analysis
Oct 2021 – Present
Confocal microscopy image analysis and 3D reconstruction of biological structures.

Nagoya University & Tohoku University — Plant Phenotyping
Oct 2021 – Present
Microscopic analysis of plant leaves, roots, and stomata; automated plant phenotyping.

Chinese Academy of Sciences (Changchun branch)
2011 –2014
Resolution enhancement and restoration of remote sensing satellite imagery.

SELECTED PUBLICATIONS

- 2026 Wang, C. et al. Generation of Comparative Thrombosis Reports from Confocal Laser-Scanning Microscope Images Using Large Language Models. SPIE Medical Imaging.
- 2026 Nguyen, K.C., Wang, C. et al. Joint Training to Improve Report Generation Capability from Longitudinal CT Volumes with a Vision-Language Model. SPIE Medical Imaging.
- 2026 Kawamura, Y., et al., Wang, C. Automatic Estimation of Mediastinal Lymph Node Map from CT Volumes. SPIE Medical Imaging.
- 2025 Nguyen, K.C., Wang, C. et al. SIGMA: Auto-Regressive VLM for Automated Radiology Report Generation from Longitudinal 3D CT Volumes. MICCAI/ELAMI, LNCS 16146, 53–61.
- 2025 Wang, C. et al. Prior Knowledge-Based Blood Vessel Reconstruction and Thrombus Visualization Using Confocal Laser Scanning Microscopic Images. SPIE Medical Imaging.
- 2024 Wang, C. et al. SMART: Stoma Measurement, Analysis, Report Tool for Microscope Image and Its Application in Plant Phenotyping. ICWAPR, 79–84.
- 2024 Wang, C. et al. Anatomical Structure-Constrained Thrombus Region Segmentation and Measurement Using Confocal Laser Scanning Microscopic Images. SPIE Medical Imaging.
- 2023 Wang, C. et al. Anatomy Aware-Based 2.5D Bronchoscope Tracking for Image-Guided Bronchoscopic Navigation. CMBE: Imaging & Visualization, 11(4), 1122–1129.
- 2022 Wang, C. et al. Bronchial Orifice Tracking-Based Branch Level Estimation for Bronchoscopic Navigation. SPIE Medical Imaging.
- 2021 Wang, C. et al. Bronchial Orifice Segmentation on Bronchoscopic Video Frames Based on Generative Adversarial Depth Estimation. SPIE Medical Imaging.
- 2020 Wang, C. et al. A Visual SLAM-Based Bronchoscope Tracking Scheme for Bronchoscopic Navigation. Int. J. CARS, 15(10), 1619–1630.

RESEARCH INTERESTS

Medical Image Analysis • Computer-Assisted Intervention • Bronchoscopic Navigation • Bioimaging • Confocal Microscopy • Plant Phenotyping • Vision-Language Models • Medical Report Generation • 3D CT Analysis

Full publication list: https://ngo-chwang.github.io/publications/