

# Thao Thi Phuong Dao MD, MSc

ENT Doctor | Computer Scientist | Medical AI Researcher

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## PROFILE

I am an otolaryngologist and computer science researcher working at the intersection of ENT clinical practice, medical imaging, artificial intelligence, and clinical decision support. My work focuses on developing clinically meaningful AI systems for laryngoscopy, vocal fold disease analysis, head-and-neck CT imaging, segmentation, radiomics, and explainable deep learning.

## EDUCATION

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| <b>Bachelor of Medicine</b>                                      | 2011 – 2017    |
| School of Medicine, Vietnam National University Ho Chi Minh City |                |
| <b>Master of Medicine in Otorhinolaryngology</b>                 | 2018 – 2020    |
| University of Medicine and Pharmacy, Ho Chi Minh City            |                |
| <b>Master of Computer Science (ICT)</b>                          | 2020 – 2023    |
| John von Neumann Institute, University of Science, VNU-HCM       |                |
| <b>PhD student in Computer Science</b>                           | 2024 – present |
| University of Science, VNU-HCM                                   |                |

## EXPERIENCE

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| <b>Otolaryngologist</b>                                | 2021 – present |
| Department of Otorhinolaryngology, Thong Nhat Hospital |                |

## RESEARCH INTERESTS

Medical Artificial Intelligence · Otolaryngology and Head & Neck Surgery · Laryngoscopy Image Analysis · Vocal Fold Disease Classification · Vocal Fold Lesion Detection and Segmentation · Head and Neck CT Imaging · Medical Image Segmentation · Radiomics and Deep Imaging Features · Content-Based Medical Image Retrieval · Explainable Artificial Intelligence · Vision-Language AI for ENT Endoscopy · Clinical Decision Support Systems · Mobile AI Applications in Medicine

## SELECTED PUBLICATIONS

**Beyond 2D slices: TD-Mamba for 3D CT segmentation of head and neck space-occupying lesions.** Thao Thi Phuong DaoTan-Cong NguyenMinh-Khoi PhamMai-Khiem TranTrong-Le DoTrung-Nghia LeTruong Hoang VietNguyen Chi ThanhTam V. NguyenMinh-Triet TranThanh Dinh Le. *Computer Methods and Programs in Biomedicine*, 2026. [First author]

**Improving Laryngoscopy Image Analysis through Integration of Global Information and Local Features in VoFoCD Dataset.** Thao Thi Phuong DaoTuan-Luc HuynhMinh-Khoi PhamTrung-Nghia

LeTan-Cong NguyenQuang-Thuc NguyenBich Anh TranBoi Ngoc VanChanh Cong HaMinh-Triet Tran. *Journal of Imaging Informatics in Medicine*, 2024. [First author]

**Artificial intelligence for laryngoscopy in vocal fold diseases: a review of dataset, technology, and ethics.** Thao Thi Phuong DaoTan-Cong NguyenViet-Tham HuynhXuan-Hai BuiTrung-Nghia LeMinh-Triet Tran. *Machine Learning*, 2024. [First author]

**DYNAFormer: Enhancing transformer segmentation with dynamic anchor mask for medical imaging.** Tan-Cong NguyenKim Anh PhungThao Thi Phuong DaoTrong-Hieu Nguyen-MauThuc Nguyen-QuangCong Nhan PhamTrung-Nghia LeJu ShenTam V. NguyenMinh-Triet Tran. *Computers in Biology and Medicine*, 2025. [Author]

**Toward Content-based Indexing and Retrieval of Head and Neck CT with Abscess Segmentation.** Thao Thi Phuong DaoTan-Cong NguyenTrong-Le Doet al.. *MAICBR: Multimedia AI in Modern CB Retrieval — Challenges and Applications, CBMI 2025, Dublin, Ireland*, 2025. [First author]

**Support of deep learning to classify vocal fold images in flexible laryngoscopy.** Bich Anh Tran+Thao Thi Phuong Dao+Ho Dang Quy DungNgoc Boi VanChanh Cong HaNam Hoang PhamTu Cong Huyen Ton Nu CamTan-Cong NguyenMinh-Khoi PhamMai-Khiem TranTruong Minh TranMinh-Triet Tran. *American Journal of Otolaryngology*, 2023. [Co-first author]

**A study of common ENT disease groups in elderly patients visiting Thong Nhat Hospital after the fourth wave of the Covid-19 pandemic.** Dao Thi Phuong ThaoTruong Hoang VietNguyen Vinh Phuoc. *Vietnam Journal of Community Medicine*, 2023. [First author]

**Survey Anatomical Features and Related Factors of the Sphenopalatine Foramen on Computed Tomography.** Thao Thi Phuong DaoCong Van NgoTruong Minh Tran. *Indian Journal of Otolaryngology and Head & Neck Surgery*, 2021. [First author]

**DermAI: A Chatbot Assistant for Skin Lesion Diagnosis Using Vision and Large Language Models.** Viet-Tham HuynhTrong-Thuan NguyenThao Thi-Phuong DaoTam V. NguyenMinh-Triet Tran. *ACCV Workshops*, 2024. [Author]

**PISeg: Polyp Instance Segmentation with Texture Denoising and Adaptive Region.** Tan-Cong NguyenKim Anh PhungTien-Phat NguyenThao Thi Phuong DaoCong Nhan PhamTrung-Nghia LeThuc Nguyen-QuangJu ShenTam V NguyenMinh-Triet Tran. *IEEE ISBI*, 2024. [Author]

**Polyp Instance Segmentation in Colonoscopy Images: A Benchmark.** Tan-Cong NguyenKim Anh PhungThao Thi Phuong DaoJu ShenTam V. NguyenMinh-Triet Tran. *2023 IEEE/ACIS 8th International Conference on Big Data, Cloud Computing, and Data Science (BCD)*, 2023. [Author]

**MANet: Multi-branch attention auxiliary learning for lung nodule detection and segmentation.** Tan-Cong NguyenTien-Phat NguyenTri CaoThao Thi Phuong DaoThi-Ngoc HoTam V NguyenMinh-Triet Tran. *Computer Methods and Programs in Biomedicine*, 2023. [Author]

**Vision-based Assistance for Vocal Fold Identification in Laryngoscopy with Knowledge Distillation.** Thao Thi Phuong DaoMinh-Khoi PhamMai-Khiem TranChanh Cong HaBoi Ngoc VanBich Anh TranMinh-Triet Tran. *WICV Workshop, CVPR 2022; Studies in Health Technology and Informatics*, 2022. [Author]

**Semi-supervised Organ Segmentation with Mask Propagation Refinement and Uncertainty Estimation for Data Generation.** Minh-Khoi PhamThang-Long Nguyen-HoThao Thi Phuong DaoTan-Cong NguyenMinh-Triet Tran. *FLARE 2022, Lecture Notes in Computer Science*, 2022. [Author]

**Tail-Aware Sperm Analysis for Transparent Tracking of Spermatozoa.** Tuan-Luc HuynhHuu-Hung NguyenXuan-Nhat HoangThao Thi Phuong DaoTien-Phat NguyenViet-Tham HuynhHai-Dang NguyenTrung-Nghia LeMinh-Triet Tran. *MediaEval 2022*, 2022. [Author]

## PROJECTS

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### AI-assisted Vocal Fold Disease Analysis

Deep learning models for classification, detection, and segmentation of vocal fold lesions from flexible laryngoscopy images.

### Laryngoscopy Image Analysis & VoFoCD Dataset

Medical AI research for improving laryngoscopy image classification by integrating global information and local features.

### Head and Neck CT Lesion Segmentation

Segmentation-guided analysis of abscess, tumor, and cyst lesions in head-and-neck CT images.

### Content-Based Retrieval of Head and Neck CT Images

A medical image retrieval framework using segmentation, radiomics, and deep imaging features.

### Explainable AI & Radiomics for Age-Associated Lesion Phenotyping

A research direction combining segmentation-guided radiomics and deep features to predict chronological age and identify imaging phenotypes in head-and-neck CT lesions.

### Mobile AI for ENT Screening

Lightweight AI models for real-time or near-real-time support in ENT endoscopy and vocal fold assessment.

## CERTIFICATES & COURSES

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|-----------------------------------------------------------------------------------------------------------|------|
| TensorFlow Developer Certificate — Google                                                                 | 2023 |
| Oxford Machine Learning Summer School 2023 — MLx Fundamentals & Cases — University of Oxford              | 2023 |
| Oxford Machine Learning Summer School 2023 — MLx Health — University of Oxford                            | 2023 |
| AI Series: Fundamentals of AI and Machine Learning in Healthcare — Stanford University School of Medicine | 2023 |
| Mathematics for Machine Learning: Linear Algebra — Imperial College London / Coursera                     | 2022 |
| Mathematics for Machine Learning: Multivariate Calculus — Imperial College London / Coursera              | 2022 |
| Machine Learning Online Course — VietAI                                                                   | 2021 |
| Crash Course on Python — Google / Coursera                                                                | 2021 |
| The Bits and Bytes of Computer Networking — Google / Coursera                                             | 2021 |
| Technical Support Fundamentals — Google / Coursera                                                        | 2021 |

## SKILLS

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**Medical & Clinical:** ENT clinical practice, Otorhinolaryngology, Laryngoscopy, Vocal fold disease assessment, Head and neck imaging, Clinical study design

**AI & Programming:** Python, PyTorch, TensorFlow, OpenCV, MONAI, nnU-Net, Deep learning, Computer vision, Medical image segmentation, Radiomics, Explainable AI, Vision-language models

**Research & Academic:** Manuscript writing, Dataset construction, Model evaluation, Statistical analysis, Scientific visualization, Conference presentation, Journal submission

## CONTACT

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