

Mohammad Hamid Asnawi

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Master of Artificial Intelligence student at Monash University with a research focus on medical AI and deep learning for healthcare. My interests span AI/ML for medical image analysis, medical vision-language models, and generative approaches for medical decision support. My current Master's thesis investigates robust PET/CT tumour segmentation under missing-modality conditions using synthetic PET generation. Alongside this, I have broader research experience in computer vision, medical image analysis, natural language processing, and applied machine learning, with the aim of translating AI methods into clinically meaningful healthcare applications.

EDUCATION

Master of Artificial Intelligence

(July 2024 – Present)

Monash University, Melbourne, Australia

- Current WAM: 89.5/100, based on completed coursework to date
- Master's Thesis: Synthetic PET for Missing-Modality Head and Neck Tumour Segmentation
- Supervisor: Prof. Jianfei Cai
- Selected honours:
 - Recipient of a full scholarship from the Indonesian Endowment Fund for Education (LPDP)
 - Recipient of the Monash Summer Vacation Research Scholarship
 - Awarded the highest mark in FIT5047 Fundamentals of Artificial Intelligence
 - Received commendation letters for achieving High Distinction results across all units

Bachelor of Statistics / Sarjana Statistika (S.Stat.)

(August 2019 – January 2023)

Universitas Padjadjaran, Bandung, Indonesia

- GPA: 3.89 out of 4.00, cum laude
- Bachelor's Thesis: Lung and Infection CT-Scan-Based Segmentation with 3D UNet Architecture and Its Modification
- Supervisor: Dr. Anindya Apriliyanti Pravitarsari
- Selected honours:
 - Graduated with the highest GPA in the Faculty of Mathematics and Natural Sciences

RESEARCH EXPERIENCE

Graduate Researcher / Master's Thesis Researcher

(July 2025 – Present)

Monash University (Melbourne, Australia)

- Investigating robust PET/CT head and neck tumour segmentation, focusing on improving full-modality performance while maintaining segmentation reliability under missing-PET conditions.
- Developed a Synthetic Modality Integration framework that incorporates CT-to-PET synthetic generation for full-modality and missing-PET inference settings.
- Experimented with diffusion and GAN-based image-to-image translation models and extended an nnU-Net-based segmentation pipeline on the HECKTOR 2025 dataset, recovering approximately 88% of full-modality performance under missing-PET conditions.

Summer Researcher

(November 2024 – February 2025)

Robotics in Medicine and Interaction (RoMI) Laboratory, Monash University (Melbourne, Australia)

- Investigated simulated-to-real laparoscopic image translation for generating realistic surgical scenes to support AI-assisted surgical training and robotic surgery applications.
- Experimented with DCLGAN and GcGAN, comparing contrastive and geometry-consistent GAN-based approaches for unsupervised image-to-image translation.
- Trained GcGAN on approximately 18k simulated and 90k real laparoscopic images, identifying epoch 50 as the most visually stable checkpoint before later artifacts and darkening effects emerged.

Associate Researcher

(May 2023 – May 2024)

Department of Statistics / AIDA Research Center, Universitas Padjadjaran (Bandung, Indonesia)

- Led and contributed to AI research projects across computer vision, medical image analysis, natural language processing, and applied machine learning.
- Developed and evaluated deep learning models for medical image segmentation and NLP-based topic modelling, contributing to peer-reviewed publications in IEEE Access and MDPI Applied Sciences.
- Mentored three intern research groups across medical image analysis, pain recognition, and chatbot development, overseeing six research projects from problem formulation to experimentation and reporting.

Undergraduate Researcher / Research Assistant

(June 2022 – May 2023)

Department of Statistics / AIDA Research Center, Universitas Padjadjaran (Bandung, Indonesia)

- Conducted research on 3D medical image segmentation for COVID-19 CT scans, focusing on lung and infection region segmentation using U-Net-based deep learning models.
- Developed reproducible data processing and model experimentation pipelines to support automated parameter testing and efficient segmentation experiments.
- Contributed to peer-reviewed research outputs, including a journal publication in MDPI Healthcare and a conference presentation at the Basic Science International Conference 2022.

SELECTED PUBLICATIONS & MANUSCRIPTS

- **“Synthetic PET for Missing-Modality Head and Neck Tumour Segmentation.”**
Manuscript in preparation for submission to *Computerized Medical Imaging and Graphics* (First author)
- **“Lung and Infection CT-Scan-Based Segmentation with 3D U-Net Architecture and Its Modification.”**
Published in *Healthcare*, 2023 (First author)
- **“Enhancing 3D Lung Infection Segmentation with 2D U-Shaped Deep Learning Variants.”**
Published in *Applied Sciences*, 2023 (Co-author)
- **“The Combination of Contextualized Topic Model and MPNet for User Feedback Topic Modeling.”**
Published in *IEEE Access*, 2023 (First author)
- **“STraVENS: Sentence Transformer Voting Ensemble for Intent Classification-Based Chatbot Model.”**
Published in *IEEE Access*, 2024 (Co-author)
- **“A Deep Learning Review of ResNet Architecture for Lung Disease Identification in CXR Image.”**
Published in *Applied Sciences*, 2023 (Co-author)

Full publication list available on [Google Scholar](#).

ADDITIONAL ACADEMIC & PROFESSIONAL EXPERIENCE

Teaching Assistant

(February 2021 – December 2021)

Department of Statistics, Universitas Padjadjaran, Indonesia

- Assisted laboratory classes in Computer Programming, Database, and Multivariate Data Analysis.

Data Scientist Intern

(August 2022 – December 2022)

Telkomsel, Jakarta, Indonesia

- Developed unsupervised NLP topic modelling pipelines and reproducible ML workflows using Kedro and MLflow.

Peer Reviewer

IEEE Access

- Reviewed 15+ manuscripts in artificial intelligence, machine learning, and related fields. ([ORCID LINK](#))

TECHNICAL SKILLS

- Programming: Python, SQL, R, C
- Deep Learning / Machine Learning: PyTorch, TensorFlow/Keras, scikit-learn, MONAI, nnU-Net
- Medical AI / Computer Vision: 2D/3D medical image segmentation, multimodal learning, image-to-image translation, GANs, diffusion models
- NLP / Language Models: topic modelling, sentence transformers, BERT-based models, LLM applications
- Tools: Git, Linux, Jupyter, SimpleITK, Kedro, MLflow, Streamlit, MySQL, MongoDB

ADDITIONAL INFORMATION

Languages:

- English (fluent)
- Bahasa Indonesia / Indonesian (native)
- Sundanese (native)

Selected Activities:

- Machine Learning Path Graduate, Bangkit Academy led by Google, Tokopedia, Gojek, & Traveloka
- Google Certified TensorFlow Developer, 2022–2025