

# Sameer Ambekar

PhD at TU Munich (Konrad Zuse School of Excellence, relAI),  
MSc AI graduate from University of Amsterdam  
Department of Computer Informatics and Technology (CIT), TU Munich  
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## RESEARCH INTERESTS

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Deep learning, Computer vision, Reinforcement Learning: Adapting Vision-Language Models (VLMs) with reasoning abilities using GRPO (Group Refinement Policy Optimization) and Test-time strategies.

## EDUCATION

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**Technical University of Munich (TU Munich)** *Munich, Germany*  
**Konrad Zuse School of Excellence in Reliable AI (relAI)**  
*Ph.D. student in Deep learning and Computer vision* *2023 - present*  
Advisors: Prof. Dr. Julia Schnabel  
*Funded by the DAAD Konrad Zuse AI Excellence Program,  
supported by the Federal Ministry of Research, Technology and Space.*

**Stanford University** *San Francisco, California, USA*  
*Research stay as a Ph.D. student* *2026*  
Test-time Reasoning and Scaling for Medical imaging  
Advisors: Prof. Dr. Akshay Chaudhari

**University of Amsterdam (UvA)** *Amsterdam, Netherlands*  
*Masters in Artificial Intelligence MSc AI, Research (Thesis grade: Excellent, 48ECTS)* *2021 - 2023*  
Thesis: Test-time Adaptation: Generating labels and models  
Advisors: Prof. Dr. Cees Snoek & Zehao Xiao

## RESEARCH EXPERIENCE

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**University of Amsterdam** *Amsterdam, Netherlands*  
*Research Intern during MSc AI* *June 2022 - June 2023*  
Advisors: Prof. Cees Snoek, Prof. Xiantong Zhen & Zehao Xiao

**Indian Institute Of Technology Delhi (IIT Delhi)** *Delhi, India*  
*Research Assistant in Deep learning, before MSc AI* *January 2019 - July 2021*  
Advisors: Prof. Prathosh AP

**Indian Council of Medical Research (ICMR), NITM** *Belgaum, India*  
*Research Trainee and Bachelor Thesis* *2017 - 2018*  
Advisors: Dr. Subarna Roy (Scientist G) & Pramod Kumar (Scientist B)

## PUBLICATIONS

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**The Mean is the Mirage: Entropy-Adaptive Model Merging under Heterogeneous Domain Shifts in Medical Imaging**

Sameer Ambekar, Reza Nasirigerdeh, Lina Felsner, Daniel M. Lang, Julia A. Schnabel  
*Arxiv*

**Hierarchical Adaptive Networks with Task Vectors for Test-Time Adaptation**

Sameer Ambekar, Daniel M. Lang, Julia A. Schnabel  
*Winter Conference on Applications of Computer Vision 2025 conference (WACV), 2026. (Algorithms track)*

**Selective Test-Time Adaptation for Unsupervised Anomaly Detection using Neural Implicit Representations**

Sameer Ambekar, Cosmin I. Bercea, Julia A. Schnabel  
*MICCAI 2024 ADMSI 🏆 Best Paper Award*

**Non-Parametric Neighborhood Test-Time Generalization: Application to Medical Image Classification**

Sameer Ambekar, Daniel M. Lang, Julia A. Schnabel  
*MICCAI 2024 EMERGE*

## GeneralizeFormer: Layer-Adaptive Model Generation across Test-Time Distribution Shifts

Sameer Ambekar, Zehao Xiao, Xiantong Zhen, Cees G. M. Snoek

Winter Conference on Applications of Computer Vision 2025 conference (**WACV**), 2025. (Algorithms track)

## Learning Variational Neighbor Labels for Test-Time Domain Generalization.

Sameer Ambekar\*, Zehao Xiao\*, Jiayi Shen, Xiantong Zhen, Cees G. M. Snoek

Conference on Lifelong Learning Agents conference (**CoLLAs**), 2024.

## Unsupervised Domain Adaptation for Semantic Segmentation of NIR Images through Generative Latent Search.

Prashant Pandey\*, Aayush Kumar Tyagi\*, Sameer Ambekar, Prathosh AP

European Conference on Computer Vision conference (**ECCV**), 2020 (**Spotlight**).

🏆 Top 5% of accepted papers.

## Variational Pseudo Labeling for Test Time Domain Generalization.

Sameer Ambekar, Zehao Xiao, Jiayi Shen, Xiantong Zhen, Cees G. M. Snoek

International Conference on Learning Representations workshop (**ICLR**), 2023 (**Spotlight**)

## SKDCGN: Source-free Knowledge Distillation of Counterfactual Generative Networks using cGANs.

Sameer Ambekar\*, Matteo Tafuro\*, Ankit\*, Diego van der Mast\*, Mark Alence\*, Christos Athanasiadis

European Conference on Computer Vision workshop (**ECCV**), 2022.

## Thesis

### Test-time adaptation: Generating Variational labels and Models.

Sameer Ambekar, Grade: Excellent

Masters in AI Thesis, AI for Medical Imaging lab, University of Amsterdam

Advisors: Prof. Cees Snoek, Prof. Xiantong Zhen, Zehao Xiao

## SELECTED AWARDS AND HONORS

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- DigiCosme **Full Master Scholarship** of €12,000 Université Paris Saclay, France 2021
- Google Conference Grant for ECCV 2020 Spotlight paper 2020
- Secured 6th Rank in National Science Talent Search Examination at the National Level, India.

## TEACHING AND SUPERVISION

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- **Seminar:** *From General to Clinical: Adapting Foundation Models for Medical Imaging* 2×  
MSc Informatics, TU Munich Winter 2025 & Summer 2026
- **Supervision:** Tim Nielen (MSc Informatics, TUM), thesis: *The Dynamics of Entropy Minimization for Medical Imaging*  
Andras Gaspar (BSc, TU Munich and TU Budapest), thesis: *Adapting Foundation Models for Segmentation*

## PROFESSIONAL RESPONSIBILITIES

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- **Reviewer:** NeurIPS, ICML, CVPR, ECCV, ICCV, IEEE TNNLS, Elsevier's Applied soft computing, Springer Nature's Journal of Translational Medicine

## MACHINE LEARNING SUMMER SCHOOLS

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- International Computer Vision summer school (ICVSS), Italy 2024
- Eastern European Machine Learning summer school by Google Deepmind, Slovakia 2024
- Oxford Machine Learning summer school (OxML 2022), Deep Learning by University of Oxford, UK 2020, 2022
- Regularization Methods for Machine Learning 2021 (RegML 2021) 2021
- PRAIRIE/MIAI PAISS 2021 Machine Learning Summer Learning, by INRIA & NAVER labs, France 2021
- Machine Learning Summer School (MLSS-Indo 2020, Indonesia) 2020

## SELECTED RESEARCH PROJECTS

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Knowledge Distillation of Counterfactual Generative networks, DL-2 Course Project, UvA April 2022

- Deep learning 2 course final project at UvA, published at ECCV 2022 VI Priors workshop with 'no edits' required

## Semantic Segmentation of Head and Neck Histopathological Images Using Self Supervision

2020 - 2021

Advisor: Prof. Prathosh AP, IIT Delhi

- Self-supervised techniques, with finite labels show enormous potential, hence worked on context specific task.

## Target-Independent Domain Adaptation (TIGDA) for WBC using Generative Latent Search

2020 - 2021

Advisor: Prof. Prathosh AP, IIT Delhi

- Acknowledged in the paper for the contributions made to the IEEE-TMI 2020 paper

## SKILLS

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- **Programming Languages:** Python, C, C++
- **Machine Learning, Deep Learning:** PyTorch, Tensorflow, Keras, Numpy, OpenCV, PIL
- **Tools:** LaTeX, Google Cloud Platform (GCP), git, Ubuntu Bash

## REFERENCES

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- **Prof. Dr. Julia Schnabel**, Director IML Helmholtz Munich & CompAI TU Munich
- **Prof. Dr. Cees Snoek**, Head -Video & Image Sense Lab & Director ELLIS Amsterdam Unit, University of Amsterdam
- **Prof. Xiantong Zhen**, Research Scientist, United Imaging Healthcare, Co., Ltd, Previously University of Amsterdam