Sameer Ambekar

Aspiring Deep Learning, Computer Vision Researcher

ACADEMIC QUALIFICATION

Masters In Artificial Intelligence (AI), University of Amsterdam (UvA), Amsterdam, Netherlands; September 2021 - Present (Advised by <u>Prof. Cees Snoek</u>, <u>Prof. Xiantong Zhen</u> at AI for Medical Imaging Lab, University of Amsterdam)

Bachelor of Engineering in Computer Science and Engineering, Visvesvaraya Technological University (VTU), India; July 2014 - June 2018 (Thesis at Indian Council of Medical Research [ICMR] NITM)

PUBLICATIONS

1. Work on **Probabilistic Meta-learning for Domain Generalization** – A* Conference [Under Review] [Conference]

Authors: **Sameer Ambekar**, Zehao Xiao, Jiayi Shen, Xiantong Zhen, Cees G. M. Snoek Work done recently during my internship at AIM lab, University of Amsterdam.

 "Unsupervised Domain Adaptation for Semantic Segmentation of NIR Images through Generative Latent Search" - 16th European Conference On Computer Vision, ECCV 2020 (Spotlight- Top 5% of accepted papers) [Conference]

Authors: Prashant Pandey*, Aayush Kumar Tyagi*, **Sameer Ambekar**, Prathosh AP Paper:<u>https://link.springer.com/chapter/10.1007/978-3-030-58539-6_25</u> Code: <u>https://github.com/ambekarsameer96/GLSS</u>

3. "SKDCGN: Source-free Knowledge Distillation of Counterfactual Generative Networks using

cGANs" - 18th European Conference On Computer Vision, ECCV 2022 [Workshop] Authors: **Sameer Ambekar**, Ankit, Diego van der Mast, Mark Alence, Matteo Tafuro, Christos Athanasiadis Preprint: <u>https://arxiv.org/abs/2208.04226</u> Code: <u>https://github.com/ambekarsameer96/SKDCGN</u>

4. "[Re] Counterfactual Generative Networks" - ML Reproducibility Challenge 2021
 Authors: Ankit Ankit, Sameer Ambekar, Baradwaj Varadharajan, Mark Alence
 Paper: <u>https://zenodo.org/record/6574625#.YvIUD3ZByUI</u>

5. "Twin Augmented Architectures for Robust Classification of COVID-19 Chest X-Ray Images"

Authors: Kartikeya Badola, **Sameer Ambekar**, Himanshu Pant, Sumit Soman, Rajiv Narang, Anuradha Sural, Jayadeva Paper: <u>https://arxiv.org/abs/2102.07975</u>

6. "Computer-aided diagnosis (CAD) of world threatening diseases" - Springer-Nature
 Authors: Pramod Kumar, Sameer Ambekar*, Subarna Roy under the book of 'Biomedical Engineering and its Applications
 in Healthcare', Springer Nature 2019
 Paper: <u>https://link.springer.com/chapter/10.1007/978-981-13-7142-4_14</u>

7. "A Framework for image selection for image fusion using crowdsourced data" – ICAIT 2019 (IEEE Conference) Authors: Pavan Kunchur, Rohan Dhankanshirur, Sameer Ambekar

RESEARCH / WORK EXPERIENCE

University of Amsterdam (UvA), Amsterdam, Netherlands - *Research Intern and Master Thesis Student (Domain generalization)*

June 2022 - Present

 Working under the guidance of <u>Prof. Cees Snoek</u>, <u>Prof. Xiantong Zhen</u> and <u>Zehao Xiao</u> (PhD Student) as a Research Intern and Master thesis student to research about Domain Generalization, meta learning and Variational Inference

Indian Institute of Technology Delhi (IITD), Delhi, India - Research Assistant (Deep Learning, Computer Vision)

January 2019 - July 2021

• Worked on a Project which uses Self Supervision for segmentation of Histopathological Images by collaborating with well-known AIIMS hospital for head and neck cancer under the guidance of <u>Prof. Prathosh A.P.</u>

Amsterdam East, Netherlands Ph: (+31) 682408704 Google Scholar ambekarsameer@gmail.com LinkedIn: ambekarsameer GitHub: ambekarsameer96 Website: https://ambekarsameer.github.io

RESEARCH INTERESTS

Domain Generalization, Domain Adaptation, Action Recognition, Medical Imaging

SCHOLARSHIPS

DigiCosme Full Master Scholarship of 12,000 Euros, Université Paris Saclay, France, 2021

AWARDS

Google Conference Grant for ECCV 2020 Spotlight paper

Secured 6th Rank in National Science Talent Search Examination at National level.

TEACHING

Teaching Assistant for the course 'Human Computer Interaction', VU Amsterdam, 2023

MASTER COURSES

Deep Learning 2, Advanced Computer Vision, Interpretability and Explainibility, etc

SKILLS

Programming Languages: Python, C, C++ Machine Learning / Deep

Learning: PyTorch, Tensorflow, Keras, Numpy

Computer Vision:

OpenCV, PIL

Tools: LaTeX, Google Cloud Platform (GCP), git, Ubuntu Bash

- Worked on several projects which made use of Domain Adaptation, Self-Supervision, and Action recognition many
 of which were published at reputed journals/conferences
- Contributed to 'Guided weak supervision for action recognition with scarce data to assess skills of children with autism', Published in AAAI-20 https://arxiv.org/abs/1911.04140, 'Target-Independent Domain Adaptation (TIGDA) for WBC Classification using Generative Latent Search', Published in IEEE Transactions on Medical Imaging (IEEE TMI), 2020 https://arxiv.org/abs/2005.05432
- Researched about solar panels fault detection

Indian Council of Medical Research (ICMR) NITM Bioinformatics Division, Belgaum, India -Research Trainee

October 2017 - December 2018

Worked under the guidance of <u>Dr.Subarna Roy</u> (Scientist G and Director) ICMR-NITM, <u>Pramod Kumar</u> (Scientist C) ICMR-NITM. The project involved us working on cancer and diabetes prediction and classification using Machine Learning

DbCom Inc., New Jersey, USA - Remote Intern (June 2015 - December 2016)

MACHINE LEARNING SCHOOLS / BOOTCAMPS ATTENDED

Oxford Machine Learning Summer School (OxML 2022), Deep Learning - University of Oxford

Regularization Methods for Machine Learning 2021 (RegML 2021) - University of Genoa.

PRAIRIE/MIAI PAISS 2021 Machine Learning Summer Learning - INRIA, Naver Labs

Oxford Machine Learning Summer School (OxML 2020), Deep Learning - University of Oxford

Machine Learning Summer School - Indonesia (MLSS-Indo 2020), Deep Learning - Telkom University

Medical Imaging MONAI 2020 bootcamp

PROJECTS

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

• Work done during the final project of the Deep Learning -2 course at the University of Amsterdam. We published the work at ECCV 2022 VI Priors workshop.

Semantic Segmentation of Head and Neck cancer Histopathological Images Using Self Supervision, IIT Delhi and AIIMS Hospital.

• Self-supervised techniques, due to their recent success show enormous potential with usage of less labels of the order of 1%,10% of the total labels; hence was working to design a context-specific pretext task

Unsupervised Domain Adaptation (UDA) for Semantic Segmentation of NIR Images through Generative Latent Search, IIT Delhi (Paper published in ECCV, 2020)

• We cast the problem of skin segmentation from NIR images as a UDA segmentation task. The proposed method also achieves SoTA on standard dataset such as Synthia to Cityscapes and secured global rank of #3 for UDA segmentation on the publicly available dataset Paper: https://arxiv.org/abs/2006.08696

Target-Independent Domain Adaptation (TIGDA) for WBC Classification using Generative Latent Search, IIT Delhi (Paper published in IEEE TMI 2020)

• I have been acknowledged in the paper for the contributions made. Paper: <u>https://ieeexplore.ieee.org/document/9139471</u>

Guided weak supervision for action recognition with scarce data to assess skills of children with autism, IIT Delhi (Paper Published in AAAI-20)

 Solves the problem of overfitting on a tiny dataset for the action recognition task Paper: <u>https://ojs.aaai.org//index.php/AAAI/article/view/5383</u>

REFERENCES

Prof. Cees Snoek, Video & Image Sense Lab and Director ELLIS Amsterdam Unit, University of Amsterdam

Prof. Xiantong Zhen, United Imaging Healthcare, Co., Ltd, Previously University of Amsterdam

Dr. Subarna Roy, Scientist G & Director, Indian Council of Medical Research - NITM, Belagavi, India

PROFESSIONAL ACTIVITIES

Reviewer for IETE Journal of Research (Taylor & Francis)

CONFERENCES

Attended ECCV 2020, Glasglow and UAI 2021

TEST SCORES

IELTS BAND 7

POSITIONS OF RESPONSIBILITY

President (2016) and Charter Secretary (2015) of Rotaract Club of Gogte Institute of Technology, Belgaum, India

LANGUAGES

English, Hindi, Kannada, Marathi.