

Ansh Khurana

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EDUCATION

Stanford University

MS in Computer Science with specialization in Artificial Intelligence

GPA: 4.07

Sep 2022 - June 2024

Indian Institute of Technology Bombay

B.Tech. with Honors in Computer Science and Minor in Applied Statistics and Informatics

GPA: 9.75/10

2017-2021

Received the **Research Excellence Award** for outstanding research work during undergraduate

WORK AND RESEARCH EXPERIENCE

Machine Learning Engineering Intern | Apple

June 2023 - Sep 2023

Document AI Foundation Model

- Implemented an end-to-end pipeline for pre-training and fine-tuning a **Multimodal transformer** model
- Pre-trained the model on a large corpus (11 million documents) of data with self-supervised learning objectives
- Fine-tuned the foundation model for **extractive** and **generative** document visual question answering (**DocVQA**) tasks

Pre-Doctoral Researcher | Google Research [Publications: [CVPR'23 CVinW](#), [ICML'22 PODS](#)]

July 2021 - Aug 2022

Source Free Domain Adaptation

- Proposed a fast and hyper-parameter free **test time adaptation** algorithm which uses augmented samples for reliable feature normalization and automatically searches calibration parameters based on prediction confidence
- Obtained state-of-the-art single image test time adaptation performance with an average performance gain of **19.3%** and **12.2%** for **classification** and **segmentation** tasks, respectively over the base model

Software Engineering Intern | Google Research

May 2020 - Aug 2020

Akshar: Robust OCR for the Next Billion Users

- Developed a Form Structure Recognition pipeline for social care forms under the **AI for Social Good** initiative
- Identified the failure modes in current state-of-the-art techniques for **Form Structure Recognition** and **OCR**
- Proposed a novel **text guidance** based **multi-stage fusion** architecture for Table Structure Recognition

Bachelor's Thesis | IIT Bombay [Publications: [ICPR'20](#), [ISBI'22](#)]

Dec 2020 - May 2021

Deep-EM Learning for Medical Image Enhancement

- Developed a novel **variational DNN** framework for image quality enhancement, relying on **Monte-Carlo EM** optimization, including Metropolis-Hastings Markov-Chain Monte-Carlo (**MCMC**) sampling in the latent space
- Proposed a robust and uncertainty-aware loss through datum-adaptive modelling on the DNN output residuals
- Won the **Best Paper Award** at the International Symposium of Biomedical Imaging (ISBI 2022)

Research Intern | Aarhus University, Denmark [Publication: [CIKM'20](#)]

Dec 2019 - Jan 2020

Content-Aware Influence Maximization

- Devised a novel **Content-Aware Linear Threshold model** (CALT) that governs a contagion based on both content features and network structure and studied the properties of the spread function under this model
- Proposed an algorithm to learn the influence parameters of the model using the **credit allocation** technique
- Developed an algorithm for efficient influence maximization by feature selection based on the model's properties

Research Intern | National University of Singapore [Publications: [GCPR'20](#), [BMVC'20](#)]

May 2019 - July 2019

Multi-Step Fusion for Interactive Image Segmentation

- Investigated approaches for improving Fully Convolutional Networks (FCN) for **interactive image segmentation**
- Developed a generic framework using **PyTorch** to train and evaluate the model using multiple click sampling strategies to simulate human interaction and methods to encode the clicks into guidance maps

TECHNICAL SKILLS

Languages

Python, C++, C, Java, Bash, HTML/CSS, JavaScript, SQL, Prolog, LISP

Tools and Libraries

PyTorch, TensorFlow, JAX, scikit-learn, Kaldi, OpenCV, Django, Git, \LaTeX

POSITIONS OF RESPONSIBILITY

Teaching Assistant - for Deep Multi-Task and Meta Learning (**Head TA**), Natural Language Processing with Deep Learning, Deep Reinforcement Learning, Computer Vision Foundations at Stanford University

Reviewer - for CVPR 2022, ECCV 2022, ISBI 2022 and ICPR 2022 machine learning conferences

Department Academic Mentor - for sophomore students in the Computer Science department, IIT Bombay