

Tathagat Verma

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EDUCATION

Stanford University, Stanford, USA Sep 2022 - Mar 2024 (expected)
Master of Science in Computer Science, Specialization - Artificial Intelligence GPA - **3.97/4**

Indian Institute of Technology Bombay, Mumbai, India Jul 2018 - Dec 2021
Bachelor of Technology in Computer Science and Engineering with Honors CPI - **9.64/10**

PUBLICATIONS

1. **VarScene: A Deep Generative Model for Realistic Scene Graph Synthesis** **ICML 2022**
Tathagat Verma, Abir De, Yateesh Agrawal, Vishwa Vinay, Soumen Chakrabarti

RESEARCH EXPERIENCE

Object Importance Classification and Natural Language Explanation Generation Autumn 2022
Guides: Prof. Mykel Kochenderfer, Jiachen Li | Research Assistantship SISL, Stanford University

- Developed a deep learning model for importance classification and explanation generation in autonomous driving
- Utilized **CNN**, **Graph Neural Networks** and **attention** based **GRU** for image feature extraction, learning inter-object relationships and natural language generation respectively for the joint task in **PyTorch**

VarScene: A Deep Generative Model for Realistic Scene Graph Synthesis Autumn 2021
Guides: Prof. Soumen Chakrabarti, Prof. Abir De | R&D Project InfoLab, IIT Bombay

- Developed a deep generative model for novel scene graph synthesis using **VAE** and **Graph Neural Networks**
- Designed a goal oriented decoder for minimizing the maximum mean discrepancy between graph distributions

Deep Learning for Medical Image Quality Enhancement Spring 2021, Autumn 2021
Guide: Prof. Suyash Awate | R&D Project, Bachelor's Thesis Project IIT Bombay

- Enhanced the quality of MRI images with sub-sampling and Gaussian noise in the frequency domain and PET images with Poisson noise under the weakly-supervised regime using **RED-CNN** and **UNet** architectures

INTERNSHIPS

Bad Label Detection Summer 2023
Scale AI | Machine Learning Research Engineer Intern San Francisco, USA

- Developed a bad label detection framework to identify mislabeled data points for IG reel genre classification
- Finetuned **multimodal video classification models** for bad label detection, getting **6%** labeling cost reduction

Image Functionality in the Whiteboard Android Application Summer 2021
Microsoft India (R&D) Pvt. Ltd. | Software Engineer Intern Noida, India

- Integrated **Microsoft Lens SDK** into Whiteboard Android, to support image and OCR tools provided by Lens
- Worked in **Java Android** backend, building the bridge to send images from native Android to the web application

Attribute Value Extraction from Product Descriptions Summer 2020
Coupa Software India Pvt. Ltd. | Data Science Intern Pune, India

- Developed unsupervised and semi-supervised methods for extracting attribute values from product descriptions
- Implemented an **RNN** model for sequence tagging using **CRF**, **BiLSTM** and attention mechanisms

OTHER PROJECTS

Mitigating Scams and Catfishing on Dating Apps through Automatic Moderation Spring 2023
Guide: Alex Stamos | Trust and Safety Engineering | Demo Course Project

- Developed a **Discord bot** with user-reporting and moderation workflows on a dating app simulation in Discord
- Leveraged **regex**, **image-captioning** and **GPT-3.5** to handle automated flagging and prevent adversarial cases

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 53** in **JEE Advanced** out of 200,000 candidates 2018
- Secured **All India Rank 34** in **JEE Main** out of 1.2 million candidates 2018
- Amongst top **30** in India selected for the **International Astronomy Olympiad Selection Camp** 2018
- Amongst top **35** in India selected for the **International Mathematical Olympiad Training Camp** 2017

LEADERSHIP POSITIONS

IIT Bombay

Student Mentorship Program | Mentored 12 freshmen and 8 CS sophomores Jul 2020 - May 2022

Teaching Assistant | AI and ML; Data Structures and Algorithms; Logic for CS Jul 2020 - Nov 2021

Stanford University

Teaching Assistant | Machine Programming [CS 329M](#); NLP with Deep Learning [CS 224n](#); Design and Analysis of Algorithms [CS 161](#) Jan 2023 - Mar 2024