

ADWAIT DESHPANDE

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EDUCATION

Georgia Institute of Technology

Master of Science in Computer Science (Specialization: Machine Learning)

Atlanta, Georgia

Aug 2021 – May 2023

Birla Institute of Technology and Science

Bachelor of Engineering (Hons.) in Computer Science

Pilani, India

Aug 2011 – Jul 2015

PUBLICATIONS

BBP: Path-based Trajectory Prediction for Autonomous Driving

Sepideh Afshar, Akshay Bhagat, Nachiket Deo, Titas Chakraborty, Balarama Raju Buddhharaju, **Adwait Deshpande**, Henggang Cui

Accepted to *ICRA 2024* [Link]

Indic-Transformers: An Analysis of Transformer Language Models for Indian Languages

Adwait Deshpande*, Kushal Jain*, Kumar Shridhar, Felix Laumann, Ayushman Dash (*Equal Contribution)

Accepted to *ML Retrospectives, Surveys & Meta-Analyses at NeurIPS 2020* [Link]

INDUSTRY EXPERIENCE

Research Scientist II

Georgia Institute of Technology

Oct 2023 - Present

Atlanta, GA

Leading R&D for AI-powered smart homes

- Achieved <10ms latency on real-time GNN-based Human Activity Recognition model using concurrent inference and async preprocessing
- Established complete ML lifecycle management by designing and implementing protocols for data collection, data pipeline, model training and model deployment

Machine Learning Intern, Prediction

Motional AD Inc.

May 2022 – Aug 2022

Pittsburgh, PA

Prediction Research for Autonomous Vehicles

- Achieved 2nd place in DAC metric (0.9930) on Argoverse dataset by implementing lane-aware motion prediction on spatio-temporal Transformer models
- Expedited model training time by 10% with multi-threaded data preprocessing and multi-GPU training (DDP and PyTorch Lightning)

Technical Lead, NLP R&D

Reverie Language Technologies

Jul 2019 – Jul 2021

Bengaluru, India

Project owner for Natural Language Understanding at scale

- Pioneered end-to-end ML R&D for JioTV Voice assistant served to multilingual users at scale
- Boosted performance of Transformer-based NLU system using joint intent and entity recognition by 5% points (F1:94)
- Achieved inference speed-up of $\approx 2x$ using knowledge distillation and model quantization on BERT language models
- Deployed containerized RESTful model servers for scalable online inference using Docker (30+ million users served @ <50ms latency)
- Successfully managed project lifecycle (scoping, deliverables and milestone planning) with cross-team collaboration and direct engagement with B2B clients

Computer Vision Engineer / Founding Member

Eternal Robotics Pvt. Ltd. (prev. Endless Robotics)

Aug 2016 – Apr 2019

Hyderabad, India

Prototype to Product for industrial painting robot

- Led Software Engineering team to develop command and control robot software with multi-protocol communication
- Achieved $\sim 20\%$ speed up compared to prototype (10x faster than human painter) by combining multithreading with real-time processing

Member of Technical Staff, R&D

Tonbo Imaging Pvt. Ltd.

Jul 2015 – Jul 2016

Bengaluru, India

Computer Vision R&D for advanced camera systems

- Optimized detection and real-time tracking of multiple objects by improving Normalized Cross Correlation and dynamic background subtraction efficiency (accuracy: 30mrads, $\pm 1px$ track deviation at 50Hz)

RESEARCH EXPERIENCE

Graduate Student Researcher

BRAINML Lab, Georgia Institute of Technology

Aug 2022 - May 2023

Atlanta, GA

Advisor: Prof. Anqi Wu

- Enhanced unsupervised representations for animal behaviors (MABe dataset) using temporal convolutions and contrastive learning

Programming Languages: Python, C/C++, JavaScript

Libraries / Skills: PyTorch, pandas, NumPy, MongoDB, SQL, NLTK, spaCy, Docker