Aayush Mishra

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I work on making Artificial Intelligence systems robust, explainable and efficient.

Education

Johns Hopkins University	Jan 2022 –
Ph.D. in Computer Science	– ongoing
M.S.E. in Computer Science – GPA: 4.0/4.0 ([transcript ↗](#))	– Dec 2023
Indian Institute of Technology Mandi	Aug 2015 – Jun 2019
B.Tech. in Computer Science and Engineering – GPA: 8.88/10.0 ([transcript ↗](#))	
with Minor in Management	

Experience

Adobe

Research Intern [Document Intelligence Lab]   May 2024 – Aug 2024

○ Developed EigenLoRA, a method to recycle trained LoRAs for parameter efficient training of new adaptors; and memory efficient inference of multiple adaptors, aimed at LLM/diffusion model use in edge devices.

Microsoft

Data & Applied Scientist [Bing Shopping Team]   Aug 2021 – Jan 2022

○ Worked on query → product class mapping (∼18k classes) to capture fine-grained user intent.

○ Developed a relevance metric to improve ranking of sale offers.

Siemens

Research Engineer [Automation]   Jul 2019 – Aug 2021

○ Developed a method that explains CNNs and helps compress them for deployment on edge devices.

○ Used ProGAN to generate realistic traffic scenes for stress-testing object detection models (YOLO). Devised a procedural generation language based on GAN-Dissection to create images based on a description.

○ Used RL to find edge-case scenarios where self-driving agents violate safety properties (in CARLA simulator).

Research Intern [Automation]

○ Classification of Siemens Social Network posts using statistical NLP.   Summer 2018

○ Code reuse recommendation based on semantic search (Latent Semantic Analysis).   Winter 2017-2018

Selected Publications/Research

○ *ODD: Overlap-aware Estimation of Model Performance under Distribution Shift* **Aayush Mishra**, Anqi Liu [[UAI paper ↗](#)]	2025
○ *EigenLoRA: Recycle trained Adapters for Resource Efficient Adaptation and Inference* **Aayush Mishra***, Prakhar Kaushik*, et al. [[pre-print ↗](#)]	2024
○ *Do pretrained Transformers Learn In-Context by Gradient Descent?* **Aayush Mishra***, Lingfeng Shen*, Daniel Khashabi [[ICML (Oral) paper ↗](#)]	2024
○ *Source-Free and Image-Only Unsupervised Domain Adaptation for Category Level Object Pose Estimation* Prakhar Kaushik, **Aayush Mishra**, et al. [[ICLR paper ↗](#)]	2024
○ *Repeated Environment Inference for Invariant Learning* **Aayush Mishra**, Anqi Liu [[ICML SCIS workshop paper ↗](#)]	2022
○ *VStegNET: Video Steganography Network using Spatio-Temporal features and Micro-Bottleneck* **Aayush Mishra***, Suraj Kumar*, et al. [[BMVC paper ↗](#)]	2019

- *Generating Masterprints*   2019
  Aayush Mishra [bachelor's thesis ↗]

Projects

CricScorer [IRWA course ↗ project]   2023
- Live Cricket scorer to store and retrieve data/stats at the highest resolution. [report ↗]

Stress testing Chain-of-Thought Prompting [SSL course ↗ project]   2022
- Tested the robustness of Chain-of-Thought prompting with noisy labels in GPT-3. [report ↗]

Surgical Tool Segmentation [DL course ↗ project]   2022
- Developed a novel data augmentation technique to improve tool segmentation performance. [report ↗]

Teaching Experience

Machine Learning [JHU]	Spring 2024
Deep Learning and its Applications [IIT Mandi]	Spring 2019
Artificial Intelligence [IIT Mandi]	Fall 2018

Designed homeworks/exams in all courses. Held tutorials and taught lectures on Self-Supervised Learning. [link ↗]

Skills

Python	●●●●●
C++	●●●●○
Machine Learning Toolkits (`torch`, `transformers`, etc.)	●●●●●
Data Engineering	●●●●●
Software Engineering	●●●●○

Reviewing activities

ICLR	2024, 2025
ICML	2024, 2025
NeurIPS	2025
UAI	2025