

Prakhar Kaushik

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EDUCATION

Johns Hopkins University	In-Progress Ph.D. Computer Science; 2020 M.S. , Computer Science
Indian Naval Academy, etc.	B.Tech. Electronics and Communications
Rashtriya Indian Military College	High School

RESEARCH STATEMENT

My current projects are on **efficient finetuning** of Large Language, Vision-Language and Image Generative Models, **Model Merging** of VLMs, **Knowledge Unlearning** in LLMs/VLMs, single-view and sparse-view **Image to 3D**, and **lifelong learning** for VLMs.

My past work has involved **Unsupervised Learning for 3D**, **domain adaptation**, **3D generative modeling**, **model sparsity**, and **robustness**. Given my diverse educational background, I have also worked on **causal inference**, **conformal inference**, cryptographic attacks, medical image analysis, and optimal transport using different modalities of data.

I am motivated to examine neural subspaces and cognitive theories with the aim of employing them to develop *efficient* machine learning models capable of learning in a manner akin to human cognition, as well as to accurately and effectively represent the three-dimensional world.

RESEARCH EXPERIENCE

Johns Hopkins University Computer Science Department (Baltimore, MD, USA)	9/2020 – now	Graduate Research Assistant Advisor: Dr. Alan Yuille
Laboratory for Computational Sensing + Robotics (Baltimore, MD, USA)	6/2020 – 9/2020	Graduate Research Assistant Supervisor: Dr. Marin Kobilarov
School of Public Health (Baltimore, MD, USA)	10/2018 – 4/2019	Graduate Research Assistant Supervisor: Dr. Qingfeng Li
Information Security Institute (Baltimore, MD, USA)	6/2018 – 10/2018	Graduate Research Assistant Supervisor: Dr. Lanier Watkins
Amazon Sponsored Products	06/2021 – 09/2021	Applied Scientist Intern Supervisors: Dr. Avishek Saha
Visual Search (Palo Alto, CA, USA)	06/2022 – 12/2022	Applied Scientist Intern Supervisors: Dr. Brian Li
CR Rao Institute of Maths, Stats & CS (Hyderabad, India)	4/2017 – 7/2017	Research Intern Host: Dr. Vishal Saraswat
Indian Statistical Institute Microsoft Research Asia (Kolkata, India)	5/2016 – 8/2016	Research Intern Host: Dr. Vishal Saraswat

INDUSTRY EXPERIENCE

Amplio Sports Analytics	04/2019 – 04/2020	AI Development Lead
Ernst&Young	07/2017 – 12/2017	Risk Analyst

PUBLICATIONS AND PAPERS

Papers with future venues are accepted to appear in them.

** equal contribution.*

- **EigenLoRAX: Recycling Adapters to Find Principal Subspaces for Resource-Efficient Adaptation and Inference.** Prakhar Kaushik, Ankit Vaidya, Shravan Chaudhari, Alan Yuille. preprint. 2025

- **EigenFlux: Parameter Efficient Continual Finetuning via Low-Rank Shared Subspace Adaptation.** Prakhar Kaushik, Ankit Vaidya, Alan Yuille, preprint, 2024.
- **Scaling Neural Mesh Models for Robust Classification and Pose Estimation.** Xiaoding Yuan*, Prakhar Kaushik*, Guofeng Zhang*, Artur Jesslen, Adam Kortylewski, and Alan Yuille. preprint, 2024.
- **CIDA-3D: Conformal Inference aided Unsupervised Domain Adaptation for 3D-Aware Classification.** Prakhar Kaushik, Aayush Mishra, Anqi Liu, Adam Kortylewski, and Alan Yuille. preprint, 2024.
- **EigenLoRA: Recycle trained Adapters for Resource Efficient Adaptation and Inference.** Prakhar Kaushik, Aayush Mishra*, Ankit Vaidya*, Raghavendra Addanki, Ryan A. Rossi, Ani Nenkova, Anqi Liu, Alan Yuille, Jiuxiang Gu. preprint, 2024
- **Gaussian Scenes: Pose-Free Sparse-View Scene Reconstruction using Depth-Enhanced Diffusion Priors.** Soumava Paul, Prakhar Kaushik, Alan Yuille. preprint 2024
- **DSPart: A Large-scale Diffusion-generated Synthetic Dataset with Annotations from 3D Parts.** Jiawei Peng, Yining Sun, Ju He, Jieneng Chen, Prakhar Kaushik, Wufei Ma, Yi Zhang, Jiahao Wang, Angtian Wang, Xiaoding Yuan, Qihao Liu, Adam Kortylewski, Yaoyao Liu, and Alan Yuille. preprint, 2024.
- **A Source-Free and Image-Only Unsupervised Domain Adaptation for Category Level Object Pose Estimation.** Prakhar Kaushik, Aayush Mishra, Adam Kortylewski, and Alan Yuille. In *The Twelfth International Conference on Learning Representations, (ICLR) 2024*.
- **A Bayesian Approach to OOD Robustness in Image Classification.** Prakhar Kaushik, Adam Kortylewski, and Alan Yuille. In *The IEEE/CVF Conference on Computer Vision and Pattern Recognition, (CVPR) 2024*.
- **iNeMo: Incremental Neural Mesh Models for Robust Class-Incremental Learning.** Tom Fischer, Yaoyao Liu, Artur Jesslen, Noor Ahmed, Prakhar Kaushik, Angtian Wang, Alan Yuille, Adam Kortylewski, and Eddy Ilg. preprint, The 18th European Conference on Computer Vision (**ECCV**) 2024.
- **Learning Part Segmentation from Synthetic Animals.** Jiawei Peng, Ju He, Prakhar Kaushik, Zihao Xiao, Jiteng Mu, and Alan Yuille. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, (WACV) 2024*.
- **Animal3d: A comprehensive dataset of 3d animal pose and shape.** Xu et al. In *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), 2023*.
- **Understanding catastrophic forgetting and remembering in continual learning with optimal relevance mapping.** Prakhar Kaushik, Alex Gain, Adam Kortylewski, Alan Yuille. In *Conference on Neural Information Processing Systems Fifth Workshop on Meta Learning, (NeurIPS) workshop 2021*.
- **Adaptive neural connections for sparsity learning.** Alex Gain*, Prakhar Kaushik*, Hava Siegelmann. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision, (WACV) 2020*.
- **Radar as a Security Measure - Real Time Neural Model based Human Detection and Behaviour Classification.** Prakhar Kaushik. In *IEEE Global Conference on Signal and Information Processing, 2019*.

- Timing attack analysis on AES on modern processors. Prakhar Kaushik, Rana Majumdar. In *International Conference on Reliability, Infocom Technologies and Optimization*, 2017.
- An Offline Outdoor Navigation System with Full Privacy. Prakhar Kaushik, Vishal Saraswat, and Francesco Buccafurri. In *Proceedings of the 14th International Joint Conference on e-Business and Telecommunications* , 2017.

TALKS

- Artificial Intelligence for Engineering and Medicine Lab (Prof. Rama Chellappa) - April'24

AWARDS AND FELLOWSHIPS

- Lieutenant General MM Lakhera Silver Medal, 2012 – Best In Mathematics.
- Colonel Haughten Silver Medal, 2012.
- Lieutenant Commander Rajat K Sen Silver Medal, 2010.
- UN Jha Memorial Gold Medal, 2010.
- All India Rank 1 - Rashtriya Indian Military College Examination
- All India Rank 2 - UPSC National Defence Academy and Naval Academy Examination

SERVICE

- Founder and President of Indian Graduate Student Association (IGSA), Johns Hopkins, 2022–now.
- Reviewer for NeurIPS, ICLR, CVPR, ICCV, BMVC, WACV, AAAI, ICML (2019-now).