SHAUNAK HALBE

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EDUCATION

Georgia Institute of Technology *August 2022 - Present*
Ph.D. in Machine Learning
Advisor : Prof. Zsolt Kira

College of Engineering Pune (COEP) *July 2018 - June 2022*
Bachelor of Technology (Hons.) **GPA: 9.72/10**
Department of Computer Science & Engineering **Institute Rank: 1/738**
Advisor : Prof. Vahida Attar Link to Transcripts

RESEARCH INTERESTS

Egocentric Video Understanding, Open-Set Visual Recognition, Continual Learning, Vision-Language

RESEARCH

1. HePCo: Data-Free Heterogeneous Prompt Consolidation for Continual Federated Learning [arxiv]
Shaunak Halbe*, *James Smith, Junjiao Tian, Zsolt Kira*

- **Workshop on Federated Learning in the Age of Foundation Models, NeurIPS 2023**
- **Workshop on Robustness in Foundation Models, NeurIPS 2023**
- *Long version under review*

2. Robustness through Data Augmentation Loss Consistency [arxiv]
*Tianjian Huang**, ***Shaunak Halbe****, *Chinnadhurai Sankar, Pooyan Amini, Satwik Kottur, Alborz Geramifard, Meisam Razaviyayn, Ahmad Beirami*

- **Transactions on Machine Learning Research (TMLR), 2022**

3. Open-World Dialogue Driven Object Navigation

- **Conference on Robot Learning, CoRL 2023 (Demo Track)**

4. A Closer Look at Rehearsal-Free Continual Learning [arxiv]
*James Smith, Junjiao Tian, **Shaunak Halbe**, Yen-Chang Hsu, Zsolt Kira*

- **Workshop on Continual Learning in Computer Vision (CLVision), CVPR 2023**

5. Reason & Act : A Modular Approach to Explanation Driven Agents for Vision and Language Navigation [pdf] [video]
Shaunak Halbe*, Ingrid Navarro, and Jean Oh*

- **Carnegie Mellon University RISS Working Papers Journal, 2021**

6. Exploring Weaknesses of VQA Models through Attribution Driven Insights [pdf] [talk]
Shaunak Halbe

- **Second Grand-Challenge and Workshop on Multimodal Language, ACL 2020**
- **Visual Question Answering and Dialog Workshop, CVPR 2020**

EXPERIENCE

Georgia Institute of Technology — Atlanta, GA
Graduate Research Assistant — *Aug 2022 - Present*

- Working on open-world visual recognition with specific forays into spatio-temporal localization for egocentric videos (Ego4D), universal visual recognition, continual learning, federated learning and category discovery

Carnegie Mellon University — Pittsburgh, PA
Robotics Institute Summer Scholar (RISS) — *June 2021 - Feb 2022*

- Worked under the guidance of Prof. Jean Oh on developing a modular agent for the task of Vision and Language Navigation in Continuous Environments (VLN-CE).
- Developed a novel reasoning component leveraging scene-level contextual information for effective subgoal planning

University of Southern California — Los Angeles, CA
Research Intern — *May 2021 - May 2022*

- Worked under the guidance of Dr. Ahmad Beirami (Meta AI Research) & Prof. Meisam Razaviyayn on developing a novel regularizer to promote robust domain invariant feature learning through data augmentation.
- Demonstrated state-of-the-art results on Task-Oriented Dialog, VQA, Adversarial Robustness and Regression benchmarks.

Meta AI — Menlo Park, CA
External Research Collaborator — *Jan 2021 - Mar 2022*

- Remotely collaborated with Dr. Satwik Kottur to perform robustness studies on state-of-the-art Visual Dialog models.
- Implemented a contrastive learning approach to improve model consistency under semantics preserving shifts in the language domain.

ACADEMIC ACHIEVEMENTS

- Received COEP's Best Outgoing Student Award for excellence in academic and extra-curricular activities (2022)
- Awarded the Gold Medal for maintaining the Highest GPA in the graduating batch and in Computer Science at COEP (2022)
- Received COEP's Alumni Association Award for three consecutive years for being **1st** (among 738 students) across all departments, according to the GPA-based ranking scheme (2020, 2021, 2022)
- One of the 15 Viterbi-India Scholars selected by Viterbi School of Engineering (USC) and the Indo-US Science and Technology Forum for a fully funded research internship in Summer 2021
- Selected for the prestigious Robotics Institute of Summer Scholars (RISS) 2021 program at CMU to pursue research supported by a generous scholarship (only 50 scholars were selected out of 700+ applicants worldwide)
- Offered the Mitacs Globalink Award to conduct funded research in Canada during Summer 2021
- Shortlisted for the highly-selective EPFL Summer Fellowship from 4500+ applicants worldwide

SERVICE

- Graduate Teaching Assistant, CS 7643 Deep Learning, Fall 2023
- Reviewer: NeurIPSW 2023, CMU RI Working Papers Journal, 2021
- Volunteer: NeurIPS 2023, CoRL 2023, ACL 2020 and NAACL 2021

REFERENCES

- Dr. Zsolt Kira — Assistant Professor, Georgia Institute of Technology, GA, USA
- Dr. Ahmad Beirami — Research Scientist, Google Research, NY, USA
- Prof. Jean Oh — Associate Professor, Carnegie Mellon University, PA, USA
- Prof. Meisam Razaviyayn — Assistant Professor, University of Southern California, CA, USA