

# SHAUNAK HALBE

Web : <https://shaunak27.github.io>

[GitHub](#) ♦ [Google Scholar](#)

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## EDUCATION

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**Georgia Institute of Technology**

*August 2022 - Present*

Ph.D. in Machine Learning

Advisor : [Prof. Zolt 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

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Multimodal LLMs, Video Understanding, Continual Learning, Web and Embodied AI Agents

## RESEARCH

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**7. Grounding Descriptions in Images informs Zero-shot Visual Recognition** [\[pdf\]](#)

*Shaunak Halbe\*, et. al. (hidden for anonymity)*

· Under Review

**6. Continual Adaptation of Vision Transformers for Federated Learning** [\[arxiv\]](#) [\[talk\]](#)

*Shaunak Halbe\*, James Smith, Junjiao Tian, Zolt Kira*

· Transactions on Machine Learning Research (TMLR), 2024

· Workshop on Federated Learning in the Age of Foundation Models, NeurIPS 2023

· Oral, top 10% of all submissions

**5. 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

**4. A Closer Look at Rehearsal-Free Continual Learning** [\[arxiv\]](#)

*James Smith, Junjiao Tian, Shaunak Halbe, Yen-Chang Hsu, Zolt Kira*

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

**3. Open-World Dialogue Driven Object Navigation**

· Conference on Robot Learning, CoRL 2023 (Demo Track)

**2. 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 RIIS Working Papers Journal, 2021

## 1. 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

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### Georgia Institute of Technology

*Graduate Research Assistant*

Atlanta, GA

*Aug 2022 - Present*

- Working at the intersection of vision and language with specific forays into pretraining and adaptation of foundation models, video understanding and embodied AI.

### Carnegie Mellon University

*Robotics Institute Summer Scholar (RISS)*

Pittsburgh, PA

*June 2021 - Feb 2022*

- Worked under the guidance of [Prof. Jean Oh](#) on developing a modular reasoning agent for the task of Vision and Language Navigation in Continuous Environments (VLN-CE).

### University of Southern California

*Research Intern*

Los Angeles, CA

*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 and adversarial robustness benchmarks.

### Meta AI

*External Research Collaborator*

Menlo Park, CA

*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 space.

## ACADEMIC ACHIEVEMENTS

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- 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 **1<sup>st</sup>** (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

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- Graduate Teaching Assistant, CS 7643 Deep Learning, Fall 2023
- Reviewer: CVPR 2024, NeurIPS 2023, CMU RI Working Papers Journal, 2021
- Volunteer: NeurIPS 2023, CoRL 2023, ACL 2020 and NAACL 2021

## REFERENCES

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|---|---|
| • <a href="#">Prof. Zolt Kira</a>         | Associate Professor, Georgia Institute of Technology, GA, USA   |
| • <a href="#">Dr. Ahmad Beirami</a>       | Research Scientist, Google DeepMind, NY, USA                    |
| • <a href="#">Prof. Jean Oh</a>           | Associate Professor, Carnegie Mellon University, PA, USA        |
| • <a href="#">Dr. Satwik Kottur</a>       | Research Scientist, Meta AI, CA, USA                            |
| • <a href="#">Prof. Meisam Razaviyayn</a> | Assistant Professor, University of Southern California, CA, USA |