SHAUNAK HALBE

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Homepage : https://shaunak27.github.io

EDUCATION

Georgia Institute of Technology   *August 2022 - 2027*
PhD in Machine Learning   **GPA: 4.0/4.0**
School of Interactive Computing
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

Continual Learning, Robustness and Generalization, Vision-and-Language

PUBLICATIONS

1. 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

2. 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**

3. Localizing Moments in Surveillance Videos using Natural Language Queries [TBA]
***Shaunak Halbe**, Viren Patil, Vasvi Gupta, Karishma Pawar, Vahida Attar*

· Under Review at an A* Computer Vision Conference

4. 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 Vol. 9, pp. 102-107

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

· Second Grand-Challenge and Workshop on Multimodal Language, **ACL 2020**, pp. 64-68
· Visual Question Answering & Dialog Workshop, **CVPR 2020**

RESEARCH EXPERIENCE

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). Integrated a multimodal transformer into this agent for improved cross-modal grounding. Additionally, a novel reasoning component was introduced to provide supplementary signals during navigation.

· Developed a style of automated template-based instructions to be injected into the agent at each step, as a form of data augmentation.

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 regularization technique to promote robust domain invariant feature learning through data augmentation. Proposed the application of this regularizer to several tasks involving Multimodality, Adversarial Robustness, Domain Shift, Task-Oriented Dialog etc.

· Demonstrated state-of-the-art results against problem specific approaches across a variety of tasks.

Meta (Facebook) AI Research
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. To emulate a real-world setting, we accumulated paraphrased dialogs by backtranslating the original ones through off-the-shelf Machine Translation models.

· Integrated a contrastive learning approach to improve robustness towards these paraphrased dialogs.

SILP Lab, IIIT Allahabad
Allahabad, India
Winter Research Intern
Dec 2019 - Jan 2020

· Conducted Research under the supervision of Prof. Uma Shanker Tiwary in the domain of Image Captioning. Looked into extending the DenseCap model to locally curated datasets.

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

- Served as a reviewer for the CMU Robotics Institute Working Papers Journal, 2021
- Volunteered at ACL 2020, EMNLP 2020, NeurIPS 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