Vardaan Pahuja

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RESEARCH INTERESTS

Multimodal Foundation Models, Knowledge Graph Reasoning, Graph Representation Learning, Natural Language Processing

EDUCATION

The Ohio State University Aug. 2019 - Present
Ph.D. in Computer Science and Engineering | GPA: **4.0/4.0**

Université de Montréal Sept. 2017 - July 2019
Masters in Computer Science | GPA: **4.3/4.3**
Affiliated with: Montreal Institute for Learning Algorithms (MILA)

IIT Kharagpur, India July 2012 - July 2016
B.Tech(Hons.) in Electronics and Electrical Communication Engineering,
Minor in Computer Science and Engineering
GPA: **9.61/10** (Department Rank 1)
Achievements:

- Awarded **Institute Silver Medal 2016** for best academic performance in department at graduation.
- Awarded Nilanjan Ganguly Memorial Award for **Best Bachelor's Thesis** in department.

PUBLICATIONS

- **Explorer: Scaling Exploration-driven Web Trajectory Synthesis for Multimodal Web Agents**
  Vardaan Pahuja, Yadong Lu, Corby Rosset, Boyu Gou, Arindam Mitra, Spencer Whitehead, Yu Su, Ahmed Awadallah, **Preprint**
- **Reviving the Context: Camera Trap Species Classification as Link Prediction on Multimodal Knowledge Graphs**
  Vardaan Pahuja, Weidi Luo, Yu Gu, Cheng-Hao Tu, Hong-You Chen, Tanya Berger-Wolf, Charles Stewart, Song Gao, Wei-Lun Chao, Yu Su, **CIKM'24**
- **A Retrieve-and-Read Framework for Knowledge Graph Link Prediction**
  Vardaan Pahuja, Boshi Wang, Hugo Latapie, Jayanth Srinivasa, Yu Su, **CIKM'23**.
- **Diversifying Joint Vision-Language Tokenization Learning**
  Vardaan Pahuja, AJ Piergiovanni and Anelia Angelova, **Transformers for Vision workshop, CVPR 2023**.
- **A Systematic Investigation of KB-Text Embedding Alignment at Scale**
  Vardaan Pahuja, Yu Gu, Wenhu Chen, Mehdi Bahrami, Lei Liu, Wei-Peng Chen and Yu Su, **ACL 2021**.
- **Fine-Tuning is Fine, if Calibrated**
  Zheda Mai*, Arpita Chowdhury*, Ping Zhang*, Cheng-Hao Tu, Hong-You Chen, Vardaan Pahuja, Tanya Berger-Wolf, Song Gao, Charles Stewart, Yu Su, Wei-Lun Chao, **NeurIPS'24**.
- **Holistic Transfer: Towards Non-Disruptive Fine-Tuning with Partial Target Data**
  Cheng-Hao Tu, Hong-You Chen, Jike Zhong, Zheda Mai, Vardaan Pahuja, Tanya Berger-Wolf, Song Gao, Charles Stewart, Yu Su, Wei-Lun Chao, **NeurIPS'23**.
- **Knowledge Base Question Answering: A Semantic Parsing Perspective**
  Yu Gu, Vardaan Pahuja, Gong Cheng, Yu Su, **AKBC 2022**.
- **Structure Learning for Neural Module Networks**
  Vardaan Pahuja, Jie Fu, Sarath Chandar, Christopher J Pal, **LANTERN workshop, EMNLP 2019**.
- **Learning Sparse Mixture of Experts for Visual Question Answering**
  Vardaan Pahuja, Jie Fu, Christopher J Pal, **Visual Question Answering and Dialog Workshop, CVPR 2019**.
- **Complex Sequential Question Answering: Towards Learning to Converse Over Linked Question Answer Pairs with a Knowledge Graph**

Amrita Saha*, Vardaan Pahuja*, Mitesh M. Khapra, Karthik Sankaranarayanan, Sarath Chandar, **AAAI 2018**.

- **Joint Learning of Correlated Sequence Labeling Tasks Using Bidirectional Recurrent Neural Networks**
  Vardaan Pahuja*, Anirban Laha*, Shachar Mirkin, Vikas Raykar, Lili Kotlerman and Guy Lev, **Interspeech 2017**.
- **Learning a Probabilistic Boolean Network Model from Biological Pathways and Time-series Expression Data**
  Vardaan Pahuja, Ritwik Kumar Layek and Pabitra Mitra, **EMBC 2016**.
- **SalsaBot: Towards a Robust and Generalizable Embodied Agent**
  Chan Hee Song*, Jiaman Wu*, Ju-Seung Byun, Zexin Xu, Vardaan Pahuja, Goonmeet Bajaj, Samuel Stevens, Ziru Chen, Yu Su, **Proceedings of Alexa Prize SimBot Challenge**
- **Tooling framework for instantiating natural language querying system** Manasa Jammi, Jaydeep Sen, Ashish Mittal, Sagar Verma, Vardaan Pahuja, Rema Ananthanarayanan, Pranay Lohia, Hima Karanam, Diptikalyan Saha, Karthik Sankaranarayanan, **VLDB Endowment 2018**.

AWARDS

- **Honorable Mention Award for Poster**, OSU CSE Graduate Student Research Poster Exhibition 2024
- **Prof. J.C. Ghosh Memorial Prize**, IIT Kharagpur, Best academic performance (VI semester) 2015
  International Sym. (Microwave and Comm.) 1981 Prize, IIT Kharagpur,
  Best academic performance (VI semester) 2015
- **Class of 1970 Alumni (US) Association Prize**, IIT Kharagpur,
  Best academic performance in Institute (IV semester) 2014
- **IIT Kharagpur Alumni (California Chapter) Award**, IIT Kharagpur,
  Best academic performance in Institute (IV semester) 2014
- **National Talent Search Examination (NTSE)**, Award of scholarship under NTSE 2008

EXPERIENCE

- **Microsoft Research, Redmond**
  Research Intern May 2024 - Aug. 2024
- **Google Research, Mountain View**
  Student Researcher, PhD May 2022 - Aug. 2022
- **Bosch Center for Artificial Intelligence, Pittsburgh**
  Neuro-Symbolic AI Research Intern May 2021 - Aug. 2021
- **IBM Research India, Bangalore**, Software Engineer (Research) July 2016 - July 2017
- **Xerox Research Centre India, Bangalore**, Research Intern May 2015 - July 2015

TEACHING EXPERIENCE

- **Teaching Assistant**, Algorithms, CSE, OSU Aug. 2023 - present
- **Teaching Assistant**, Introduction to Java Programming, CSE, OSU Aug. 2019 - April 2020
- **Teaching Assistant**, Introduction to Java Programming, CSE, OSU Aug. 2020 - Dec. 2020

REVIEWING

Reviewer: COLM'25, ICCV'25, ACL'25, NAACL'25, CVPR'25, COLM'24, CVPR'24, EMNLP'23, ACL'23, NAACL'22, Transactions on Big Data'24
Secondary Reviewer: BigData-IT'22, EMNLP'21; KDD'21; ACL'21; SIGKDD'20

COURSEWORK

Artificial Intelligence, Learning Representations, Introduction to Data Mining, Computational Linguistics, Algorithms, Machine Learning, Object Oriented System Design, Probability and Stochastic Processes, Speech and Language Processing.

* indicates Equal Contribution.

TECHNOLOGY SKILLS

Programming Languages: Python, C/C++, Java
Packages: PyTorch, TensorFlow