

EDUCATION

Princeton University

PhD in Computer Science

GPA: 4.0/4.0

Georgia Institute of Technology

Masters of Science in Computer Science (Specialization: Machine Learning)

GPA: 4.0/4.0

Georgia Institute of Technology

Bachelors of Science in Computer Science (Specialization: Artificial Intelligence and Devices)

GPA: 3.96/4.0 (Highest Honors)

Princeton, NJ

Sep 2020 – Present

Atlanta, USA

Aug 2018 – May 2020

Atlanta, USA

Aug 2015 – May 2018

RESEARCH INTERESTS

Natural Language Processing, Deep Learning, Reinforcement Learning, Computer Vision

PUBLICATIONS

MUX-PLMs: Pre-training Language Models with Data Multiplexing [\[Paper\]](#) [\[Code\]](#)

Vishvak Murahari, Ameet Deshpande, Carlos E. Jimenez, Izhak Shafran, Mingqiu Wang, Yuan Cao, Karthik Narasimhan

Arxiv preprint

Building Scalable Video Understanding Benchmarks through Sports [\[Paper\]](#) [\[Code\]](#) [\[Website\]](#)

Aniket Agarwal*, Alex Zhang*, Karthik Narasimhan, Igor Gilitschenski, **Vishvak Murahari**[‡], Yash Kant[‡]

Arxiv preprint

DataMUX: Data Multiplexing for Neural Networks [\[Paper\]](#) [\[Code\]](#) [\[Website\]](#)

Vishvak Murahari, Carlos E. Jimenez, Runzhe Yang, Karthik Narasimhan

Patent Pending; Runner-up, Bell Labs Prize 2022

Conference on Neural Information Processing Systems (NeurIPS) 2022

Large-scale Pretraining for Visual Dialog: A Simple State-of-the-Art Baseline [\[Paper\]](#) [\[Code\]](#) [\[Talk\]](#)

Vishvak Murahari, Dhruv Batra, Devi Parikh, Abhishek Das

European Conference on Computer Vision (ECCV) 2020

Improving Generative Visual Dialog by Answering Diverse Questions [\[Paper\]](#) [\[Code\]](#) [\[Poster\]](#)

Vishvak Murahari, Prithivijit Chattopadhyay, Dhruv Batra, Devi Parikh, Abhishek Das

Empirical Methods in Natural Language Processing (EMNLP) 2019

On attention models for human activity recognition [\[Paper\]](#)

Vishvak Murahari, Thomas Ploetz

International Symposium on Wearable Computers (ISWC) 2018

AWARDS AND ACHIEVEMENTS

- Runners up for the **Bell Labs Innovation Prize, 2022** (50000 USD in prize money).
- Finalist for the **Qualcomm Innovation Fellowship 2022**
- Awarded the MS Research Award by the College of Computing, Georgia Tech
- Awarded Faculty Honors by Georgia Tech for 5 out of 6 semesters in my undergraduate degree.
- Represented India at the World Robotics Olympiad in 2013 and 2014.
- Selected for the prestigious NTSE scholarship offered by the Govt. of India

WORK EXPERIENCE

Google Brain

Student Researcher

Mountain View, CA

May 2022 - December 2022

- Developed novel efficiency approaches to increase throughput of large language models many-fold.
- Designed efficient training procedures for large language models.

Allen Institute for Artificial Intelligence (AI2)

Research Intern

Seattle, WA

May 2020 - Aug 2020

- Developed weakly-supervised approaches for learning language grounding in embodied agents.
- Developed instruction-following policies in the THOR simulator.

MICROSOFT

Engineering Intern

Redmond, WA

May 2019 - July 2019

- Built data-driven models to do query re-formulation and improve email search relevance in Outlook 365.
- Built ML models to detect and update irrelevant user search queries.

MICROSOFT

Engineering Intern

Redmond, WA

May 2018 - July 2018

- Built a real-time ML architecture to recommend game suggestions to Xbox users.
- Developed Gradient Boosted Tree Models to learn user engagement behavior on the Xbox Console.
- Designed objective evaluation metrics to gauge user engagement.

MICROSOFT

Engineering Intern

Redmond, WA

May 2017 - July 2017

- Designed a low-latency system to process privacy requests from Windows users to delete sensitive data.
- Designed a delete processor to back a highly scalable privacy dashboard for all Windows 10 users.
- Developed an algorithm to predict server running costs for teams at Microsoft.

PEGA

Engineering Intern

Atlanta, GA

May 2016 - July 2016

- Automated daily business processes by creating bot agents to automatically navigate business applications.
- Developed a bot creation framework in C# for PEGA clients to accelerate creation of task-specific bots.
- Designed an intuitive user interface for analysts to interact with and deploy bots with ease.

TEACHING

Introduction to Machine Learning

Teaching Assistant

Princeton, NJ

Fall 2021

- Advised more than 200 students on introductory concepts in supervised learning, unsupervised learning and reinforcement learning
- Collaborated with co-TAs to create course material and taught a weekly recitation.

Introduction to Robotics and Perception

Teaching Assistant

Atlanta, GA

Fall 2018,2019; Spring 2018,2019

- Advised more than 300 students on robotic planning, control and localization.
- Collaborated with co-TAs to create projects on robot localization.

Introduction to Artificial Intelligence (AI)

Teaching Assistant

Atlanta, GA

Fall 2017, Spring 2017

- Guided more than 300 students on AI projects ranging from probabilistic inference to Neural Networks, Optimization and Reinforcement Learning.

Computing for Engineers

Teaching Assistant

Atlanta, GA

Fall 2016, Spring 2016

- Advised more than 1000 students on MATLAB projects introducing the fundamentals of computing.
- Taught a 90 minute weekly recitation and collaborated with co-TAs to create weekly assignments.

SELECTED PROJECTS

Real-time Gesture Recognition on Wearables

- Designed a novel machine learning pipeline for real time gesture recognition on off-the-shelf devices.
- Deployed the system on Google Glass and optimized performance in everyday settings.

How much should you rent your home for? A recommendation tool for renting Airbnbs

- Devised Machine Learning approaches to model Airbnb prices by leveraging both Airbnb and Zillow listings and created interactive map-based visualizations of average prices across the United States.

Everybody Dance Now

- Implementation of Chan et. al (ICCV 19)

SERVICE ROLES AND ACADEMIC ACTIVITIES

Challenge Organization

Visual Dialog Challenge

CVPR 2020

Workshop Organization

Visual Question Answering and Dialog Workshop

CVPR 2020

SKILLS

- **Languages:** Python, C, C++, C#, Java , MATLAB
- **Frameworks:** PyTorch, NumPy, Pandas, Scikit-Learn, Open CV
- **DevOps:** Amazon Web Services, Google Cloud
- **Version Control:** Git
- **Mobile Applications:** Android

SELECTED COURSEWORK

- Mathematical Foundations of ML • Deep Learning • NLP • Machine Learning • Adaptive Control and RL
- ML Theory • Computer Vision • Algorithms • Data and Visual Analytics • Systems and Networks