

## EDUCATION

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### Georgia Institute of Technology

Atlanta, USA

- *Master of Science in Computer Science (Specialization: Machine Learning)*  
*Expected Graduation: May 2021; Expected GPA: 4.0/4.0*

Aug 2019 – Present

### Indian Institute of Technology (BHU) Varanasi

Varanasi, India

- *Bachelor of Technology in Computer Science and Engineering*  
*GPA: 9.20/10.0*

Jul 2014 – May 2018

## RESEARCH INTERESTS

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Computer Vision, Deep Learning, Natural Language Processing

## AWARDS AND ACHIEVEMENTS

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- Awarded **Amazon Post-Internship Fellowship**
- Travel Scholarship for **Google Summer of Code Mentor Summit 2018**, Google Sunnyvale
- Presented our project, **Memento** at **Microsoft's code.fun.do SHOWCASE 2017**; received Travel Scholarship
- Winner, **code.fun.do 2017**; hackathon conducted by **Microsoft**
- Runner up, **code.fun.do 2016**; hackathon conducted by **Microsoft**
- Winner, Enigma; ML hackathon conducted by CodeFest 2016 (Computer Science Fest, IIT BHU)
- Secured **All India Rank 859** in IIT JEE (Advanced) 2014 among 1.5 Lakh students (among top 0.5%)
- **Vibrant Academy Scholarship recipient** (2012 - 2014)

## PUBLICATIONS (\* DENOTES EQUAL CONTRIBUTION)

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- **Sim-to-Real Transfer for Vision-and-Language Navigation**  
Peter Anderson, Ayush Shrivastava, Joanne Truong, Arjun Majumdar, Devi Parikh, Dhruv Batra, Stefan Lee  
*Conference on Robot Learning (CoRL) 2020*
- **Improving Vision-and-Language Navigation with Image-Text Pairs from the Web**  
Arjun Majumdar, Ayush Shrivastava, Stefan Lee, Peter Anderson, Devi Parikh, Dhruv Batra  
*European Conference on Computer Vision (ECCV) 2020, **Spotlight (5%)***
- **Chasing Ghosts: Instruction Following as Bayesian State Tracking**  
Peter Anderson\*, Ayush Shrivastava\*, Devi Parikh, Dhruv Batra, Stefan Lee  
*Neural Information Processing Systems (NeurIPS) 2019*

## WORK EXPERIENCE

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- **Amazon Alexa AI**  
*Applied Scientist Intern | Supervisor: **Dilek Hakkani-Tür**, Conversational Modelling Team* *May 2020 - Aug 2020*
- **Georgia Institute of Technology** Atlanta, GA  
*Graduate Research Assistant | Supervisor: **Prof. Devi Parikh*** *Aug 2019 - Current*
  - Working on problems related to Embodied AI and Vision & Language
  - Worked on using BERT-style models to better ground navigation instruction in 3D environments. Published at *ECCV 2020*.
- **Georgia Institute of Technology** Atlanta, GA  
*Visiting Research Scholar | Supervisor: **Prof. Devi Parikh**, **Prof. Dhruv Batra*** *Aug 2018 - May 2019*
  - Worked on solving navigation instruction following in 3D environments by following an ideal agent trajectory. Published at *NeurIPS 2019*.

- Google Summer of Code 2018** Atlanta, GA  
 Mentor | *CloudCV* organisation Apr 2018 - Aug 2018
  - Mentored a student for *Fabrik* project. Added support for importing/exporting models from TensorFlow. Built real time collaboration feature where multiple users can edit or review the model at the same time.
- Nanyang Technological University [code]** Singapore  
 Research Intern | Supervisor: *Prof. Lam Siew Kei, Prof. Thambipillai Srikanthan* May 2017 - Jul 2017, Dec 2017
  - Built fast semantic segmentation models for autonomous driving by reducing complexities in model architecture. Explored and combined different deep learning models like PSPNet and MobileNets.
- Defence Research and Development Organization** New Delhi, India  
 Research Intern | Supervisor: *Dr. Saibal K. Pal* May 2016 - Jul 2016
  - Implementation and performance analysis of Extreme Learning Machines and its variants on object detection and blind blur detection.

## SELECTED PROJECTS

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- Fabrik: Build, visualize, and design neural nets in browser** [<http://fabrik.cloudcv.org>]
  - Online collaborative platform to build, visualize and train deep learning models via a simple drag-and-drop interface; **40+ open source contributors; 900+ stars; 230+ forks**
- Real-time Uniform Passenger Distribution for Metro Transport Systems using Machine Learning and Fog Computing**  
*B.Tech Thesis Project* | Supervisor: *Prof. Hari Prabhat Gupta*
  - Developed a dynamic programming solution for optimal crowd distribution of onboard passengers in metro, assuming inter-carriage travel is allowed and integrated it with fog architecture in distributed setting.
  - Developed a solution to alert passengers about crowded carriages using history of crowd distribution.
- Memento: Never forget a thing!** [[poster](#)] [[demo](#)]
  - Built an Android app which acts as an *assistive memory*. It captures images, records audio and save them in the processed form of events of a day which can be later searched and retrieved.
- Identification of User Transport using Smartphone Sensors** [[poster](#)]
  - Built an app for collection of a new dataset of smartphone sensor values for transport mode detection.
  - Hierarchical classification of transport modes (stationary, walking, bicycle, motorbike, car, bus, train, airplane) using GPS, accelerometer, gyroscope sensors.

## SERVICE ROLES AND ACADEMIC ACTIVITIES

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### Challenge Organization

- VQA Challenge 2019, 2020
- Visual Dialog Challenge 2018, 2019, 2020

### Workshop Organization

- Visual Question Answering and Dialog Workshop CVPR 2019, CVPR 2020

### Teaching Assistant

- ITW1: Python and Shell Programming Spring 2017
- CS 101: Computer Programming and Linux Fall 2016

## PROGRAMMING SKILLS

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- Languages:** Python, C, C++, C#, Java, Javascript, Lua, MATLAB
- Frameworks:** PyTorch, TensorFlow, Torch, Django
- DevOps:** Docker, Amazon Web Services, Google Cloud
- Version Control:** Git
- Mobile Applications:** Android, Windows Phone App Development