

# PRITHVIJIT CHATTOPADHYAY

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## RESEARCH INTERESTS

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Out-of-Distribution Generalization, Robust Machine Learning, Embodied RL

## EDUCATION

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<b>Ph.D. in Computer Science</b> , School of Interactive Computing, Georgia Tech <b>Advisor:</b> Prof. Judy Hoffman <b>Award:</b> Rising Star Doctoral Student Research Award	2019-Present
<b>M.S. in Computer Science</b> , College of Computing, Georgia Tech <b>Thesis:</b> Evaluating Visual Conversational Agents via Cooperative Human-AI Games <b>Advisor:</b> Prof. Devi Parikh <b>Award:</b> M.S. Research Award	2017-2019
<b>B.Tech. in Electrical Engineering</b> , Delhi Technological University (Formerly DCE)	2012-2016

## SELECTED RESEARCH EXPERIENCE

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<b>Research Assistant</b> , Hoffman Group, Georgia Tech <i>Advised by Prof. Judy Hoffman</i> Working on out of distribution generalization problems in computer vision <ul style="list-style-type: none"><li>• Sim2Real Generalization [Preprint]</li><li>• Embodied Robustness Benchmark [Paper]</li><li>• Interpreting Adversarial Robustness [Paper]</li><li>• Multi-source Domain Generalization [Paper]</li><li>• Low-Shot Robustness [Preprint]</li></ul>	2019-Present Atlanta, GA
<b>Research Intern</b> , PRIOR, Allen Institute for AI <i>Mentored by Ani Kembhavi, Roozbeh Mottaghi and Judy Hoffman</i> Learning representations of environments from house tours to improve sample efficiency and generalization for embodied agents across tasks and simulators	Summer 2022 Seattle, WA
<b>Research Intern</b> , PRIOR, Allen Institute for AI <i>Mentored by Ani Kembhavi, Roozbeh Mottaghi and Judy Hoffman</i> Benchmark to assess robustness of embodied navigation agents [Project Page][Paper]	Summer 2020 Atlanta, GA
<b>Research Intern</b> , Deep Learning Group, Microsoft Research AI <i>Mentored by Hamid Palangi</i> Improving goal-driven visually grounded dialog under the presence of an adversarial utterance evaluator	Summer 2018 Redmond, WA
<b>Research Assistant</b> , Visual Intelligence Lab, Georgia Tech <i>Mentored by Prof. Devi Parikh and Prof. Dhruv Batra</i> Worked on problems at the intersection of computer vision and natural language processing <ul style="list-style-type: none"><li>• Zero-shot Learning [Paper]</li><li>• Cooperative Human-AI Games [Paper]</li><li>• (Diverse) Generative Visual Dialog [Paper]</li><li>• Sub-goals in RL [Paper]</li><li>• Evaluating Explanations via Human-AI Teams [Paper]</li><li>• AI Challenge Evaluation Framework [Preprint]</li></ul>	2017-2019 Atlanta, GA

**Research Assistant**, CVMLP Lab, Virginia Tech  
*Mentored by Prof. Devi Parikh and Prof. Dhruv Batra*

2016-2017  
Blacksburg, VA

Worked on problems at the intersection of computer vision and natural language processing

- Counting Objects in Everyday Scenes [\[Paper\]](#)
- Human-AI Teams [\[Preprint\]](#)

## AWARDS AND RECOGNITION

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- 2023 **Outstanding Reviewer** for CVPR
- 2022 **Outstanding Reviewer** for CVPR
- 2022 **Highlighted Reviewer** for ICLR
- 2021 **Outstanding Reviewer** for CVPR
- 2021 **Outstanding Reviewer** for MLRC
- 2020 **Among Top 33% Reviewers** for ICML
- 2020 **NVIDIA Best Runner Up Paper Award** at AROW, ECCV
- 2020 **Rising Star Doctoral Student Award**, School of Interactive Computing, Georgia Tech
- 2019 **One of the best reviewers** for NeurIPS
- 2019 **Outstanding Reviewer** for ICLR
- 2018 **IC Student Travel Grant** to attend NeurIPS
- 2018 **Among Top 30% Reviewers** for NeurIPS
- 2018 **MS Research Award**, College of Computing, Georgia Tech
- 2017 **Winner**, VTHacks (MLH event at Virginia Tech)
- 2013 **Semi-Finalists** out of 30 participating teams at ROBOSUB-AUVSI
- 2013 **Finalists** out of 27 participating teams at NIOT-SAVE
- 2014 **Merit Scholarships** for Academic Performance 2012-2014
- 2013 **National Top 1%: Indian National Physics Olympiad (InPhO)**
- 2012 **KVPY and INSPIRE Fellowships**

## PREPRINTS

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1. V. Prabhu, S. Yenamandra, **P. Chattopadhyay**, J. Hoffman. "LANCE: Stress-testing Visual Models by Generating Language-guided Counterfactual Images" *ArXiv 2023*
2. A. Chandrasekaran\*, D.Yadav\*, **P. Chattopadhyay\***, V. Prabhu\*, D. Parikh. "It Takes Two to Tango: Towards Theory of AI's Mind." *ArXiv 2017*

## PEER-REVIEWED CONFERENCE PRESENTATIONS

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1. **P. Chattopadhyay\***, K. Sarangmath\*, V. Vijaykumar, J. Hoffman. "PASTA: Proportional Amplitude Training Spectrum Augmentation for Syn-to-Real Domain Generalization." *International Conference on Computer Vision (ICCV) 2023*
2. A. Singh, K. Sarangmath, **P. Chattopadhyay**, J. Hoffman. "Benchmarking Low-Shot Robustness to Natural Distribution Shifts" *International Conference on Computer Vision (ICCV) 2023*
3. **P. Chattopadhyay**, J. Hoffman, R. Mottaghi, A. Kembhavi. "RobustNav: Towards Benchmarking Robustness in Embodied Navigation." *International Conference on Computer Vision (ICCV) 2021* [\[Oral\]](#)  
(Also presented at *Embodied AI Workshop, CVPR 2021*)
4. **P. Chattopadhyay**, Y. Balaji, J. Hoffman. "Learning to Balance Specificity and Invariance for In and Out of Domain Generalization." *European Conference on Computer Vision (ECCV) 2020*  
(Also presented at *Visual Learning with Limited Labels (LwLL), CVPR 2020*)
5. N. Modhe, **P. Chattopadhyay**, M. Sharma, A. Das, D. Parikh, D. Batra, R. Vedantam. "IR-VIC: Unsupervised Discovery of Sub-goals for Transfer in RL." *European Conference on Computer Vision (ECCV) 2020*

6. V. Murahari, **P. Chattopadhyay**, D. Batra, D. Parikh, A. Das. “Improving Generative Visual Dialog by Answering Diverse Questions.” *Empirical Methods in Natural Language Processing (EMNLP) 2019*  
(Also presented at *Visual Question Answering and Dialog Workshop, CVPR 2019*)
7. R. Selvaraju\*, **P. Chattopadhyay\***, M. Elhoseiny, T. Sharma, D. Batra, D. Parikh, S. Lee. “Choose Your Neuron: Incorporating Domain Knowledge Through Neuron-Importance.” *European Conference on Computer Vision (ECCV) 2018*  
(Also presented at *Continual Learning Workshop, NeurIPS 2018*)  
(Also presented at *Visually Grounded Interaction and Language (ViGIL) Workshop, NeurIPS 2018*)
8. A. Chandrasekaran\*, V. Prabhu\*, D.Yadav\*, **P. Chattopadhyay\***, D. Parikh. “Do Explanations make VQA models more predictable to a human?” *Empirical Methods in Natural Language Processing (EMNLP) 2018*
9. **P. Chattopadhyay\***, D.Yadav\*, V. Prabhu, A. Chandrasekaran, A. Das, S. Lee, D. Batra, D. Parikh. “Evaluating Visual Conversational Agents via Cooperative Human-AI Games.” *AAAI Conference on Human Computation and Crowdsourcing (HCOMP) 2017* [\[Oral\]](#)
10. **P.Chattopadhyay\***, R.Vedantam\*, R. Selvaraju, D. Batra, D. Parikh. “Counting Everyday Objects in Everyday Scenes.” *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017* [\[Spotlight\]](#)

#### WORKSHOP PAPERS

1. F. Lin, R. Mittapali, **P. Chattopadhyay**, D. Bolya, J. Hoffman. “Likelihood Landscapes: A Unifying Principle Behind Many Adversarial Defenses.” *Adversarial Robustness in the Real World (AROW), ECCV 2020* [\[Talk\]](#)  
[NVIDIA Best Paper Runner Up](#) 🏆
2. N. Modhe, **P. Chattopadhyay**, M. Sharma, A. Das, D. Parikh, D. Batra, R. Vedantam. “DS-VIC: Unsupervised Discovery of Decision States for Transfer in RL.” *Task-Agnostic Reinforcement Learning (TARL) Workshop, ICLR 2019* [\[Talk\]](#)
3. D. Yadav, R. Jain, H. Agrawal, **P. Chattopadhyay**, T. Singh, A. Jain, S. Singh, S. Lee, D. Batra. “EvalAI: Towards Better Evaluation Systems for AI Agents.” *Workshop on AI Systems, SOSP 2019*
4. A. Chandrasekaran\*, D.Yadav\*, **P. Chattopadhyay\***, V. Prabhu\*, D. Parikh. “It Takes Two to Tango: Towards Theory of AI’s Mind.” *Chlearn Looking at People Workshop, CVPR 2017* [\[Talk\]](#)

#### TALKS

- “Reliable Vision for a Changing World” at Google Jan 2023  
(with Viraj Prabhu and Judy Hoffman)

#### PROJECTS

**Exploring Weak-Supervision and Generative Models for Semantic Segmentation** [\[PDF\]](#)

As a project for CS 8803: Probabilistic Graphical Models, Spring 2018

**DTU AUV: Autonomous Underwater Vehicle** [\[PDF\]](#)

As a part of DTU-AUV (undergraduate research) team

#### MENTORING

<b>Sahil Khose</b> , Master’s, Georgia Tech	2023-Present
<b>Aaditya Singh</b> , Master’s, Georgia Tech	2022-2023
<b>Aayushi Agarwal</b> , Master’s, Georgia Tech	2021-2023
<b>Deepanshi Deepanshi</b> , Master’s, Georgia Tech	2021-2023
<b>Kartik Sarangmath</b> , Master’s, Georgia Tech	2021-2022
<b>Vivek Vijaykumar</b> , Bachelor’s, Georgia Tech	2022
<b>Rohit Mittapalli</b> , Bachelor’s, Georgia Tech	2020-2021
<b>Fu Lin</b> , Master’s, Georgia Tech	2020-2021

#### OTHER RESEARCH EXPERIENCE

**Research Intern**, Robotics Research Lab, IIIT Hyderabad

*Mentored by Prof. K Madhava Krishna*

Winter 2014  
Hyderabad, India

**Robotics:** Implemented an efficient strategy for a robot to discover, recognize and navigate to a selected few objects among some scattered in an environment

**Research Intern**, IACS, Kolkata

*Mentored by Prof. Soumitra Sengupta*

Summer 2014  
Kolkata, India

**Theoretical Physics:** Worked on finding Charged Rotating Black Hole solutions in Einstein-Gauss-Bonnet dilaton coupled gravity

**Undergraduate Researcher**, Autonomous Underwater Vehicle Team, DTU

*Mentored by Prof. R K Sinha*

2012-2016  
Delhi, India

**Underwater Acoustics:** Developed and implemented range estimation algorithms for Passive Source Localization from Time Difference of Arrival (TDOA) values

## TEACHING EXPERIENCE

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**CS 8803: Machine Learning with Limited Supervision**

Graduate Teaching Assistant

Atlanta, GA  
Fall 2022

**CS 4476: Introduction to Computer Vision**

Graduate Teaching Assistant

Atlanta, GA  
Spring 2021

## PROFESSIONAL SERVICES

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**Manuscript Reviewer** (🏆 indicates reviewer awards)

IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 🏆x3

2018-2023

Neural Information Processing Systems (NeurIPS) 🏆x2

2018-2021

Association for Computational Linguistics (ACL)

2019

International Conference on Learning Representations (ICLR) 🏆x2

2019-2022

IEEE International Conference on Robotics and Automation (ICRA)

2021-2022

International Conference on Machine Learning (ICML) 🏆

2019-2020

European Conference on Computer Vision (ECCV)

2018

Machine Learning Reproducibility Challenge (MLRC) 🏆

2021-2022

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

2021-2022

**Challenge Organization**

Visual Dialog Challenge

CVPR 2020

(co-organized with Vishvak Murahari)