# Prithvijit Chattopadhyay

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**RESEARCH AREAS**

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

**EDUCATION**

**School of Interactive Computing, Georgia Tech** 2019 - Present
*Ph.D. in Computer Science*
Advised by Prof. Judy Hoffman
**Award:** Rising Star Doctoral Student Research Award

**College of Computing, Georgia Tech** 2017 - 2019
*M.S. in Computer Science*
Advised by Prof. Devi Parikh
**Thesis:** Evaluating Visual Conversational Agents via Cooperative Human-AI Games
**Award:** M.S. Research Award

**Delhi Technological University (Formerly DCE)** 2012 - 2016
*B.Tech. in Electrical Engineering*

**AWARDS & RECOGNITION**

**Outstanding reviewer** for CVPR 2022
**Highlighted reviewer** for ICLR 2022
**Outstanding reviewer** for CVPR 2021
**Among top 33% reviewers** for ICML 2020
**NVIDIA Best Runner Up Paper Award** at AROW, ECCV 2020
**Recipient:** CS-7001 Research Award (2020) - Interactive Computing, Georgia Tech
**Invited to mentor students at the "New in ML" workshop** at NeurIPS 2019
**Recognized as one of the highest-scoring reviewers** for NeurIPS 2019
**Outstanding Reviewer** for ICLR 2019
**Recipient:** IC Student Travel Grant to attend NeurIPS 2018
**Among top 30% reviewers** for NeurIPS 2018
**Recipient:** MS Research Award (2018) - College of Computing, Georgia Tech
**Winner:** VT-Hacks, 2017, a Major League Hacking event.
**Semi-Finalists:** ROBOSUB - AUVSI, 2013 out of 30 participating teams
**Finalists:** NIOT SAVe, 2013 out of 27 participating teams
**Recipient:** Merit Scholarships for Undergraduate Academic Performance (2012-2014)
**Recipient:** KVPY and INSPIRE Fellowships, 2012
**National Top 1%:** Indian National Physics Olympiad (InPhO), 2013

**PUBLICATIONS & PRE-PRINTS (*denotes equal contribution)**

**PASTA: Proportional Amplitude Spectrum Augmentation for Synthetic to Real Domain Generalization**
*arXiv 2022*
**P. Chattopadhyay***, K. Sarangmath*, V. Vijaykumar, J. Hoffman

**RobustNav: Towards Benchmarking Robustness in Embodied Navigation**
*International Conference on Computer Vision (ICCV) 2021* **(Oral)**
*Embodied AI Workshop, CVPR 2021*
**P. Chattopadhyay**, J. Hoffman, R. Mottaghi, A. Kembhavi

**Likelihood Landscapes: A Unifying Principle Behind Many Adversarial Defenses**
*Adversarial Robustness in the Real World (AROW), ECCV 2020* **(Talk)**
**NVIDIA Best Paper Runner Up**
F. Lin, R. Mittapali, **P. Chattopadhyay**, D. Bolya, J. Hoffman

**Learning to Balance Specificity and Invariance for In and Out of Domain Generalization**
*European Conference on Computer Vision (ECCV) 2020* **(Poster)**
*Visual Learning with Limited Labels (LwLL), CVPR 2020* **(Poster)**
**P. Chattopadhyay**, Y. Balaji, J. Hoffman

**IR-VIC: Unsupervised Discovery of Sub-goals for Transfer in RL**
*International Joint Conference on Artificial Intelligence (IJCAI) 2020* **(Poster)**
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* **(Poster)**
N. Modhe, **P. Chattopadhyay**, M. Sharma, A. Das, D. Parikh, D. Batra, R. Vedantam

**Improving Generative Visual Dialog by Answering Diverse Questions**
*Conference on Empirical Methods in Natural Language Processing (EMNLP) 2019* **(Poster)**
V. Murahari, **P. Chattopadhyay**, D. Batra, D. Parikh, A. Das

**EvalAI: Towards Better Evaluation Systems for AI Agents**
*arXiv 2019* **(Technical Report)**
*Workshop on AI Systems, SOSP 2019* **(Poster)**
D. Yadav, R. Jain, H. Agrawal, **P. Chattopadhyay**, T. Singh, A. Jain, S. Singh, S. Lee, D. Batra

**Choose Your Neuron: Incorporating Domain Knowledge Through Neuron-Importance**
*European Conference on Computer Vision (ECCV) 2018* **(Poster)**
*Continual Learning Workshop, NeurIPS 2018* **(Poster)**
*Visually Grounded Interaction and Language (ViGIL), NeurIPS 2018* **(Poster)**
R. Selvaraju*, **P. Chattopadhyay***, M. Elhoseiny, T. Sharma, D. Batra, D. Parikh, S. Lee

**Do Explanations make VQA models more predictable to a human?**
*Conference on Empirical Methods in Natural Language Processing (EMNLP) 2018* (**Poster**)
A. Chandrasekaran*, V. Prabhu*, D.Yadav*, **P. Chattopadhyay***, D. Parikh

**Evaluating Visual Conversational Agents via Cooperative Human-AI Games**
*AAAI Conference on Human Computation and Crowdsourcing (HCOMP) 2017* (**Oral**)
**P.Chattopadhyay***, D.Yadav*, V. Prabhu, A. Chandrasekaran, A. Das, S. Lee, D. Batra, D. Parikh

**It Takes Two to Tango: Towards Theory of AI's Mind**
*Chalearn Looking at People Workshop, CVPR 2017* **(Oral)**
A. Chandrasekaran*, D.Yadav*, **P. Chattopadhyay***, V. Prabhu*, D. Parikh

**Counting Everyday Objects in Everyday Scenes**
*IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017* (**Spotlight**)
**P.Chattopadhyay***, R.Vedantam*, R. Selvaraju, D. Batra, D. Parikh

**Delhi Technological University: Design and Development of the Littoral AUV Zyra 2.0**
*AUVSI RoboSub Journal 2014* (**Technical Report**)

## EXPERIENCE

**PRIOR, Allen Institute for AI** May 2022 - Aug 2022
*Research Intern, mentored by Ani Kembhavi, Roozbeh Mottaghi and Judy Hoffman*
Learning representations of environments from house tours to improve sample efficiency and generalization for embodied agents across tasks and simulators

**PRIOR, Allen Institute for AI** May 2020 - Aug 2020
*Research Intern, mentored by Ani Kembhavi, Roozbeh Mottaghi and Judy Hoffman*
Assessing the robustness of embodied navigation agents to visual and dynamics corruptions

**Deep Learning Group, Microsoft Research AI** May 2018 - Aug 2018
*Research Intern, mentored by Hamid Palangi*
Improving goal-driven visually grounded dialog under the presence of an adversarial utterance evaluator

**Visual Intelligence Lab, Georgia Tech** Aug 2017 - Aug 2019
*Research Assistant, mentored by Prof. Devi Parikh and Prof. Dhruv Batra*
Worked on problems at the intersection of computer vision and natural language processing with a focus towards building intelligent and interpretable systems.

**CVMLP Lab, Virginia Tech** Jun 2015 - May 2017
*Research Assistant, mentored by Prof. Devi Parikh and Prof. Dhruv Batra*
Worked on scene-understanding problems such as object detection and counting in everyday scenes with a downstream focus towards visual question answering

**Robotics Research Lab, IIIT Hyderabad** Dec 2014 - Jan 2015
*Research Intern, mentored by Prof. K Madhava Krishna*
Implemented an efficient strategy for a robot to discover, recognize and navigate to a selected few objects among some scattered in an environment, based on a "guess from far and recognize from near" strategy.

**IACS, Kolkata** Jun 2014 - Aug 2014
*Research Intern, mentored by Prof. Soumitra Sengupta*
Worked on finding Charged Rotating Black Hole solutions in Einstein-Gauss-Bonnet dilaton coupled gravity and simulated the conditions for the existence of multiple horizons in constant scalar curvature f(R) gravity.

**Autonomous Underwater Vehicle Team, DTU** Aug 2012 - Aug 2016
*Undergraduate Researcher, mentored by Prof. R K Sinha*
**Underwater Acoustics:** Developed and implemented range estimation algorithms for Passive Source Localization from Time Difference of Arrival (TDOA) values in conjunction with machine vision techniques.

## PROFESSIONAL SERVICES

**Reviewing**

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| IEEE Conference on Computer Vision and Pattern Recognition (CVPR) | 2018 - 2023 |
| Neural Information Processing Systems (NeurIPS) | 2018 - 2021 |
| Association for Computational Linguistics (ACL) | 2019 |
| International Conference on Learning Representations (ICLR) | 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 |

**Challenge Organization**

Visual Dialog Challenge CVPR 2020
(co-organized with Vishvak Murahari)

## TEACHING EXPERIENCE

**Teaching Assistant**
CS 4476: Introduction to Computer Vision Spring 2021
*Instructor: Prof. Judy Hoffman*

**Teaching Assistant**
CS 8803: Machine Learning with Limited Supervision Fall 2022
*Instructor: Prof. Judy Hoffman*

## REFERENCES (available upon request)

- Prof. Judy Hoffman, Georgia Tech (email: judy@gatech.edu)
- Dr. Ani Kembhavi, PRIOR AllenAI (email: anik@allenai.org
- Dr. Roozbeh Mottaghi, PRIOR AllenAI (email: roozbehm@allenai.org)
- Prof. Devi Parikh, Georgia Tech (email: parikh@gatech.edu)
- Prof. Mohamed H. Elhoseiny, KAUST (email: mohamed.elhoseiny@kaust.edu.sa)