

Viraj Prabhu

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(470)-494-1837

EDUCATION

Georgia Institute of Technology, Atlanta

2019 - present

Ph.D. in Computer Science

Georgia Institute of Technology, Atlanta

2017 - 2019

M.S. in Computer Science, advised by Prof. Devi Parikh

GPA: 4.0, Awarded M.S. Research Award

Birla Institute of Technology and Science, Pilani

2011 - 2015

B.E. in Computer Science

RESEARCH EXPERIENCE

Curai

Summer 2018, 2019

Research Intern, mentored by Dr. Anitha Kannan

Palo Alto, CA

- Worked on federated ensemble learning for open-set diagnosis.

- Worked on few-shot learning for automated dermatological diagnosis, proposing approaches to model long-tailed dermatological data with high intra-class diversity, and showed generalization to standard low-shot benchmarks.

Visual Intelligence Lab, Georgia Tech

Fall 2017 - Spring 2019

Graduate Research Assistant, advised by Prof. Devi Parikh

Atlanta, GA

Worked on cooperative visual conversational agents, and on evaluating the utility of interpretability modalities proposed for such agents in the context of human-AI teams.

Machine Learning and Perception Lab, Virginia Tech

Fall 2016 - Spring 2017

Research Assistant, advised by Prof. Dhruv Batra

Blacksburg, VA

Worked on augmenting visual conversational agents with mechanisms for question relevance detection, and explored human-in-the-loop evaluations of such agents.

Adobe Systems

Summer 2014

Research Intern, Adobe Presenter Video Express (PVX)

Bangalore, KA

Designed and implemented fast graphcut-based segmentation algorithm for real-time background substitution in video. Transferred into *Magic Green Screen*, the marquee feature of PVX 11.

ACHIEVEMENTS & SERVICES

Winner, M.S. Research Award, awarded by the Georgia Tech College of Computing 1 student annually.

Reviewer, NeurIPS, ACL 2019, NeurIPS (**adjudged top-30%**), CVPR, ICLR, ECCV 2018.

Winner, VTHacks 2017, Virginia Tech's annual hackathon, for FilterAI, a smart image search engine.

Winner, Google Hackathon, APOGEE 2014, (BITS Pilani's technical symposium), from over 25 teams.

Second Place, Project Presentation, APOGEE 2013.

Presenter, Visual Chatbots demo, CVPR 2017.

Travel Scholarship, to represent CloudCV at Google Summer of Code Mentor summit 2016, 2017.

Top-200 rank, BITSAT 2011, among 120k applicants.

Top-100 rank, ICSE 2009 among over 150k applicants (awarded Amul Vidya Shree).

PUBLICATIONS & PREPRINTS

V. Prabhu, A. Kannan, M. Ravuri, M. Chablani, D. Sontag, X. Amatriain. Few-Shot Learning for Dermatological Disease Diagnosis. In *Machine Learning and Healthcare Conference, 2019 (spotlight)*. In *ML4H Workshop, NeurIPS 2018*. [[Paper](#)][[Poster](#)]

- A. Chandrasekaran*, **V. Prabhu***, D. Yadav*, P. Chattopadhyay*, D. Parikh. Do Explanations make VQA Models more Predictable to a Human? In *Conference on Empirical Methods in Natural Language Processing (EMNLP) 2018*. (* equal contribution) [Proceedings]
- A. Mahendru*, **V. Prabhu***, A. Mohapatra*, D. Batra, S. Lee. The Promise of Premise: Harnessing Question Premises in Visual Question Answering. In *Conference on Empirical Methods in Natural Language Processing (EMNLP) 2017*. [Proceedings]
- 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. In *AAAI Conference on Human Computation and Crowdsourcing (HCOMP) 2017*. [arXiv]
- A. Chandrasekaran*, D. Yadav*, P. Chattopadhyay*, **V. Prabhu***, D. Parikh. It Takes Two to Tango: Towards Theory of AI's Mind. In *Chalearn Looking at People Workshop, IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2017*. [arXiv]
- U. Garg, **V. Prabhu**, D. Yadav, R. Ramrakhya, H. Agarwal, D. Batra. Fabrik: An Online Collaborative Neural Network Editor. [arXiv]

PROGRAMMING EXPERIENCE

CloudCV

Mentor, Google Summer of Code, Google Code-In

Summer 2016, 2017

Blacksburg, VA

Lead mentor for Fabrik (github.com/Cloud-CV/Fabrik), an open-source web platform to collaboratively build, visualize, and design neural networks in the browser. (**1000+ stars, 230+ forks** on GitHub)

Adobe Systems

Member of Technical Staff, Adobe Captivate Prime

2015 - 2016

Bangalore, KA

- Owner of Captivate Prime Android app for two release cycles. Built features for offline play-back and sync.
- Implemented a scalable framework for internationalization of the front-end codebase across 6 spoken languages.

Tonbo Imaging

R&D Intern

Fall 2016 - Spring 2017

Bangalore, KA

Automated Calibration: Developed algorithm for automated calibration of company cameras using a collimator and AprilTag target setup, reducing calibration error by 6%.

Boresighting: Developed a boresighting algorithm to precisely align a weapon's muzzle and sighting system with a target at 10m to 100m for TDS-BRS, Tonbo's video precision boresight tool.

CEERI Pilani

Project Assistant, advised by Prof. Jagdish Raheja

Spring 2014

Pilani, RA

Built teleconferencing app that interfaced multiple Kinect sensors and detected and displayed the current speaker.

SELECTED PROJECTS

Implementation of *Learning Cooperative Visual Dialog Agents via Deep Reinforcement Learning*

PyTorch implementation (**130+ stars on GitHub**) of Das & Kottur et al, ICCV '17. Used as starting point for the PyTorch starter code for the Visual Dialog challenge, 2018. (github.com/batra-mlp-lab/visdial-rl)

Learning Active Learning Policies for Visual Recognition

Course Project, Adaptive Control and Reinforcement Learning

[Report]

Spring 2019

Explored strategies to learn active learning policies for visual recognition via reinforcement learning.

Inner Dialog: Visual Dialog Models that Rollout a Mental Model of their Interlocutors

Course Project, Deep Learning

[Poster]

Fall 2017

Explored pragmatic inference techniques based on dialog rollouts for cooperative, goal-driven visual dialog agents.

Exploring Weak Supervision and Generative Models for Semantic Segmentation

[Report]

Course Project, Probabilistic Graphical Models

Spring 2018

- Explored weakly supervised semantic segmentation using localization cues obtained from GradCAM.
- Studied semantic segmentation via deep probabilistic generative models.

PROGRAMMING SKILLS

Languages: Python, Lua, C/C++, Java, JavaScript, MATLAB, Shell

Technologies: PyTorch, Torch, Keras, TensorFlow, L^AT_EX, ReactJS, EmberJS, Android