Rishabh Jain

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EDUCATION

Georgia Institute of Technology — Atlanta, USA
Masters in Computer Science; Current GPA: 4.0/4.0; Expected Graduation: May 2021 — *Aug. 2019 - Present*

JSS Academy Of Technical Education — Noida, India
Bachelor of Technology in Computer Science and Engineering; Agg. 80.44% (top 5%) with Hons. — *Aug. 2014 – June 2018*

EXPERIENCE

eBay – Structured Data and Applied Research Team — San Jose, CA
Software Engineering Intern supervised by Dr. Roman Maslovskis and Dr. Uwe Mayer — *May. 2020 - Aug. 2020*

- **Predicting and Evaluating attribute values in listings:** Given an image, and a text description about the listing on eBay, the task is to predict the missing attributes in the listing. For instance, predicting the missing color or brand attribute in the listing. I built an end-to-end system for processing visual and textual data along with training AI models. I also trained an early fusion model of image and text data which outperformed the uni-modal models of image and text by 5% and 22% on the test dataset for color attribute and by 20% and 4% on the test dataset for brand attribute.

Georgia Institute of Technology — Atlanta, GA
Graduate Research Assistant advised by Prof. Dhruv Batra and Prof. Devi Parikh — *Aug. 2019 - Present*

- **Evaluating Reinforcement Learning (RL) agents:** To simplify and standardize the process of evaluating RL models by developing and managing an evaluation platform for reproducibility of results, maintaining evaluation consistency, evaluation of model's code, and to measure constant progress for pushing the frontiers of AI.
- **GuessWhich** [1]**:** Evaluating the role of interpretable explanations towards making a model predictable to a human. We studied if the textual or visual explanations from an AI model in the context of an interactive, goal-driven, collaborative human-AI task help humans to predict it's behavior.

Machine Learning and Perception Lab, Georgia Tech — Atlanta, GA
Visiting Research Scholar advised by Prof. Dhruv Batra and Prof. Devi Parikh — *Aug. 2018 - June 2019*

- **nocaps:** To encourage the development of image captioning models that can learn visual concepts from alternative data sources, such as object detection datasets, we present the first large-scale benchmark for this task. Dubbed nocaps, for novel object captioning at scale, our benchmark consists of 166,100 human-generated captions describing 15,100 images from the Open Images validation and test sets containing more than 500 objects, out of which more than 400 objects are never described in COCO captions dataset.

Google Summer of Code (GSoC) 2017 - 2020 — Atlanta, GA
Organization Administrator, Organization Mentor, Student Developer — *May. 2017 - Aug. 2020*

- **2017:** Selected as a GSoC student to build new features for hosting AI challenges in a streamlined manner, implemented REST-API's, frontend and several analytic features for both participants and hosts in EvalAI.
- **2018:** Mentored a student to design a command line tool (evalai-cli) for EvalAI which lets the users, to install and use evalai as a python package.
- **2019:** Led a team of 10+ mentors and students under the CloudCV organization to setup the pipeline for evaluation of code upload challenges, leading the development of new UI and automating the existing submission worker using AWS Fargate on EvalAI.
- **2020:** Leading a team of 10+ mentors and students under the CloudCV organization to automate the pipeline for evaluation of code upload challenges, release new UI and, streamlining AI challenge creation on EvalAI.

iAugmentor Labs — Gurgaon, India
Software Engineering Intern, Machine Learning — *June. 2016 - August 2016*

- Developed a classifier using SVM to detect and classify videos containing an answer of a job interview question as an input and outputs a confidence score on the smiling behaviour of a person in the video.

Nibble Computer Society — Noida, India
Organizing Member — *Feb. 2015 - June 2018*

- Organized multiple code labs, seminars, workshops on OOPs, Advanced C, C++, Google Summer of Code, Git etc. and mentored 30+ undergraduate students on software development along with organizing college's annual fest.

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[1] https://arxiv.org/abs/1708.05122

Publications

* refers to equal contribution

- **Dialog without Dialog: Learning Image-Discriminative Dialog Policies from Single-Shot Question Answering Data**   **NeurIPS 2020**
  M. Cogswell*, J. Lu*, **R. Jain**, S. Lee, D. Batra, D. Parikh

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

- **nocaps: novel object captioning at scale**   **ICCV 2019**
  H. Agrawal*, K. Desai*, Y. Wang, X. Chen, **R. Jain**, M. Johnson, D. Batra, D. Parikh, S. Lee, P. Anderson

- **Evaluating visual and text explanations in an interactive, goal-driven human-AI task**   *Under Review*
  A. Chandrasekaran, **R. Jain**, K. Desai, K. Moffitt, J. Miller, D. Diller, B. Ferguson, D. Parikh

Projects

- **EvalAI:** Built an open source platform for evaluating and benchmarking AI models. We have hosted **100+ AI challenges** with **10,000+** users, who have created **100,000+ submissions**. The project has **1000+ stars, 500+ forks** and, **120+ contributors** on Github. More than **25 organizations** are using it including **Google, Facebook, IBM, Intel, eBay etc.** from industry and research labs from **MIT, Stanford, CMU, Georgia Tech, etc**.

- **Visual Question Answering Demo (VQA):** A web demo for VQA task in which given an image and a question about the image, the AI model provides a natural language answer. It is used by **100k+** users over the last 2 years.

- **Visual Chatbot Demo:** A chatbot based on visual dialog model in which given an image, a dialog history, and a follow-up question about image, the chatbot answers the next question. It is used by **170k+** users over the last 2 years.

- **Vilbert Multi-Task Demo:** A web demo of a single model trained on 12 datasets from 8 tasks including visual question answering, caption-based image retrieval, grounding referring expressions, and multi-modal verification. It is used by **20k+** users over the last few months.

- **Trick or TReAT: Thematic Reinforcement for Artistic Typography Web Demo**
  Given an input word (e.g. exam) and a theme (e.g. education), the individual letters of the input word are replaced by cliparts relevant to the theme which visually resemble the letters.

- **JSS InfoConnect:** Developed and introduced a web platform to act as an interaction medium among all students, faculties, and management staff in college. It serves **1000+ daily active users, 20,000+ overall users**.

Programming Skills

- **Languages**: Python, C, C++, Javascript
- **Frameworks**: PyTorch, Tensorflow, Django, Flask, PyTest, Celery, RabbitMQ, Scrapy, AngularJS
- **DevOps**: Amazon Web Services, Google Cloud, Kubernetes, Docker
- **Version Control**: Git
- **Human Computation**: Amazon Mechanical Turk
- **Databases**: MySQL, PostgreSQL, Redis

Selected Coursework

- Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, Data and Visual Analytics, Design and Analysis of Algorithms, Distributed Systems, Database Management System, Web Technology, Software Engineering

Fellowship and Awards

- **The Marshall D. Williamson Fellowship 2021 Award** for academic excellence and leadership at **Georgia Tech**
- Travel Scholarship for **Google Summer of Code Mentor's Summit, '18 and '19**
- Winner, **SHE Hacks Hackathon, '16**
- **Governer Award recipient, '10**

Extra Curricular Activities

- **Co-organizer**, Visual Dialog Challenge, **CVPR 2020**
- **Invited speaker**, Embodied AI Workshop, **CVPR 2020**, [Talk]
- **Co-organizer**, Visual Dialog Challenge, **CVPR 2020**
- **Invited speaker** at Habitat Workshop, **CVPR 2019**
- **Co-organizer**, Visual Question Answering and Dialog Workshop, **CVPR 2019**
- **Co-organizer**, Visual Dialog Challenge, **CVPR 2019**

** Links in blue are hyperlinks