

Karan Desai

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EDUCATION

- University of Michigan**, Ann Arbor 2019 - (expected 2024)
Ph.D. in Computer Science and Engineering
Advisor: Justin Johnson
- Indian Institute of Technology**, Roorkee 2014 - 2018
B.Tech. in Electrical Engineering, Minor in Computer Science

INTERNSHIPS

- Georgia Institute of Technology** Jul 2018 - Jul 2019
With Devi Parikh and Dhruv Batra
Co-organized first two Visual Dialog Challenges (ECCV 2018, CVPR 2019).
Developed the `nocaps` benchmark for image captioning (ICCV 2019).
Developed Probabilistic Neural-symbolic Models for VQA (ICML 2019).
- Google Summer of Code** May 2017 - Sep 2017
The OpenCV Foundation
Developed model-zoo and optimized the computational graph representation for `tiny-dnn`, OpenCV's C++ deep learning library.
- Goldman Sachs, Bangalore** May 2017 - Jul 2017
Developed tools for modeling graphical data to support production management across the firm.
- Google Summer of Code** Apr 2016 - Aug 2016
Temperature and Radioactive Diffusion in Supernovae (TARDIS)
Developed an integration testing framework for automated execution reports of failures in analysis tests.

AWARDS

- Google Summer of Code Travel Scholarship** Fall 2018
To attend the Google Summer of Code mentor summit conducted at Google Mountain View HQ, as a member of the CloudCV Organization.
- Chief Minister Scholarship** 2014-2018
Supported nearly 50% of my undergrad tuition. Awarded to top-5 percentile students of the state (among 100K+ students), by the Gujarat State Government.
- Bronze Medal** Spring 2017
Inter IIT Tech Meet at IIT Kanpur. Among 18 teams from sister IITs.
- National Finalist** Fall 2016
Ranked 33 among 500+ teams on national leaderboard. *Build the Shield* - Capture the Flag styled contest based on Information Security, organized by Microsoft India.

PREPRINTS

- CASTing Your Model: Learning to Localize Improves Self-Supervised Representations**
Ramprasaath Selvaraju*, Karan Desai*, Justin Johnson, Nikhil Naik (* denotes equal contribution)
[arxiv.org/abs/2012.04630]
- VirTex: Learning Visual Representations from Textual Annotations**
Karan Desai and Justin Johnson
[arxiv.org/abs/2006.06666]

PUBLICATIONS

Probabilistic Neural-symbolic Models for Interpretable Visual Question Answering

Ramakrishna Vedantam, **Karan Desai**, Stefan Lee, Marcus Rohrbach, Dhruv Batra, Devi Parikh
ICML 2019 (Long Oral, Top 4.2%)

nocaps: novel object captioning at scale [nocaps.org]

Harsh Agrawal*, Karan Desai*, Yufei Wang, Xinlei Chen, Rishabh Jain,
Mark Johnson, Dhruv Batra, Devi Parikh, Stefan Lee, Peter Anderson (* denotes equal contribution)
ICCV 2019

Continual Reinforcement Learning in 3D Non-Stationary Environments

Vincenzo Lomonaco, Karan Desai, Eugenio Culurciello, Davide Maltoni
CVPR-Workshops 2020

PROFESSIONAL ACTIVITIES

Reviewing

European Conference on Computer Vision (ECCV) 2020
Conference on Neural Information Processing Systems (NeurIPS) 2020

Workshop Organization

Fourth Visual Question Answering and Dialog CVPR 2019

Challenge Organization

Third Visual Dialog Challenge CVPR 2020
Second Visual Dialog Challenge CVPR 2019
First Visual Dialog Challenge ECCV 2018

Open Source Involvement

CloudCV: Google Summer of Code Mentor 2018

Undergraduate Teaching Assistant: Electrical Sciences Spring 2018

Mentor: Student Mentorship Program IITR, mentored 12 first year undergraduate students. 2017,2018

OPEN SOURCE PROJECTS

visdial-challenge-starter-pytorch Summer 2018

[github.com/batra-mlp-lab/visdial-challenge-starter-pytorch]

Starter code for participants of Visual Dialog challenges (2018,19,20), using PyTorch.

tiny-dnn [github.com/tiny-dnn/tiny-dnn] Summer-Fall 2017

OpenCV's header only, dependency-free deep learning framework in C++. Major contributor and maintainer during and after Google Summer of Code. **(4500+ stars, 1000+ forks, 60+ contributors)**

lang-emerge-parlai [github.com/kdxd/lang-emerge-parlai] Fall 2017

Implementation of *Kottur et al. (EMNLP 2017)* using PyTorch and ParlAI. **(100+ stars)**

trianglify [github.com/mdg-iitr/trianglify] Spring 2017

Android library to generate views using delaunay triangulation algorithm. **(200+ stars)**

yolog [github.com/kdxd/yolog] Fall 2016

Command line tool showing compact git commit log with customizable themes. **(300+ stars)**

RELEVANT GRADUATE COURSEWORK

Computer Vision, Probability and Random Processes, Foundations of Artificial Intelligence, Parallel Computing, Advanced Compilers.

EXTRA CURRICULAR

Co-Founder: Vision and Language Group IITR [vlgiiitr.github.io].

Secretary: Mobile Development Group IITR [mdg.iitr.ac.in].

Student Chair: Electrical Engineering Department Academic Program Committee.