

Karan Desai

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EDUCATION

Indian Institute of Technology, Roorkee, India 2014-2018
Bachelor of Technology, Electrical Engineering
Minor Specialization, Computer Science and Engineering
Advised by Prof. G.N. Pillai

AWARDS

Google Summer of Code Travel Scholarship Fall 2018
To attend the Google Summer of Code mentor summit conducted at Google Mountain View headquarters, as a member of the CloudCV Organization.

Bronze Medal Spring 2017
Stock Analysis Competition. Among teams from 12 out of 18 participating sister IITs at the annual *Inter IIT Tech Meet*, organized by IIT Kanpur.

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.

Best Student Application Award Fall 2016
Among more than 100 android based applications in *National Digital India Hackathon*, organized by the Government of India.

Chief Minister Scholarship 2014-2018
Awarded to top-5 percentile of meritorious students (among more than 100k students), by the *State Government of Gujarat, India*. Covered nearly 50% of undergraduate tuition fees.

INTERNSHIPS

Georgia Institute of Technology July 2018-present
Supervised by Prof. Devi Parikh and Prof. Dhruv Batra
Co-organized the first Visual Dialog Challenge at ECCV 2018.
Worked on building the first large-scale benchmark for Novel Object Captioning.

Google Summer of Code Summer 2017
The OpenCV Foundation
Contributed to *tiny-dnn*, OpenCV's C++ deep learning library. Set up model-zoo and revamped the computational graph mechanism for speed and memory optimization.

Goldman Sachs, Bangalore Summer 2017
Developed a cross-platform graph modeler to support production management of firm businesses. Based on Java Spring framework and AngularJS, powered by MongoDB.

Google Summer of Code Summer 2016
Temperature and Radioactive Diffusion in Supernovae (TARDIS)
Developed an integration testing framework for continuous integration and failure examination through automated execution reports and graphical plots.

PREPRINTS

nocaps: **novel object captioning at scale** [nocaps.org]
Harsh Agrawal*, **Karan Desai***, Xinlei Chen, Rishabh Jain, Dhruv Batra, Devi Parikh,
Stefan Lee, Peter Anderson (* denotes equal contribution)
IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019, Under Review

PROFESSIONAL ACTIVITIES

Challenge Organization

ECCV: First Visual Dialog Challenge [visualdialog.org/challenge] 2018

Open Source Involvement

CloudCV: Google Summer of Code Mentor 2018

RELEVANT COURSE PROJECTS

Attention-based Visual Question Answering and Reading Comprehension

B.Tech Thesis, Supervised by Prof. G. N. Pillai

Performance analysis of reading comprehension models applied on visual question answering and visual question answering models applied on reading comprehension, by interchanging context (image or passage) processing pipelines.

Language Emergence in Multi-Agent Dialog

Computer Vision, Prof. Biplab Banerjee

Implemented *Kottur et al. (EMNLP 2017)* using PyTorch and ParlAI.

OPEN SOURCE

visdial-challenge-starter-pytorch Summer 2018

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

Starter code for first Visual Dialog challenge using PyTorch. **(used by 7/11 participating teams)**

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)**

ntm-pytorch [github.com/vlgiitr/ntm-pytorch] Spring 2018

Implementation of Neural Turing Machines (*Graves et al. 2014*) using PyTorch.

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)**

Miscellaneous Contributions

tensorflow: Added implementation of transposed conv3d layer in tf.layers. [PR]

scikit-learn: Added RMSL Error in Metrics API, better logging in Pipeline API. [PR]

joblib: Migrated testing framework from nose to pytest, for better speed. [PR]

TECHNICAL SKILLS

Languages: Python, C++, Java, Javascript, Go, Scala. \LaTeX .

Technologies: Git, Linux, Docker, Tensorflow, Pytorch, Angular, Spring.

OFFICIAL POSITIONS

Teaching Assistant: Tutor for 28 students. Electrical Sciences, Spring 2018.

Core Member: OpenCV tiny-dnn. Responsible for patch reviews and releases.

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

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

Student Chair: Electrical Engineering Department Academic Program Committee.

Mentor: For 12 first year undergraduates, mentoring them for academic as well as non-academic affairs. Through Student Mentorship Program IITR, 2017, 2018.