

# Ankit Goyal

PhD Student, Princeton University

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📄 <https://imankgoyal.github.io/>

## Education

- Present **Ph.D. Program in Computer Science, Princeton University.**  
Advisor: Jia Deng
- Apr 2018 **M.S. in Computer Science and Engineering, University of Michigan.**  
GPA: 3.97/4.0, Track: Artificial Intelligence, Advisor: Jia Deng
- Apr 2016 **B.Tech. in Electrical Engineering, Indian Institute of Technology (IIT) Kanpur.**  
CPI: 9.8/10.0, Minor: Computer Science

## Publications

- 2019 **Semantic Relation Detection Between Construction Entities To Support Safe Human-Robot Collaboration in Construction..**  
D Kim, **A Goyal**, A Newell, S Lee, J Deng, V Kamat  
*ASCE International Conference on Computing in Civil Engineering (i3CE)*
- 2018 **Think Visually: Question Answering through Virtual Imagery.**  
**A Goyal**, J Wang, J Deng  
*Annual Meeting of the Association of Computational Linguistics (ACL)*
- 2017 **ProtoNN: Compressed and Accurate kNN for Resource-scarce Devices.**  
C Gupta, AS Suggala, **A Goyal**, HV Simhadri, B Paranjape, A Kumar, S Goyal, R Udapa, M Varma, P Jain  
*International Conference in Machine Learning (ICML)*
- 2016 **A Multimodal Mixture-of-Experts Model for Dynamic Emotion Prediction in Movies.**  
**A Goyal**, N Kumar, T Guha, SS Narayanan  
*IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*
- 2015 **Object Matching using Speeded Up Robust Features.**  
NK Verma, **A Goyal**, AH Vardhan, RK Sevakula, A Salour  
*Asia Pacific Symposium on Intelligent and Evolutionary Systems (IES)*
- 2015 **Template Matching for Inventory Management using Fuzzy Histogram and Spatial Filters.**  
NK Verma, **A Goyal**, A Chaman, RK Sevakula and A Salour  
*IEEE Conference on Industrial Electronics and Applications (ICIEA)*

## Research Overview

- 2018-Present **From Pixels to Actions.**  
Exploring ways to bridge the gap between pixels and actions, a common scenario that arises in many visual navigation and object manipulation tasks.
- 2017-Present **Geometric Reasoning and Planning in 3D Environments.**  
Developed a benchmark and 3D environment for testing geometric reasoning. Exploring how learning can be used to acquire geometric reasoning skills.

2016-2017 **Visual Thinking for Question Answering.**

Studied visual thinking in the context of question-answering. Introduced Dynamic Spatial Memory Network, a DNN designed for answering questions that admit latent visual representations.

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## Work Experience

Summer 2016 **Research Intern, Microsoft Research (MSR), India.**

Mentor: Prateek Jain

Developed ML models for IoT devices. Proposed ProtoNN, a model inspired from K-Nearest Neighbour (KNN) model that could fit in devices with only 2kB RAM and still produce accurate predictions.

Summer 2015 **Research Intern, University of Southern California (USC).**

Mentor: Shrikanth S. Narayanan

Developed models for emotion prediction in movies. Proposed a mixture-of-experts model that dynamically combines audio-visual cues for predicting evoked emotions in movies.

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## Teaching Experience

Fall 2018 **COS429 Computer Vision, Princeton University.**

Head Teaching Assistant

Fall 2017, **EECS442 Computer Vision, University of Michigan.**

Winter 2018 Graduate Student Instructor

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## Service

2013-15 **Counselling Service, IIT Kanpur.**

- **Assistant Coordinator:** Responsible for managing sensitive situations in the undergraduate community and organizing week-long orientation for over 800 freshmen
- **Academic Mentor:** Mentored students struggling academically.
- **Student Guide:** Ensured smooth induction of 6 freshmen into the college environment.

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## Awards and Achievements

2016 **Sridhar Memorial Prize, IIT Kanpur.**

Awarded for being chosen as the best student in the Department of Electrical Engineering.

2015 **Viterbi-India Scholarship, USC and Indo-US Science and Technology Forum (IUSSTF).**

Selected for the prestigious Viterbi-India Program to conduct research in USC.

2013-2015 **Academic Excellence Award, IIT Kanpur.**

Awarded for distinctive academic performance for 3 consecutive years.