

# Ranjay Krishna

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## Education

- 2014–present **Ph.D. at Stanford University**, *Computer Science Department*, Palo Alto, CA.  
GPA 4.0 Doctor of philosophy: dense image and video understanding through visual knowledge graphs
- Co-advised by: Professor Fei-Fei Li and Professor Michael Bernstein
  - Focus areas: [artificial intelligence](#), [machine learning](#), [computer vision](#), and [human-computer interaction](#)
- 2014–2016 **M.Sc. at Stanford University**, *Computer Science Department*, Palo Alto, CA.  
GPA 3.98 Masters of science in computer science: with a [distinction in research](#)
- Advised by: Professor Fei-Fei Li
  - Focus area: [artificial intelligence](#)
- 2009–2013 **B.Sc. at Cornell University**, *Electrical and Computer Engineering Department*, Ithaca, NY.  
GPA 3.85 Bachelors of science in [electrical engineering](#) with [Magna Cum Laude](#)
- Focus areas: computer architecture and embedded systems
- Bachelors of science in [computer science](#) with [Magna Cum Laude](#)
- Focus areas: compiler design and operating systems

## Publications

- ArXiv 2017 **Dense-Captioning Events in Videos.**  
**Ranjay Krishna** Kenji Hata, Frederic Ren, Li Fei-Fei, Juan Carlos Niebles
- CVPR 2017 **A Hierarchical Approach for Generating Descriptive Image Paragraphs.**  
Jonathan Krause, Justin Johnson, **Ranjay Krishna**, Li Fei-Fei *IEEE conference on Computer Vision and Pattern Recognition, 2017*  
[spotlight award](#)
- CSCW 2017 **A Glimpse Far into the Future: Understanding Long-term Crowd Worker Accuracy.**  
Kenji Hata, **Ranjay Krishna**, Li Fei-Fei, Michael Bernstein *ACM Conference on Computer-Supported Cooperative Work and Social Computing, 2017*
- Stanford 2016 **Visual Genome: Crowdsourced Visual Knowledge Representations.**  
**Ranjay Krishna**  
[Christofer Stephenson Memorial Award for best Stanford CS Thesis](#)
- IJCV 2017 **Visual Genome: Connecting Language and Vision Using Crowdsourced Dense Image Annotations.**  
**Ranjay Krishna**, Yuke Zhu, Oliver Groth, Justin Johnson, Kenji Hata, Joshua Kravitz, Stephanie Chen, Yannis Kalantidis, Li Jia-Li, David Ayman Shamma, Michael Bernstein, Li Fei-Fei *International Conference on Computer Vision, 2017*
- ECCV 2016 **Visual Relationship Detection with Language Priors.**  
Cewu Lu\*, **Ranjay Krishna\***, Michael Bernstein, Li Fei-Fei  
indicates equal contribution *European Conference on Computer Vision, 2016*  
[oral award \(top 1%\)](#)
- CHI 2016 **Embracing Error to Enable Rapid Crowdsourcing.**  
**Ranjay Krishna\***, Kenji Hata, Stephanie Chen, Joshua Kravitz, David Ayman Shamma, Li Fei-Fei, Michael Bernstein *ACM Conference on Human Computer Interaction, 2016*
- UIST 2015 **DAEMO: A Self-Governed Crowdsourcing Marketplace.**  
Stanford Crowdsourcing Collective *ACM Conference on User Interface Software and Technology, 2015*
- ArXiv 2015 **SentenceRacer: A Game with a Purpose for Image Sentence Annotation.**  
Kenji Hata, Sherman Leung, **Ranjay Krishna**, Michael S. Bernstein, Li Fei-Fei

- EMNLP 2015 **Generating Semantically Precise Scene Graphs from Textual Descriptions for Improved Image Retrieval.**  
 Sebastian Schuster, **Ranjay Krishna**, Angel Chang, Li Fei-Fei and Christopher D. Manning *ACM conference on Empirical Methods in Natural Language Processing, Vision and Language Workshop, 2015*
- CVPR 2015 **Image Retrieval using Scene Graphs.**  
 Justin Johnson, **Ranjay Krishna**, Michael Stark, Li-Jia Li, David Ayman Shamma, Michael Bernstein, Li Fei-Fei *IEEE conference on Computer Vision and Pattern Recognition, 2015*
- BUCLD 2015 **Wordbank: An Open Repository for Developmental Vocabulary Data.**  
 Michael C. Frank, Daniel Yurovsky, **Ranjay Krishna**, Virginia Marchman *Boston University Conference On Language Development, Abstract, 2015*

## Research Experience

- 2017 **Google Machine Intelligence and Perception Group, Mountain View, CA.**  
 Advised by Christian Szegedy
- 2016 **Facebook Artificial Intelligence Lab, New York City, NY.**  
 Co-advised by Armand Joulin and Laurens Van der Maaten  
 Studied visual relationships between objects in images
- 2014-present **Stanford Artificial Intelligence Lab, Stanford, CA.**  
 Advised by Professor Fei-Fei Li  
 Building a large knowledge base for visual understanding
- 2014-present **Stanford Human Computer Intelligence Group, Stanford, CA.**  
 Advised by Professor Michael Bernstein  
 Optimizing humans to scale crowdsourcing annotations
- 2017 **Stanford Graphics Group, Stanford, CA.**  
 Advised by Professor Maneesh Agarwala  
 Mapped visemes to phonemes
- 2014 **Cognition and Language Lab, Stanford, CA.**  
 Advised by Professor Michael Frank  
 Built a large dataset called Wordbank for learning childrens open vocabulary
- 2014-2016 **Yahoo Research, San Francisco, CA.**  
 Advised by David Ayman Shamma
- 2010 **Integrated Circuits Design, Ithaca, NY.**  
 Advised by Professor Alyosha Molnar  
 Designed chips that are anti-symmetric angle sensitive through diffraction gratings

## Engineering Experience

- 2014 **Maps Enterprise Team, Google Inc., Mountain View, CA.**  
 Improving performance of VectorDB, the backend for Google Maps for Businesses
- 2014 **Maps Enterprise Team, Google Inc., Mountain View, CA.**  
 Data scientist intern  
 Improving performance of VectorDB, the backend for Google Maps for Businesses
- 2013-2014 **Cloud and Kernel Teams, MongoDB Inc., New York City, NY.**  
 Software solutions architect  
 Revamped the company website and added HR tools for sales and recruiting  
 Implemented the C++ driver for MongoDB and designed and tested the redaction framework  
 Integrated two-factor authentication for backups, automation and monitoring
- 2013 **Adwords Team, Google Inc., Mountain View, CA.**  
 Software engineering intern  
 Created a searchable, analytically hierarchical model of the experiments conducted on adwords to optimize the quality and revenue and track these experiments  
 Designed and developed an evaluation tool to study NGO's that combat societal issues in the United Kingdom and India through the Google Impact Challenge

- 2013 **Open Source Ruby on Rails Contributor**, *Ithaca, NY*.  
 cached AST's produced by SQL queries made to AREL  
 Added simpler build and destroy functionality to Rake, a software management tool for both mysql and postgresql databases  
 Abstracted away the type checking conducted by the Schema Dumper to individual databases to avoid unnecessary
- 2012 **Office Exchange Team, Microsoft Inc.**, *Redmond, WA*.  
 Automated pre-build validation of server for Microsoft Exchange from a manual process of 25 days to 6 minutes, saving 72% of fixed cost

## Work Experience

- 2014-2016 **Stanford Venture Capital Group**, *Stanford, CA*.  
 Consulted for General Catalyst and Red Point Ventures on potential investments in specific verticals
- 2013 **Influenza Tracking**, *New York City, NY*.  
 Ran a freelance project to use e-prescriptions from patients to track the spread of influenza visually
- 2009-2012 **Cornell Desktop Support**, *Ithaca, NY*.  
 Ghosted and processed images for all the staff and faculty computers and micros in Cornell
- 2010 **Department of Economic Affairs, Ministry of Finance**, *New Delhi, India*.  
 Advised by Kaushik Basu, Chief Economist of the World Bank  
 Investigated and built a model on inflation targeting applications and implementations

## Teaching Experience

- 2015 Stanford CS 131: Fundamentals of Computer Vision
- 2011-2013 Cornell CS 3110: Functional Programming

## Honors and Awards

- 2017 CVPR Spotlight award for paper titled "A Hierarchical Approach for Generating Descriptive Image Paragraphs"
- 2016 CVPR Oral award for paper titled "Visual Relationship Detection with Language Priors"
- 2016 MIT PhD Fellowship - not accepted
- 2016 Christofer Stephenson Memorial Award for best Stanford CS Thesis - Awarded for the paper titled "Visual Genome: Crowdsourced Knowledge Representations"
- 2015 Brown Institute for Media Innovation Grant - Awarded \$150,000 to research media innovations related to computer vision
- 2013 Winner of Electrical and Computer Engineering Department's award for "Wireless Sign Language Translation" - Featured on Engadget, Sleashgear, Deaftech news, Element 14, The Economic Times, etc.
- 2010-2013 Cornell Dean's list
- 2011 HKN: National Electrical and Computer Engineering Honor Society
- 2011 Tau Beta Pi, the Engineering Honor Society

## Invited Talks

- 2016 **Visual Relationship Detection with Language Priors**.  
 ○ European conference on Computer Vision, Amsterdam, Netherlands  
 ○ Stanford Vision Group, Stanford, CA  
 ○ Stanford HCI Group, Stanford, CA
- 2016 **Embracing Error to Enable Rapid Crowdsourcing**.  
 ○ ACM Conference on Human Computer Interaction, San Jose, CA  
 ○ Stanford HCI Group, Stanford, CA

2016 **Visual Genome - Crowdsourced Visual Knowledge Representations.**

- Stanford Natural Language Processing Group, Stanford, CA
- Stanford Vision Group, Stanford, CA

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## Leadership

- 2014-2015 Graduate Student Representative at Stanford Computer Science Department  
2012-2013 Second Vice President of Kappa Alpha Literary Society chapter at Cornell University  
2011-2012 Social Chair of Theta Tau, a professional engineering fraternity  
2012-2013 Officer at Association of Computer Science Undergraduates, Cornell Chapter of ACM  
2010-2013 Membership Coordinator for Aiesec - the worlds largest student organization

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## Professional Activities

### Workshop organization

- 2017 The ActivityNet Large Scale Activity Recognition Challenge workshop at CVPR 2017

### Academic reviewer

- 2016-present Reviewed papers from CVPR, CHI, UIST, CSCW, IJCV

### University service

- 2015-2016 Organized Stanford Artificial Intelligence Entrepreneurship Club  
2015 Organized logistics for Stanford's AI outreach summer program.  
2014 Organized Stanford Workshop on AI and Knowledge

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## Mentoring and Advising

### PhD students

- 2015-2017 Kenji Hata (Princeton University) advised by Professor Olga Russakovsky  
2016 Vincent Sitzmann (Stanford University) advised by Gordon Wetzstein  
2015-2016 Oliver Groth (Dresden University)

### Masters students

- 2016-present Don lee  
2016-2017 Frederic Ren (Stanford University)  
2016 Yutian Li (Stanford University)

### Undergraduate students

- 2017 Sho Arora (Stanford University)  
2016 Ellen Blaine (Stanford University)  
2016 Gavin Mai (Stanford University)  
2015 Sherman Leung (Stanford University)  
2015 Michelle Guo (Stanford University)  
2015 Joshua Kravitz (Stanford University)  
2015 Stephanie Chen (Stanford University)

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## PRESS

- 2016 **Brown Institute of Media Innovation.**  
◦ Columbia University - "Ranjay Krishna"

2016 **Visual Relationship Detection with Language Priors.**

- RspVision - "Ranjay Krishna" Video Lectures

2013 **Sign Language Translation.**

- YouTube - "Sign Language Translator - The Sound of Signing"
- Enggaget - "Sign language translator turns gestures into spoken letters, makes for a better world"
- Slashgear - "Sign Language Translator glove interprets gestures "
- Economic Times of India - "power glove that translates sign language into spoken words"
- The Tech Journal - "Sign language translator turns gestures into spoken letters"
- Amrully - "Sign language translator turns gestures into spoken letters"
- ZDNet - "Sign language translator turns gestures into spoken letters"