

## Vicente Ordóñez-Román (publishes as Vicente Ordonez)

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### CONTACT INFORMATION

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### RESEARCH INTERESTS

My research lies at the intersection of Computer Vision, Natural Language Processing and Machine Learning. I am especially interested in analyzing, and mining useful human insights from enormous amounts of images with associated text to improve visual recognition. I am also interested in building efficient visual recognition models that can perform high-level perceptual tasks for applications in social media, urban computing, and everyday activities. More recently, I am also involved in research on fairness and accountability in machine learning applications.

### CURRENT POSITION

Assistant Professor 2016 - present  
[University of Virginia \(UVA\)](#), Charlottesville, Virginia.  
Department of Computer Science, School of Engineering and Applied Science.  
I am leading a new UVA Computer Vision group.

### EDUCATION

[The University of North Carolina at Chapel Hill \(UNC\)](#) 2013 - 2015  
Doctor of Philosophy in Computer Science  
Thesis: Language and Perceptual Categorization in Computational Visual Recognition  
Committee: Tamara L. Berg (advisor), Alexander C. Berg, Jan-Michael Frahm,  
Yejin Choi (University of Washington), Alexei A. Efros (UC Berkeley)

[Stony Brook University, The State University of New York \(SUNY\)](#) 2009 - 2013  
Master of Science in Computer Science

[Escuela Superior Politécnica del Litoral \(ESPOL\)](#), Ecuador. 2003 - 2008  
Computer Engineering Degree (GPA: 9.22/10.0)

### AWARDS

Google Faculty Research Award 2017.  
IBM Faculty Award 2017.  
Best Long Paper Award, 2017.

- Intl. Conf. on Empirical Methods in Natural Language Processing (EMNLP), 2017.

Research Highlight of the Communications of the ACM, March 2016 Issue.  
Allen Institute for Artificial Intelligence Hackathon 2015 – *Peer Favorite Award*.  
Best Paper Award – IEEE Marr Prize 2013.

- International Conference in Computer Vision (ICCV), 2013.

Yahoo! Key Scientific Challenges Award, 2012.  
Renaissance Technologies Fellowship, 2009 - 2011.  
Philanthropic Society Medal, Guayaquil, Ecuador, 2007.  
Top GPA in the Computer Engineering Program, ESPOL, 2004 - 2007.

### PREVIOUS EXPERIENCE

[Allen Institute for Artificial Intelligence \(AI2\)](#), Seattle, Washington. 2015 - 2016  
*Visiting Research Fellow in the Computer Vision Group (now PRIOR)*  
I worked at the intersection of Vision and Language in the Computer Vision group led by Prof. Ali Farhadi from the University of Washington (UW).

[Microsoft Research](#), Cambridge, Massachusetts. Summer 2014  
*Research Intern in the Computer Vision Group*  
Large scale data-driven scene parsing using deep learning features.  
I was fortunate to work with Ce Liu and Michael Rubinstein.

[eBay Research Labs](#), San Jose, California. Summer 2013  
*Research Intern in the Computer Vision Group*  
Worked on attribute predictions on catalog image and text collections  
in the Mantis Computer Vision group. My mentors were  
Robinson Piramuthu and Vignesh Jagadeesh.

[Google](#), Mountain View, California. Summer 2011  
*Software Engineering Intern in the Android Multimedia Content Analysis Group*  
Automatic organization of personal image collections using visual features.  
This work later evolved into the Google+ Beautiful Movies made Auto Awesomely.  
My mentors were Rodrigo Carceroni and Wei Hua.

[Google](#), Mountain View, California. Spring 2008, Summer 2008  
*Software Engineering Intern in Google Earth*  
Developed code for automated quality analysis of satellite images  
in the imagery database group for Google Earth and Google Maps.  
My mentor was Rodrigo Carceroni.

#### ACADEMIC EXPERIENCE

[The University of North Carolina at Chapel Hill](#) 2013 - 2015  
*Research Assistant at the Computer Science Department*  
Performed research in visually grounded language and extracting visual meaning  
from large scale noisy collections of text and images. I worked with my advisor  
Prof. Tamara L. Berg and Prof. Alexander C. Berg.

[Stony Brook University \(SUNY\)](#), Stony Brook, New York. 2010 - 2013  
*Research Assistant at the Vision and Digital Media Lab*  
Large scale analysis of text and images, large scale image classification,  
language generation and eye gaze data analysis. I was part of the research group  
of Prof. Tamara L. Berg and also collaborated with Prof. Yejin Choi.

[Center for Information Technologies \(ESPOL\)](#), Guayaquil, Ecuador. 2006 - 2009  
*Research Assistant at the Technology Enhanced Learning Group*  
Worked on e-learning and document retrieval under Prof. Xavier Ochoa  
and also collaborated briefly with Prof. Erik Duval (KU Leuven)

#### PUBLICATIONS

Feedback-prop: Convolutional Neural Network Inference under Partial Evidence.  
Tianlu Wang, Kota Yamaguchi, Vicente Ordonez.  
Int. Conf. on Computer Vision and Pattern Recognition. [CVPR 2018](#).  
Salt Lake City, Utah.

Gender Bias in Coreference Resolution: Evaluation and Debiasing Methods.  
Jieyu Zhao, Tianlu Wang, Mark Yatskar, Vicente Ordonez, Kai-Wei Chang.  
North American Chapter of the Association for Computational Linguistics. [NAACL 2018](#).  
short. New Orleans, Louisiana.

Building Discriminative CNN Image Representations for Object Retrieval using the Replicator Equation. Shanmin Pang, Jihua Zhu, Jiaying Wang, Vicente Ordonez, Jianru Xue. [Pattern Recognition 2018](#). Volume 83. Pages 150-160. Accepted April 2018. ([Journal Paper](#))

Where and Who? Automatic Semantic-Aware Person Composition.  
Fuwen Tan, Crispin Bernier, Benjamin Cohen, Vicente Ordonez, Connelly Barnes.  
Winter Conference on Applications of Computer Vision [WACV 2018](#).  
Lake Tahoe, NV.

Men Also Like Shopping: Reducing Gender Bias Amplification using Corpus-level Constraints. Jieyu Zhao, Tianlu Wang, Mark Yatskar, Vicente Ordonez, Kai-Wei Chang.  
Empirical Methods on Natural Language Processing. [EMNLP 2017](#).  
Copenhagen, Denmark. ([Oral Presentation](#)) ([Best Paper Award](#))

Obj2Text: Generating Visually Descriptive Language from Object Layouts.  
Xu Wang Yin, Vicente Ordonez.  
Empirical Methods on Natural Language Processing. [EMNLP 2017](#).  
Copenhagen, Denmark. ([Oral Presentation](#))

Commonly Uncommon: Semantic Sparsity in Situation Recognition.  
Mark Yatskar, Vicente Ordonez, Luke Zettlemoyer, Ali Farhadi.  
Int. Conf. on Computer Vision and Pattern Recognition. [CVPR 2017](#).  
Honolulu, Hawaii.

XNOR-Net: ImageNet Classification Using Binary Convolutional Neural Networks.  
Mohammad Rastegari, Vicente Ordonez, Joseph Redmon, Ali Farhadi.  
European Conference on Computer Vision. [ECCV 2016](#). Amsterdam, Netherlands.  
([Oral presentation](#))

Stating the Obvious: Extracting Visual Common Sense Knowledge.  
Mark Yatskar, Vicente Ordonez, Ali Farhadi. North American Chapter of the Association of Computational Linguistics. [NAACL 2016](#). short. San Diego, CA  
([Oral presentation](#))

Learning to Name Objects.  
Vicente Ordonez, Wei Liu, Jia Deng, Yejin Choi, Alexander C. Berg, Tamara L. Berg.  
Communications of the ACM. March 2016. Vol 59, No. 3. [CACM 2016](#).  
([Research Highlight, Invited Paper](#))

Large Scale Retrieval and Generation of Image Descriptions.  
V. Ordonez, X. Han, P. Kuznetsova, G. Kulkarni, M. Mitchell, K. Yamaguchi, K. Stratos, A. Goyal, J. Dodge, A. Mensch, H. Daume III, A.C. Berg, Y. Choi, T.L. Berg.  
International Journal of Computer Vision. Special Issue on Big Data. [IJCV 2016](#).  
([Journal Paper](#))

Predicting Entry-Level Categories.  
Vicente Ordonez, Wei Liu, Jia Deng, Yejin Choi, Alexander C. Berg, Tamara L. Berg.  
International Journal of Computer Vision - Marr Prize Special Issue. [IJCV 2015](#).  
([Journal Paper](#))

ReferitGame: Referring to Objects in Photographs of Natural Scenes.  
Sahar Kazemzadeh, Vicente Ordonez, Mark Matten, Tamara L. Berg  
Empirical Methods on Natural Language Processing. [EMNLP 2014](#). Doha, Qatar.  
([Oral presentation](#))

Learning High-level Judgments of Urban Perception.  
Vicente Ordonez, Tamara L. Berg  
European Conference on Computer Vision. [ECCV 2014](#).  
Zurich, Switzerland.

TreeTalk: Composition and Compression of Trees for Image Descriptions.  
Polina Kuznetsova, Vicente Ordonez, Tamara L. Berg, Yejin Choi.  
Transactions of the Association of Computational Linguistics. [TACL 2014](#)  
Presented at EMNLP 2014. Doha, Qatar.  
([Oral Presentation](#), [Journal Paper](#))

FurnitureGeek: Understanding Fine-Grained Furniture Attributes from Freely Associated Text and Tags. Vicente Ordonez, Vignesh Jagadeesh, Wei Di, Anurag Bhardwaj, Robinson Piramuthu. IEEE Winter Conference on Applications of Computer Vision. [WACV 2014](#). Steamboat Springs, CO

From Large Scale Image Categorization to Entry Level Categories.  
Vicente Ordonez, Jia Deng, Yejin Choi, Alexander C. Berg, Tamara L. Berg.  
IEEE International Conference on Computer Vision. [ICCV 2013](#). Sidney, Australia.  
([Oral presentation](#)) (**Best Paper Award - Marr Prize**)  
(Selected for publication in the Research Highlights of the Communications of the ACM Magazine)

Generalizing Image Captions for Image-Text Parallel Corpus.  
Polina Kuznetsova, Vicente Ordonez, Alexander C. Berg, Tamara L. Berg, Yejin Choi.  
Association for Computational Linguistics. [ACL 2013](#). short.  
Sofia, Bulgaria.

Babytalk: Understanding and Generating Image Descriptions.  
G. Kulkarni, V. Premraj, V. Ordonez, S. Dhar, S. Li, Y. Choi, A. C. Berg, T. L. Berg.  
IEEE Transactions on Pattern Analysis and Machine Intelligence. [TPAMI 2013](#).  
([Journal paper](#))

Collective Generation of Natural Image Descriptions.  
Polina Kuznetsova, Vicente Ordonez, Alexander C. Berg, Tamara L. Berg, Yejin Choi.  
Association for Computational Linguistics. [ACL 2012](#). Jeju, South Korea.  
([Oral presentation](#))

Im2Text: Describing Images Using 1 Million Captioned Photographs.  
Vicente Ordonez, Girish Kulkarni, Tamara L. Berg.  
Neural Information Processing Systems. [NIPS 2011](#). Granada, Spain.  
([Spotlight presentation](#))

High Level Describable Attributes for Predicting Aesthetics and Interestingness.  
Sagnik Dhar, Vicente Ordonez, Tamara L. Berg.  
IEEE Computer Vision and Pattern Recognition. [CVPR 2011](#).  
Colorado Springs, CO.

The Ariadne Infrastructure for Managing and Storing Metadata.  
S. Ternier, G. Parra, B. Vandeputte, K. Verbert, J. Klerkx, E. Duval, V. Ordonez, X. Ochoa.  
Emerging Internet Technologies and Applications for E-learning.  
[IEEE Internet Computing 2009](#).  
(Journal paper)

## PATENTS

Techniques for automatic photo album generation. Google – Android.  
Vicente Ordonez, Wei Hua, Rodrigo L. Carceroni, Jennifer Gillenwater, Amarnag Subramanya. US Patent No. 8983193. (2015).

Correlating image annotations with foreground features. eBay Inc.  
Anurag Bhardwaj, Robinson Piramuthu, Vicente Ordonez, Vignesh Jagadeesh, Wei Di.  
US Patent Application No. 20150067471. (2015).

## MEDIA COVERAGE / PRESS RELEASES

Researchers Combat Gender and Racial Bias in Artificial Intelligence. Bloomberg. 12/04/2017.  
<https://www.bloomberg.com/news/articles/2017-12-04/researchers-combat-gender-and-racial-bias-in-artificial-intelligence>

Home robots will turn into crude sexists, experts warn. The Times of London. 08/23/2017.  
<https://www.thetimes.co.uk/article/home-robots-will-turn-into-crude-sexists-experts-warn-gnmj09rgq>

Machines Taught by Photos Learn a Sexist View of Women. WIRED. 08/21/2017.  
<https://www.wired.com/story/machines-taught-by-photos-learn-a-sexist-view-of-women/>

Beyond Silicon: Squeezing More Out of Chips. The New York Times. 10/30/2016.  
<http://www.nytimes.com/2016/10/31/technology/beyond-silicon-squeezing-more-out-of-chips.html>

Artificial Intelligence at Your Fingertips. University of Washington CSE News. 10/30/2016.  
<https://news.cs.washington.edu/2016/10/31/uw-cse-and-ai2-in-the-new-york-times-artificial-intelligence-at-your-fingertips/>

A Powerful Legacy and a Bright Future in the Digital Humanities. UVA Today. 10/13/2016.  
<https://www.news.virginia.edu/content/powerful-legacy-and-bright-future-digital-humanities>

## INVITED TALKS

Invited Speaker: Workshop on Shortcomings in Vision and Language (SiVL)  
European Conference on Computer Vision (ECCV), Munich, Germany September 2018

Invited Speaker: Overcoming the Next Challenges in Vision and Language Research  
Microsoft Research Montreal. Montréal, Canada August 2018  
McGill University, Center for Intelligent Machines, Montréal, Canada August 2018

Mini-Plenary Speaker: Reducing Gender Bias in Machine Learning Systems  
National Center for Women & IT, NCWIT Summit. Grapevine, TX May 2018

Invited Speaker: Understanding the Visual World through Language  
Panelist: Bias in Machine Learning Systems  
Applied Machine Learning Conference. Charlottesville, VA April 2018  
Tom Tom Founders Festival

Keynote Speaker: Integrating Vision and Language through Feedback-based Neural Inference  
Conference on Integrating Vision and Language Processing. Tartu, Estonia March 2018  
European Network on Integrating Vision and Language (iV&L Net)

Investigación en Reconocimiento Visual Artificial	
Universidad Técnica de Machala (UTM), Machala, Ecuador.	May 2017
Universidad de Cuenca (UC), Cuenca, Ecuador.	May 2017
Vision, Language and Perception.	
Digital Humanities Conference at the University of Virginia – DH@UVA	October 2016
Language and Perceptual Categorization in Computer Vision.	
Toyota Technological Institute at Chicago TTI-C	April 2015
Hosted by Prof. Greg Shakhnarovich.	
Allen Institute for Artificial Intelligence AI2, Seattle, Washington	March 2015
Hosted by Prof. Ali Farhadi.	
California Institute of Technology (Caltech), Pasadena, California	March 2015
Hosted by Prof. Pietro Perona.	
Carnegie Mellon University, The Robotics Institute VASC Seminar Series	February 2015
Hosted by Prof. Abhinav Gupta.	
Disney Research Pittsburgh, The Walt Disney Company.	January 2015
Hosted by Senior Research Scientist Leonid Sigal.	
Stanford University, Department of Computer Science, Vision Group.	December 2014
Hosted by Prof. Fei-fei Li.	
Integrating Vision and Language.	
University of Virginia, Computer Science Dept. Charlottesville, Virginia	March 2015
Virginia Tech, Computer Science Dept., Blacksburg, Virginia	March 2015
Drexel University, Computer Science Dept. Philadelphia, Pennsylvania	February 2015
Learning High-level Judgments of Urban Perception.	September 2014
ECCV 2014 Workshop on Storytelling with Images and Videos. ETH Zurich	
ECCV 2014 Workshop on Human-Machine Communication for Visual Recognition. ETH Zurich	
Understanding Image Descriptions in the Wild.	July 2013
Yahoo! Labs, Sunnyvale, California.	
Hosted by Research Scientist Amit Goyal.	
Data-driven Generation of Image Descriptions.	June 2013
North American Chapter of the Association for Computational Linguistics (NAACL)	
Workshop on Vision and Language (WVL) 2013. Atlanta, GA	
<b>RESEARCH GROUP</b> Shanmin Pang, <i>Visiting Scholar – Asst. Prof. at Xi'an Jiaotong University</i>	Fall 2017 - present
Tianlu Wang, <i>PhD Student</i>	Fall 2016 - present
Ziyang Yang, <i>PhD Student</i>	Fall 2017 - present
Fuwen Tan, <i>PhD Student</i>	Fall 2017 - present
Paola Cascante <i>PhD Student</i>	Starting Fall 2018
Xuwan Yin, <i>PhD Student</i>	Fall 2016 - Summer 2018
Fengyang Zhang, <i>MSc Student</i>	Spring 2018 - present
Abhimanyu Banerjee, <i>MSc Student</i>	Spring 2017 - Spring 2018
Anudeep Konda, <i>MSc Student</i>	Fall 2017 - Spring 2018

KS Sivaraman, <i>MSc Student</i>	Spring 2017 - Fall 2017
Jeffrey Tan, <i>Undergrad Student</i>	Summer 2018
Arun Kannan, <i>Undergrad Student Capstone Project</i>	Fall 2017 - present
Vijay Edupuganti, <i>Undergrad Student Capstone Project</i>	Fall 2017 - Spring 2018
Shijia Wang, <i>Undergrad Student</i>	Summer 2017 - Fall 2017
Nova Zhang, <i>Undergrad Student</i>	Spring 2017
Divya Bhaskhara, <i>Undergrad Student Capstone Project</i>	Fall 2016
Jonathan Rodriguez, <i>CRA-DREU Visting Student – Tufts University</i>	Summer 2018
Rosangel Garcia, <i>CRA-DREU Visting Student – Le Moyne College</i>	Summers 2017, 2018
Ian K. Torres, <i>CRA-DREU Visting Student – UMass Amherst</i>	Summer 2017

## TEACHING EXPERIENCE

### *Instructor.*

Introduction to Computer Vision. University of Virginia. Spring 2018

Course website: <http://vicenteordonez.com/vision>

Undergraduate Class: 78 students (19% women).

BA/BSc Students majoring in CS/Comp. Eng./Applied Math/Statistics and others.

Tools Used: Python, Numpy, Pytorch, Google Colaboratory.

Computational Visual Recognition. University of Virginia. Fall 2017

Course website: <http://www.cs.virginia.edu/~vicente/recognition>

Graduate Class: 78 students (32% women).

13 PhD (6 CS + 3 CivilEng + 2 ECE + 1 SysEng + 1 Physics), 31 CS MS, 13 ECE MS, 5 SysEng MS, 3 Data Science MS, 1 Mech&Aerospace ME, 1 MS Chem, 1 MS BioMed, 9 BA/BSc

Tools Used: Python, Pytorch, Jupyter.

Vision and Language. University of Virginia Spring 2017

Course website: <http://www.cs.virginia.edu/~vicente/vislang>

Advanced Graduate Class: 32 students (28% women).

7 CS PhD, 9 CS MS, 3 SysEng MS, 11 Data Science MS, 2 CS BSc

Tools Used: Python, Keras, Tensorflow, Pytorch.

Computational Visual Recognition. University of Virginia. Fall 2016

Course website: <http://www.cs.virginia.edu/~vicente/recognition/2016>

Graduate Class: 36 students (16% women).

6 PhD (4 CS + 1 BioMed + 1 Stats), 16 CS MS, 4 MEng, 4 Data Science MS, 6 CS BSc

Tools Used: Lua, Torch, Python, Keras, Tensorflow.

### *Teaching Assistant.*

Foundations of Computer Science. Stony Brook University. 2009-2010

Object Oriented Programming. Escuela Superior Politécnica del Litoral, Ecuador. 2005

Introduction to Programming. Escuela Superior Politécnica del Litoral, Ecuador. 2004

Physics for Engineering. Escuela Superior Politécnica del Litoral, Ecuador. 2004

### *Guest Lectures.*

Introduction to Computer Vision. University of Virginia February 2017

Language and Vision. University of North Carolina at Chapel Hill. February 2015

Computer Vision. University of North Carolina at Chapel Hill. November 2014

Artificial Intelligence. University of North Carolina at Chapel Hill. January 2014

Advanced Multimedia. Stony Brook University. April 2013

Computational Photography. Stony Brook University. March 2013



OTHER  
ACTIVITIES

*Organizing Committee.*

Panel on Bias in Machine Learning at the

- ACM Richard Tapia Celebration of Diversity in Computing 2018.

*BigVision* Workshop on Large Scale Visual Recognition and Retrieval at the

- Conference on Computer Vision and Pattern Recognition (CVPR) 2016.

University of Virginia's Human and Machine Intelligence Seminar (with Prof. Paul Humphreys)

University of Virginia's Computer Vision Seminar (with my PhD students)

Stony Brook University Computer Science Graduate Research Conference 2010

*Area Chair / Program Committee.*

Vision, Robotics, and Other Grounding. Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL) 2018.

*Workshop Program Committee / Reviewer.*

NAACL Workshop on New Forms of Generalization in Deep Learning 2018

ICCV Workshop on Closing the Loop Between Vision and Language 2015, 2017

ICCV Workshop on Web-scale Vision and Social Media 2015, 2017

NIPS Workshop on Efficient Methods for Deep Neural Networks 2016

ECCV Workshop on Web-scale Vision and Social Media 2016

EMNLP Workshop on Vision and Language 2015

ECCV Workshop on Storytelling with Images and Videos - *VisStory* 2014

ECCV Workshop on Human-Machine Communication for Visual Recognition 2014

*Member of Expert Review Panel.*

US National Science Foundation, 2018

FWO - Flanders Research Foundation, Belgium, 2017

*Reviewer / Program Committee.*

Intl. Conference on Computer Vision and Pattern Recognition (CVPR) 2015 - 2018

European Conference on Computer Vision (ECCV) 2016, 2018

Empirical Methods in Natural Language Processing (EMNLP) 2015, 2017, 2018

Association for Computational Linguistics (ACL) 2014, 2016 - 2018

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) 2014 - 2018

International Conference on Computer Vision (ICCV) 2015, 2017

International Joint Conference in Artificial Intelligence (IJCAI) 2016

International Journal of Computer Vision (IJCV) 2014 - 2016

Neural Information Processing Systems (NIPS) 2016

Asian Conference on Computer Vision (ACCV) 2016

Int'l Conference on Computer Graphics and Interactive Techniques (SIGGRAPH) 2016

North American Chapter of the Association for Computational Linguistics (NAACL) 2016

IEEE Transactions on Multimedia (TM) 2013, 2016.

Elsevier Computer Vision and Image Understanding (CVIU) 2014, 2015

Elsevier Information Processing Letters (IPL) 2014

IEEE Transactions on Neural Networks and Learning Systems (TNNLS) 2014

IEEE Transactions on Image Processing (TIP) 2013.

ACM Multimedia (MM) 2010. International Multimedia Conference.