

CONTACT INFORMATION	Duncan Hall 3098 Rice University Houston, TX	Homepage: <a href="https://paolacascante.com">https://paolacascante.com</a> ✉ E-mail: <a href="mailto:pc51@rice.edu">pc51@rice.edu</a> 🔗 Google Scholar
RESEARCH INTERESTS	Computer Vision, Natural Language Processing, Machine Learning. Multi-modal Learning, Zero/few-shot/semi-supervised Learning. Synthetic Data Generation for Compositionality and Privacy Protection.	
EDUCATION	<b>Rice University</b> , Houston, TX Ph.D. in <b>Computer Science</b> . GPA: 4.0. Advisor: <b>Vicente Ordonez</b> .	2024 (expected)
	<b>University of Virginia</b> , Charlottesville, VA Master of <b>Computer Science</b> . GPA: 4.0. Advisor: <b>Vicente Ordonez</b> .	2021
	<b>Tecnologico de Costa Rica (TEC)</b> , Cartago, Costa Rica. B.Sc., Computer Engineering.	2018
HONORS & AWARDS	Rising Stars in EECS ICCV Doctoral Consortium & DEI Travel Award Future Faculty Fellow (FFF) in Rice's George R. Brown School of Engineering Outstanding Reviewer for CVPR (top ~ 3.3%) The Ken Kennedy Institute SLB Graduate Fellowship Microsoft Research PhD Fellowship Nomination Conference on Neural Information Processing Systems Travel Award University of Virginia Computer Science Fellowship	2023 2023 2023 2023 2022 2022 2019 2018
RESEARCH WORK EXPERIENCE	<b>Mitsubishi Electric Research Laboratories (MERL)</b> . Cambridge, Massachusetts Research Intern in the Computer Vision Group. Working on Few-shot Action Recognition. Digital Humans, Human Object Interaction (HOI) & Physics-enabled 3D Simulators. Host: <b>Anoop Cherian</b> .	May 2023 - August 2023
	<b>IBM Research</b> , Cambridge, Massachusetts. Research Intern in the Vision Group at the <b>MIT-IBM Watson AI Lab</b> . Leveraging synthetic data for visio-linguistic (VL) compositional reasoning, Exploring Large Language Models (LLMs) as text expanders, VL & lifelong/continual learning. Mentor: <b>Leonid Karlinsky</b> . Manager: <b>Rogério Feris</b> .	May 2022 - March 2023
	<b>IBM Research</b> , Cambridge, Massachusetts. Research Intern in the Vision Group at the <b>MIT-IBM Watson AI Lab</b> . Exploring simulated environments for Visual Question Answering (VQA). Mentor: <b>Hui Wu</b> . Manager: <b>Rogério Feris</b> .	May 2021 - Aug 2021
	<b>Rice University</b> , Houston, TX Graduate Research Assistant at the <b>Vision, Language, and Learning Lab</b> . Advised by Professor <b>Vicente Ordonez</b> and also worked with Professor <b>Yanjun Qi</b> .	2022 - Present
	<b>University of Virginia</b> , Charlottesville, VA Graduate Research Assistant at the <b>Vision, Language, and Learning Lab</b> . Advised by Professor <b>Vicente Ordonez</b> and also worked with Professor <b>Yanjun Qi</b> .	2018 - 2021

ENGINEERING WORK EXPERIENCE	<b>N3 Results</b> , Heredia, Costa Rica. Senior Software Engineer/Tech Lead. Manager: <b>Gibran Uribe</b> .	December 2012 - July 2018
	<b>Growth Acceleration Partners</b> , San Jose, Costa Rica. Mid Software Engineer.	February 2010 - October 2012
	<b>Intel</b> , Heredia, Costa Rica. Software Engineer - Contractor.	November 2009 - February 2010
PUBLICATIONS & PREPRINTS	Learning from Models and Data for Visual Grounding. Ruozhen He, <b>Paola Cascante-Bonilla</b> , Ziyang Yang, Alexander C. Berg, Vicente Ordonez. Under Review. March 2024.	
	Automatic Property Testing for Improved Visual Programming. Jaywon Koo, Ziyang Yang, <b>Paola Cascante-Bonilla</b> , Baishakhi Ray, and Vicente Ordonez. Under Review. March 2024.	
	Grounding Language Models for Visual Entity Recognition. Zilin Xiao, Ming Gong, <b>Paola Cascante-Bonilla</b> , Xingyao Zhang, Jie Wu, and Vicente Ordonez. Under Review. <a href="#">[preprint]</a> - <a href="#">[code]</a> . February 2024.	
	Improved Visual Grounding through Self-Consistent Explanations. Ruozhen He, <b>Paola Cascante-Bonilla</b> , Ziyang Yang, Alexander C. Berg, Vicente Ordonez. 35th IEEE Conference on Computer Vision and Pattern Recognition. CVPR 2024.	
	Dense and Aligned Captions (DAC) Promote Compositional Reasoning in VL Models. Sivan Doherty, Assaf Arbelle, Sivan Harary, Roei Herzig, Donghyun Kim, <b>Paola Cascante-Bonilla</b> , Amit Alfassy, Rameswar Panda, Raja Giryes, Rogerio Feris, Shimon Ullman, Leonid Karlinsky. The 37th Conference on Neural Information Processing Systems. NeurIPS 2023.	
	Going Beyond Nouns With Vision & Language Models Using Synthetic Data. <b>Paola Cascante-Bonilla</b> , Khaled Shehadeh, James Seale Smith, Sivan Doherty, Donghyun Kim, Rameswar Panda, Gül Varol, Aude Oliva, Vicente Ordonez, Rogerio Feris, Leonid Karlinsky. The 19th International Conference on Computer Vision. ICCV 2023.	
	ConStruct-VL: Data-Free Continual Structured VL Concepts Learning. James Seale Smith, <b>Paola Cascante-Bonilla</b> , Assaf Arbelle, Donghyun Kim, Rameswar Panda, David Cox, Diyi Yang, Zolt Kira, Rogerio Feris, Leonid Karlinsky. 34th IEEE Conference on Computer Vision and Pattern Recognition. CVPR 2023.	
	CODA-Prompt: COntinual Decomposed Attention-based Prompting for Rehearsal-Free Continual Learning. James Seale Smith, Leonid Karlinsky, Vyshnavi Gutta, <b>Paola Cascante-Bonilla</b> , Donghyun Kim, Assaf Arbelle, Rameswar Panda, Rogerio Feris, Zolt Kira. 34th IEEE Conference on Computer Vision and Pattern Recognition. CVPR 2023.	
	SimVQA: Exploring Simulated Environments for Visual Question Answering. <b>Paola Cascante-Bonilla</b> , Hui Wu, Letao Wang, Rogerio Feris, Vicente Ordonez. 33th IEEE Conference on Computer Vision and Pattern Recognition. CVPR 2022.	
	On the Transferability of Visual Features in Generalized Zero-Shot Learning. <b>Paola Cascante-Bonilla</b> , Leonid Karlinsky, James Seale Smith, Yanjun Qi, Vicente Ordonez. <a href="#">[preprint]</a> - <a href="#">[code]</a> . November 2022.	
	Evolving Image Compositions for Feature Representation Learning. <b>Paola Cascante-Bonilla</b> , Arshdeep Sekhon, Yanjun Qi, Vicente Ordonez. The 32nd British Machine Vision Conference. BMVC 2021.	
	Curriculum Labeling: Revisiting Pseudo-Labeling for Semi-Supervised Learning.	

**Paola Cascante-Bonilla**, Fuwen Tan, Yanjun Qi, Vicente Ordonez.  
The 35th AAAI Conference on Artificial Intelligence. AAAI 2021.

Drill-down: Interactive Retrieval of Complex Scenes using Natural Language Queries.  
Fuwen Tan, **Paola Cascante-Bonilla**, Xiaoxiao Guo, Hui Wu, Song Feng, Vicente Ordonez.  
Conf. on Neural Information Processing Systems. NeurIPS 2019.  
Vancouver, Canada. December 2019.

Moviescope: Large-scale Analysis of Movies using Multiple Modalities.  
**Paola Cascante-Bonilla**, Kalpathy Sitaraman, Mengjia Luo, Vicente Ordonez.  
[preprint] - [project page] - [media coverage]. August 2019.

Chat-crowd: A Dialog-based Platform for Visual Layout Composition.  
**Paola Cascante-Bonilla**, Xuwang Yin, Vicente Ordonez, Song Feng.  
North American Chapter of the Association for Computational Linguistics. NAACL 2019.  
System Demonstrations. Minneapolis, Minnesota. June 2019.

## TALKS

Going Beyond Nouns for Vision & Language.  
AI Safety Seminar.  
University of California, Los Angeles - Virtual. February 2024.

Generalized Zero-Shot Learning via Normalizing Flows [video].  
2021 Ken Kennedy AI and Data Science Workshop 2021.  
Rice University. Ken Kennedy Institute. October 2021.

Artificial Intelligence, a Bridge Between Innovation and Communities [video].  
Calderos: Mujeres, Ciencia, Tecnología e Innovación 2021.  
University of Costa Rica. CICOM - Virtual. June 2021.

Attention! The Rise of the Transformers [video].  
International Meeting on Artificial Intelligence and its Applications (RIIAA 2020).  
Mexico. Mexico City - Virtual Event. August 2020.

## MEDIA COVERAGE

The era of Artificial Intelligence: Do we have a place in it?  
Telemundo Houston. Special Report. Nov. 8, 2023 [link].  
Rice CS PhD student introduces 1M-scale synthetic dataset in Paris.  
Rice CS News. Nov. 1, 2023 [link].  
Helping computer vision and language models understand what they see.  
MIT News. Sept. 13, 2023 [link].  
Teaching Computers to Answer Questions about Images.  
Rice CS - News. Jun. 24, 2022 [link].  
A safer, lower-cost alternative to real data for pretraining computer vision models.  
IBM Research Blog. Jun 23, 2022 [link].  
Outstanding Talent. Red de Talento Costarricense en el Extranjero.  
Academia Nacional de Ciencias, Costa Rica. May 2021. [link][link].  
Investigating the best features for predicting a movie's genre and estimated budget.  
Tech Xplore. August 30, 2019 [link].

## TEACHING EXPERIENCE

**Teaching Assistant**  
CS 6501-4501: Vision & Language. University of Virginia Fall 2020  
CS 6501-003: Deep Learning for Visual Recognition. University of Virginia Spring 2020  
CS 4501-008: Introduction to Computer Vision. University of Virginia Fall 2019  
**Guest Lecturer**  
CS 4501-008: Introduction to Computer Vision. University of Virginia Fall 2019

MENTORING	Ruozhen He (Graduate @ Rice)	Aug 2023 - Present
	Project: Visual Grounding through Textual Relations.	
	Jaywon Koo (Graduate @ Rice)	Aug 2023 - Present
	Project: Visio-linguistic (VL) Compositional Reasoning.	
	Kevin Ivey (Undergraduate @ UVA)	Feb 2023 - May 2023
	Project: Probing Visio-linguistic (VL) Capabilities of Large Language Models.	
	Jinbiao Wei (Undergraduate @ Rice)	Feb 2023 - May 2023
PROFESSIONAL SERVICE	Project: Probing Visio-linguistic (VL) Capabilities of Large Language Models.	
	Khaled Shehada (Graduate @ MIT)	Sept 2022 - March 2023
	Project: Leveraging Synthetic Data for Visio-linguistic (VL) Compositional Reasoning.	
	Letao Wang (Undergraduate @ UVA)	April 2021 - April 2022
	Project: Exploring Simulated Environments for Visual Question Answering.	
	Mengjia Luo (Undergraduate @ UVA)	Sept 2018 - May 2019
	Project: Large-scale Analysis of Movies using Multiple Modalities.	
	<b>Organizer</b>	
	2nd What is Next in Multimodal Foundation Models? (MMFM) Workshop at CVPR 2024.	
	1st What is Next in Multimodal Foundation Models? (MMFM) Workshop at ICCV 2023.	
	Women in Computer Vision (WiCV) Workshop at ICCV 2023.	
	LatinX in Computer Vision (LXCV) Workshop at CVPR 2022 & 2021.	
	LatinX in Computer Vision (LXCV) Workshop at ICCV 2021.	
	LatinX in AI (LXAI) Workshop at ICML 2021.	
	<b>Reviewer</b>	
	18th European Conference on Computer Vision - ECCV 2024.	
	41st International Conference on Machine Learning - ICML 2024.	
	35th IEEE Conference on Computer Vision and Pattern Recognition - CVPR 2024.	
	12th International Conference on Learning Representations - ICLR 2024.	
	38th AAAI Conference on Artificial Intelligence – AAAI 2024.	
	The IEEE Winter Conference on Applications of Computer Vision - WACV 2024.	
	37th Conference on Neural Information Processing - NeurIPS 2023.	
	The 19th International Conference on Computer Vision - ICCV 2023.	
	Workshop and Challenge on Vision and Language Algorithmic Reasoning - wICCV 2023.	
	34th IEEE Conference on Computer Vision and Pattern Recognition - CVPR 2023.	
	37th AAAI Conference on Artificial Intelligence – AAAI 2023.	
	30th ACM International Conference on Multimedia - ACM-MM 2022 Industry Track.	
	36th Conference on Neural Information Processing - NeurIPS 2022 D&B Track.	
	17th European Conference on Computer Vision - ECCV 2022.	
	1st LatinX in Computer Vision Research Workshop - CVPR 2022-2023.	
	33th IEEE Conference on Computer Vision and Pattern Recognition - CVPR 2022.	
	36th AAAI Conference on Artificial Intelligence – AAAI 2022.	
	The 32nd British Machine Vision Conference – BMVC 2021.	
	LatinX in Computer Vision Research Workshops - LXCV 2022-2023.	
	<b>Diversity and Inclusion</b>	
	Chair of the Mentoring Program for LatinX in AI	Spring 2021 - Fall 2022
	Mentor for the Hackaton “Justicia para los desaparecidos” at RIHAA 4.0	August 2021
	Workshop on Transformers at RIHAA 3.0	August 2020
	<b>Academic Interest Groups Co-Organizer</b>	
	Imaging & Vision Seminar Series. Rice University	Spring 2023
	Computer Vision Reading Group. Rice University	Spring 2022
	Computer Vision Reading Group. University of Virginia	Fall 2019 - Spring 2021