MARYNEL VÁZQUEZ

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Google Scholar

I am an Assistant Professor in Yale's Computer Science Department. I study fundamental problems in Human-Robot Interaction, especially those related to enabling group and multi-party interactions. My research approach is interdisciplinary: it combines artificial intelligence, behavioral science, and design.

EDUCATION

Ph. D., Robotics August 2017
Carnegie Mellon University, Pittsburgh, PA
Dissertation: *Reasoning About Spatial Patterns of Human Behavior During Group Conversations with Robots*
Committee: A. Steinfeld (co-advisor), S. E. Hudson (co-advisor), K. Kitani, B. Scassellati (Yale University)

M. S., Robotics May 2013
Carnegie Mellon University, Pittsburgh, PA

Computer Engineering November 2008
Universidad Simón Bolívar, Caracas, VE
Summa cum laude

ACADEMIC & RESEARCH POSITIONS

Assistant Professor, Computer Science Department, Yale University, CT Summer 2018 - Present
Lead of the Interactive Machines Group (http://interactive-machines.com/)

Post Doctoral Scholar, Computer Science Department, Stanford University, CA Summer 2017 - 2018
Member of the Stanford Vision and Learning Lab

Lab Associate (Intern), Disney Research, Pittsburgh, PA Summer 2012, Fall 2013, Fall 2014

PRIZES, HONORS & AWARDS

- Best Student Paper Award, IEEE RO-MAN'22
- NSF CAREER Award 2022-2027
- Best Paper Award Finalist, ACM/IEEE HRI'21
- Best Poster Award Finalist, HAI'20
- 2020 Amazon Research Award
- 2019 Amazon Research Award
- Best Paper Award Finalist (Safety Security and Rescue Robotics), IEEE/RSJ IROS'18

Prior to joining Yale:

- Best Paper Award Finalist (Technology) and Distinguished Interdisciplinary Research Award Finalist, IEEE RO-MAN'16
- 2014-2015 Generation Google Scholar
- 2012 HRI Pioneer
- Finalist of the 2012 Google Anita Borg Memorial Scholarship
- 2010 Apple Women in Engineering Scholar

PUBLICATION STATISTICS

Statistics are based on Google Scholar profile (as of 9/10/22):

h-index: 20
i10-index: 23
Total citations: 1072

BOOK CHAPTERS

[B1] Sarah Gillet, **Marynel Vázquez**, Christopher Peters, Fangkai Yang, and Iolanda Leite. Multiparty Interaction Between Humans and Socially Interactive Agents. In C. Pelachaud, B. Lugrin, and D. Traum, editors, *The Handbook on Socially Interactive Agents: 20 years of Research on Embodied Conversational Agents, Intelligent Virtual Agents, and Social Robotics Volume 2: Interactivity, Platforms, Application*, pages 113–154. ACM, 2022.

JOURNAL ARTICLES

[J5] Nathan Tsoi, Alec Xiang, Peter Yu, Sam Sohn, Greg Schwartz, Subashri Ramesh, Mohamed Hussein, Anjali W. Gupta, Mubbasir Kapadia, and **Marynel Vázquez**. SEAN 2.0: Formalizing and Generating Social Situations for Robot Navigation. *IEEE Robotics and Automation Letters*, October 2022. [JCR Impact Factor: 4.321]

[J4] **Marynel Vázquez**, Alexander Lew, Eden Gorevoy, and Joe Connolly. Pose Generation for Social Robots in Conversational Group Formations. *Frontiers in Robotics and AI*, 2022. [2021 Cite Score: 4.6]

[J3] Brian Scassellati and **Marynel Vázquez**. The Potential of Socially Assistive Robots During Infectious Disease Outbreaks. *Science Robotics*, 5(44), July 2020. [JCR Impact Factor: 18.684]

[J2] Mason Swofford, John Peruzzi, Nathan Tsoi, Sydney Thompson, Roberto Martín-Martín, Silvio Savarese, and **Marynel Vázquez**. Improving Social Awareness Through DANTE: Deep Affinity Network for Clustering Conversational Interactants. *Proc. ACM Hum.-Comput. Interact.*, 4(CSCW1), May 2020.

[J1] **Marynel Vázquez** and Aaron Steinfeld. An Assisted Photography Framework to Help Visually Impaired Users Properly Aim a Camera. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 21(5):25, 2014. [ISI Impact Factor: 1.293]

CONFERENCE PUBLICATIONS

[C29] Debasmita Ghose, Michal A. Lewkowicz, Kaleb Gezahegn, Julian Lee, Timothy Adamson, **Marynel Vázquez**, and Brian Scassellati. Tailoring Visual Object Representations to Human Requirements: A Case Study with a Recycling Robot. In *Proceedings of the 2022 Conference on Robot Learning (CORL)*, December 2022. [To appear; 39% Accept. Rate]

[C28] Kate Candon, Zoe Hsu, Yoony Kim, Jesse B. Chen, Nathan Tsoi, and **Marynel Vázquez**. Perceptions of the Helpfulness of Unexpected Agent Assistance. In *Proceedings of 10th International Conference on Human-Agent Interaction (HAI)*, December 2022. [To appear]

[C27] Nathan Tsoi, Kate Candon, Deyuan Li, Yofti Milkessa, and **Marynel Vázquez**. Bridging the gap: Unifying the training and evaluation of neural netw ork binary classifiers. In *Advances in Neural Information Processing Systems (NeurIPS)*, November 2022.

[C26] Kayla Matheus, **Marynel Vázquez**, and Brian Scassellati. A Social Robot for Anxiety Reduction via Deep Breathing. In *Proceedings of 31st IEEE International Conference on Robot & Human Interactive Communication*, RO-MAN, August 2022. ***Best Student Paper Award.*** [1.3% of the accepted papers were nominated to the Best Student Paper Award]

[C25] Sarah Gillet, Maria Teresa Parreira, **Marynel Vázquez**, and Iolanda Leite. Learning Gaze Behaviors for Balancing Participation in Group Human-Robot Interactions. In *Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction*, pages 265–274, 2022. [24% Accept. Rate]

[C24] Sydney Thompson*, Abhijit Gupta*, Anjali W. Gupta, Austin Chen, and **Marynel Vázquez**. Conversational Group Detection with Graph Neural Networks. In *Proceedings of the 23rd ACM International Conference on Multimodal Interaction (ICMI)*. ACM, October 2021. [* denotes equal contribution; 38% Accept. Rate]

[C23] Nathan Tsoi, Mohamed Hussein, Olivia Fugikawa, J. D. Zhao, and **Marynel Vázquez**. An Approach to Deploy Interactive Robotic Simulators on the Web for HRI Experiments: Results in Social Robot Navigation. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, September 2021. [45% Accept. Rate]

[C22] Kevin Chen, Junshen K. Chen, Jo Chuang, **Marynel Vázquez**, and Silvio Savarese. Topological Planning with Transformers for Vision-and-Language Navigation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2021. [23% Accept. Rate]

[C21] Nathan Tsoi, Joe Connolly, Emmanuel Adénìran, Amanda Hansen, Kaitlynn T. Pineda, Timothy Adamson, Sydney Thompson, Rebecca Ramnauth, **Marynel Vázquez**, and Brian Scassellati. Challenges Deploying Robots During a Pandemic: An Effort to Fight Social Isolation Among Children. In *Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, March 2021. ***Best Paper Award Finalist.*** [23% Accept. Rate]

[C20] **Marynel Vázquez**, Yofti Milkessa, Michelle M. Li, and Neha Govil. Gaze by Semi-Virtual Robotic Heads: Effects of Eye and Head Motion. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, October 2020. [47% Accept. Rate]

[C19] Kevin Chen, **Marynel Vázquez**, and Silvio Savarese. Localizing Against Drawn Maps via Spline-Based Registration. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, October 2020. [47% Accept. Rate]

[C18] Joe Connolly, Viola Mocz, Nicole Salomons, Joseph Valdez, Nathan Tsoi, Brian Scassellati, and **Marynel Vázquez**. Prompting Prosocial Human Interventions in Response to Robot Mistreatment. In *Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, March 2020. [24% Accept. Rate]

[C17] Tim Adamson, C. Burton Lyng-Olsen, Kendrick Umstattd, and **Marynel Vázquez**. Designing Social Interactions with a Humorous Robot Photographer. In *Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, March 2020. [24% Accept. Rate]

[C16] Kevin Chen, Juan Pablo de Vicente, Gabriel Sepulveda, Fei Xia, Alvaro Soto, **Marynel Vázquez**, and Silvio Savarese. A Behavioral Approach to Visual Navigation with Graph Localization Networks. In *Proceedings of Robotics: Science and Systems (R:SS)*, June 2019. [31% Accept. Rate]

[C15] Ashwini Pokle, Roberto Martín-Martín, Patrick Goebel, Vincent Chow, Hans Magnus Ewald, Junwei Yang, Zhenkai Wang, Amir Sadeghian, Dorsa Sadigh, Silvio Savarese, and **Marynel Vázquez**. Deep Local Trajectory Replanning and Control for Robot Navigation. In *Proceedings of the 2019 IEEE International Conference on Robotics and Automation (ICRA)*, May 2019. [46% Accept. Rate]

[C14] Xiaoxue Zang, Ashwini Pokle, **Marynel Vázquez**, Kevin Chen, Juan Carlos Niebles, Alvaro Soto, and Silvio Savarese. Translating Navigation Instructions in Natural Language to a High-Level Plan for Behavioral Robot Navigation. In *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, October 2018. [25.5% Accept. Rate]

[C13] Noriaki Hirose, Amir Sadeghian, **Marynel Vázquez**, Patrick Goebel, and Silvio Savarese. GONet: A Semi-Supervised Deep Learning Approach For Traversability Estimation. In *Proceedings of the 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2018. ***Finalist of the Best Paper Award on Safety Security and Rescue Robotics in memory of Motohiro Kisoi.*** [46.7% Accept. Rate]

[C12] Xiang Zhi Tan, **Marynel Vázquez**, Elizabeth J Carter, Cecilia G Morales, and Aaron Steinfeld. Inducing Bystander Interventions During Robot Abuse with Social Mechanisms. In *Proceedings of the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, pages 169–177. ACM, March 2018. [23% Accept. Rate]

[C11] **Marynel Vázquez**, Elizabeth J Carter, Braden McDorman, Jodi Forlizzi, Aaron Steinfeld, and Scott E Hudson. Towards Robot Autonomy in Group Conversations: Understanding the Effects of Body Orientation and Gaze. In *Proceedings of the 2017 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, pages 42–52. ACM, 2017. [24% Accept. Rate]

[C10] **Marynel Vázquez**, Aaron Steinfeld, and Scott E. Hudson. Maintaining Awareness of the Focus of Attention of a Conversation: A Robot-Centric Reinforcement Learning Approach. In *2016 IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*. IEEE, 2016. ***Finalist of the Best Paper Award (Tech. category) and the RSJ/KROS Distinguished Interdisciplinary Research Award.*** [47% Accept. Rate]

[C9] **Marynel Vázquez**, Aaron Steinfeld, and Scott E Hudson. Parallel Detection of Conversational Groups of Free-Standing People and Tracking of their Lower-Body Orientation. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2015. [48% Accept. Rate]

[C8] **Marynel Vázquez**, Eric Brockmeyer, Ruta Desai, Chris Harrison, and Scott E Hudson. 3D Printing Pneumatic Device Controls with Variable Activation Force Capabilities. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (CHI)*, pages 1295–1304, 2015. [25% Accept. Rate]

[C7] **Marynel Vázquez**, Aaron Steinfeld, Scott E Hudson, and Jodi Forlizzi. Spatial and Other Social Engagement Cues in a Child-Robot Interaction: Effects of a Sidekick. In *Proceedings of the 2014 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, pages 391–398, 2014. [24% Accept. Rate]

[C6] Munjal Desai, Mikhail Medvedev, **Marynel Vázquez**, Sean McSheehy, Sofia Gadea-Omelchenko, Christian Bruggeman, Aaron Steinfeld, and Holly Yanco. Influence of Situation Awareness on Control Allocation for Remote Robots. In *IEEE International Conference on Technologies for Practical Robot Applications (TePRA)*, 2013.

[C5] **Marynel Vázquez** and Aaron Steinfeld. Helping Visually Impaired Users Properly Aim a Camera. In *Proceedings of the 14th international ACM SIGACCESS Conference on Computers and Accessibility (ASSETS)*, pages 95–102, 2012. [28% Accept. Rate]

[C4] Munjal Desai, Mikhail Medvedev, **Marynel Vázquez**, Sean McSheehy, Sofia Gadea-Omelchenko, Christian Bruggeman, Aaron Steinfeld, and Holly Yanco. Effects of Changing Reliability on Trust of Robot Systems. In *Proceedings of the 7th ACM/IEEE International Conference on Human Robot Interaction (HRI)*, 2012. [25% Accept. Rate]

[C3] **Marynel Vázquez** and Aaron Steinfeld. An Assisted Photography Method for Street Scenes. In *2011 IEEE Workshop on Applications of Computer Vision (WACV)*, pages 89–94. IEEE, 2011.

[C2] **Marynel Vázquez**, Alexander May, Aaron Steinfeld, and Wei-Hsuan Chen. A Deceptive Robot Referee in a Multiplayer Gaming Environment. In *Collaboration Technologies and Systems (CTS), 2011 International Conference on*, pages 204–211. IEEE, 2011.

[C1] **Marynel Vázquez** and Carolina Chang. Real-time Video Smoothing for Small RC Helicopters. In *Proceedings of the 2009 IEEE International Conference on Systems, Man and Cybernetics (SMC)*, pages 4019–4024, 2009.

PEER-REVIEWED SHORT PAPERS

[S8] Maria Teresa Parreira, Sarah Gillet, **Marynel Vázquez**, and Iolanda Leite. Design implications for effective robot gaze behaviors in multiparty interactions. In *Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction*, HRI'22, pages 976–980, 2022.

[S7] Joe Connolly, Nathan Tsoi, and **Marynel Vázquez**. Perceptions of conversational group membership based on robots' spatial positioning: Effects of embodiment. In *Companion of the 2021 ACM/IEEE International Conference on Human-Robot Interaction*, Companion HRI '21, 2021.

[S6] Nathan Tsoi, Mohamed Hussein, Jeacy Espinoza, Xavier Ruiz, and **Marynel Vázquez**. SEAN: Social Environment for Autonomous Navigation. In *Proceedings of the 8th International Conference on Human-Agent Interaction (HAI)*, pages 281–283, 2020. ***Finalist of the Best Poster Award (Runner Up 1st Place).***

[S5] Jamie Large, Graham Stodolski, and **Marynel Vázquez**. Studying human-agent interactions in space invaders. In *Proceedings of the 8th International Conference on Human-Agent Interaction (HAI)*, page 245–247, 2020.

[S4] Xiaoxue Zang, **Marynel Vázquez**, Juan Carlos Niebles, Alvaro Soto, and Silvio Savarese. Behavioral indoor navigation with natural language directions. In *Companion of the 2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, pages 283–284. ACM, 2018.

[S3] **Marynel Vázquez**, Elizabeth J Carter, Jo Ana Vaz, Jodi Forlizzi, Aaron Steinfeld, and Scott E Hudson. Social group interactions in a role-playing game. In *Proceedings of the Tenth Annual ACM/IEEE International Conference on Human-Robot Interaction (HRI) Extended Abstracts*, pages 9–10. ACM, 2015.

[S2] **Marynel Vázquez** and Aaron Steinfeld. Facilitating photographic documentation of accessibility in street scenes. In *CHI'11 Extended Abstracts on Human Factors in Computing Systems*, pages 1711–1716. ACM, 2011.

[S1] **Marynel Vázquez**, Alexander May, and Wei-Hsuan Chen. Shaketime! a persuasive robotic game. In *Proceedings of the 9th AAAI Conference on Enabling Intelligence Through Middleware*, 2010.

NON-ARCHIVAL WORKSHOP PAPERS

[W3] Alexander Lew, Sydney Thompson, Nathan Tsoi, and **Marynel Vázquez**. Shutter, the Robot Photographer: Leveraging Behavior Trees for Public, In-the-Wild Human-Robot Interactions. In *Workshop on Human-Robot Interaction in Public Spaces (at the 2022 ACM/IEEE International Conference on Human-Robot Interaction)*, March 2022.

[W2] Kate Candon and **Marynel Vázquez**. Context^2: On the Importance of the Context of Context in Human-Robot Interaction. In *Workshop on Context-Awareness in Human-Robot Interaction: Approaches and Challenges (at the 2022 ACM/IEEE International Conference on Human-Robot Interaction)*, March 2022.

[W1] **Marynel Vázquez**, Elizabeth J. Carter, Jodi Forlizzi, Scott E. Hudson, and Aaron Steinfeld. Methods for studying group interactions in hri. In *Robots in Groups and Teams, CSCW 2017 Workshops*, 2017.

TECHNICAL REPORTS

[T1] **Marynel Vázquez**. *Reasoning About Spatial Patterns of Human Behavior During Group Conversations with Robots*. PhD thesis, Carnegie Mellon University, Jul 2018.

INVITED TALKS

Tufts HRI Colloquium, MA, USA — November 2022
UIUC Robotics Seminar, IL, USA — November 2022
Wisconsin Robotics Seminar Series, WI, USA — November 2022
2022 Northeast Robotics Colloquium, MA, USA — October 2022
KTH Robotics, Perception Learning Lab Summer School, STHLM, SE — June 2022
Social Navigation Symposium by Robotics@Google and Stanford, Virtual Event — February 2022
Embodied AI Seminar at Meta AI Research, Virtual Seminar — January 2022
DREAM/CITRIS People and Robots Seminar Series at UC Berkeley, CA, USA — November 2021
Talking Robotics, Virtual Seminar — October 2021
Rice Computer Science Seminar, TX, USA — October 2021
LatinX in AI Workshop, ICML 2021 — July 2021
2nd Workshop on Visual Perception for Navigation in Human Environments, CVPR 2021 — June 2021
CS@Mines Seminar, Colorado School of Mines, CO, USA — November 2020
Yale Computer Systems Lab, Yale University, CT, USA — March 2020
15th Annual HRI Pioneers Workshop (Keynote speaker), UK – cancelled due to COVID — March 2020
National Robotics Initiative PI Meeting, VA, USA — February 2020
Behavioral Science Forum on AI, Johns Hopkins University, MD, USA — September 2019
Google PAIR, Google, CA, USA — June 2019
Platform for Situated Intelligence Workshop, Microsoft Research, WA, USA — June 2019
Stanford Human-Computer Interaction Seminar, Stanford University, CA, USA — May 2019
Autonomous Mobile Robotics Laboratory, UMass Amherst, CT, USA — November 2018
NSF Workshop on Embodied Conversational Agents and Social Robots, CO, USA — October 2018
NVidia GTC Conference, CA, USA — March 2018
NASA Ames Intelligent Robotics Group (IRG), CA, USA — November 2017
Stanford AI Lab, Stanford University, CA, USA — June 2017
Robotics Institute, Carnegie Mellon University, PA, USA — April 2017
Computer Science Department, University of Texas at Austin, NY, USA — April 2017
Computer Science Department, Yale University, CT, USA — March 2017
Computer Science Department, Columbia University, NY, USA — March 2017
Disney Research Los Angeles, CA, USA — March 2017
Human Centered Design and Engineering, University of Washington, WA, USA — March 2017
Computer Science Department, CU Boulder, CO, USA — Feb 2017
Robotics Seminar, Oregon State University, OR, USA — Feb 2017
CSCW-17 Robots in Groups and Teams Workshop, OR, USA — February 2017
3D Printing Summit,Carnegie Mellon University, PA, USA — January 2017
Social Robotics Lab, Yale University, CT, USA — July 2015
International Social Human-Robot Interaction Summer School, CBG, UK — August 2013

FUNDING

- **Google Gift:** *Interpreting Pedestrian Implicit Feedback in Social Robot Navigation*. PI: M. Vázquez. Award Amount: $30,000. Funding Period: Sept. 2022 - Sept. 2023.
- **National Science Foundation:** *FRR: CAREER: Modeling Group Human-Robot Interactions: Towards A Unified Data-Driven Perspective*. PI: M. Vázquez. Award Amount: $600,000. Funding Period: June. 1, 2022 - May 31, 2027. (+$8,000 for REU Supplement in 2022)
- **National Science Foundation:** *HCC: Medium: Proactive Physical Assistance for Collaborative Human-Robot Teams*. Principal Investigator: B. Scassellati (Yale). Co-PI(s): M. Vázquez, J. Jara-Ettinger (Yale). Award Amount: $1,199,999 (~$500,000 committed to M.V.). Funding Period: Oct. 1, 2021 - Sept. 30, 2025
- **2020 Amazon Research Award:** *Evaluating Social Robot Navigation via Online Human-Driven Simulations*.

PI: M. Vázquez. Award Amount: $80,000 + $20,000 AWS credits. Funding Period: May 2021 - Dec. 2022.

- **Yale Center for Research Computing, 2020-2021 AWS Research Credits Program**: *Generalizable Methods for State Abstraction in Human-Robot Interaction*. PI: M. Vázquez. Award Amount: $8,000.
- **2019 Amazon Research Award:** *Improving Robot Navigation via Group Interaction Awareness*. PI: M. Vázquez. Award Amount: $80,000 + $20,000 in AWS credits. Funding Period: May 2020 - Dec. 2021.
- **National Science Foundation:** *NRI: FND: Spatial Patterns of Behavior in Human-Robot Interaction Under Environmental Spatial Constraints*. PI: M. Vázquez. Award Amount: $499,059. Funding Period: Sept. 1, 2019 - Aug. 31, 2023. (+$32,000 for REU Supplements in 2020–2022)
- **Google Cloud Platform: Training Credits**. PI: M. Vázquez. Award Amount: $10,000. Funding Period: July 1, 2019 - January 1, 2020.
- **NVidia GPU Grant Award (Titan V)**. PI: M. Vázquez. Award Amount: $3,000.

TEACHING

Courses that I designed and was the instructor for:

- **Building Interactive Machines**, Yale University

  This advanced, project-based course brings together methods from Machine Learning (ML), Computer Vision, Robotics, and Human-Computer Interaction (HCI) to enable interactive machines to perceive and act in dynamic environments. Part of the course examines approaches for perception with a variety of devices and algorithms; the other part focuses on methods for decision making. The course is a combination of lectures, reviews of state-of-the-art papers, discussions, coding assignments, and a final team project. The course meets twice a week (for 1h 15min each time).

  Contributions to the course: I designed the course based on other courses that I took as a PhD student at Carnegie Mellon University and recent developments in ML and HCI. On average, a semester includes 18 classes where I teach lectures, 9 classes where students present research papers, and two classes were we have invited lectures by researchers from industry or academia to expand students' horizons. Also, I created the guided assignments that we use in the course and an accompanying robot that serves to demonstrate ideas or test student's knowledge. Over the years, different students have helped me build more robots for the course and improve its software. Also, Teaching Fellows helped me develop automated tests to facilitate evaluating student assignments.

  Offerings:

  - Fall 2022 (CPSC 459/559). Enrollment: 14 students, including 7 graduate students.
  - Fall 2021 (CPSC 459/559). Enrollment: 14 students, including 7 graduate students.
  - Fall 2020 (CPSC 459/559). Enrollment: 13 students, including 6 graduate students.
  - Fall 2019 (re-numbered to CPSC 459/559). Enrollment: 25 students, including 7 graduate students.
  - Fall 2018 (CPSC 659). Enrollment: 20 students, including 4 graduate students.

- **Introduction to Human-Computer Interaction**, Yale University

  This course introduces students to the interdisciplinary field of Human-Computer Interaction (HCI). It covers principles and techniques in the design, development, and evaluation of interactive systems, and provides students with an introduction to UX Design and User-Centered Research. Additionally, some classes will focus on emergent areas within HCI. The course is organized as a series of lectures, presentations, a mid-term exam, and group projects on designing new interactive systems. The course meets twice a week (for 1h 15min each time).

Contributions to the course: I designed the course based on the Introduction to HCI course taught at University of Washington. On average, a semester includes 20 classes where I teach lectures, 5 classes where students present research papers or provide advances on projects, and a class were we have an invited lecture by a researcher from industry or academia. Under my supervision, one of the Teaching Fellows for the course created an interactive display that students use for group projects, where they apply their design and programming skills.

Offerings:

- Spring 2021 (re-numbered to CPSC 484/548). Enrollment: 42 students, including 2 graduate students.
- Spring 2019 (CPSC 429/529). Enrollment: 38 students, including 4 graduate students.

GUEST LECTURES

CPSC 611/GLBL 6115: Topics in Comp. Sci. in Global Affairs, Yale University, CT, USA Nov. 2022
CGSC 395: Junior Colloquium in Cognitive Science, Yale University, CT, USA October 2022
COMP.5500: Human-Robotic Interaction, University of Massachusetts at Lowell, MA, USA April 2022
CPSC 472/572: Intelligent Robotics, Yale University, CT, USA September 2021
CS331B: Interactive Simulation for Robot Learning, Stanford University, CA, USA May 2021
CGSC 395: Junior Colloquium in Cognitive Science, Yale University, CT, USA November 2020
CPSC 470/570: Artificial Intelligence, Yale University, CT, USA April 2020
CPSC 472/572: Intelligent Robotics, Yale University, CT, USA September 2019
CPSC 470/570: Artificial Intelligence, Yale University, CT, USA February 2019
RI 16-867: Human-Robot Interaction, Carnegie Mellon University, PA, USA April 2017

STUDENT SUPERVISION

Current Ph.D. Students

1. Alex (Sasha) Lew (2022 -)
2. Austin Narcomey (2021 -)
3. Qiping Zhang (2021 -)
4. Kate Candon (2020 -)
5. Sydney Thompson (2019 -)
6. Nathan Tsoi (2019 -)

Ph.D. Dissertation Committee Member

1. Andrew Morgan, Yale Mechanical Engineering (advisor: Aaron Dollar)
2. Gabriel Sepúlveda, Pontificia Universidad Católica de Chile (advisor: Álvaro Soto)
3. Nicole Salomons, Yale Computer Science (advisor: Brian Scassellati, defended: 07/07/2022)
4. Irene Li, Yale Computer Science (advisor: Dragomir Radev, defended: 02/16/2022)
5. Angelique Taylor, UCSD Computer Science and Engineering (advisor: Laurel Riek; defended: 06/04/2021)
6. Tao Yu, Yale Computer Science (advisor: Dragomir Radev; defended: 03/10/2020)
7. Sarah Sebo, Yale Computer Science (advisor: B. Scassellati; defended: 05/13/2020)
8. Corina Grigore, Yale Computer Science (advisor: B. Scassellati; defended: 08/28/2018)
9. Aditi Ramachandran, Yale Computer Science (advisor: B. Scassellati; defended: 06/28/2018)

Ph.D. Area Exam Member

1. Tim Adamson, Yale Computer Science (advisor: Brian Scassellati; exam date: 07/15/2021)
2. Alexander Tong, Yale Computer Science (advisor: Smita Krishnaswamy; exam date: 07/08/2020)
3. Jake Brawer, Yale Computer Science (advisor: B. Scassellati; exam date: 11/14/2018)
4. Nicole Salomons, Yale Computer Science (advisor: B. Scassellati; exam date: 11/15/2018)
5. Sherry Qiu, Yale Computer Science (advisor: Julie Dorsey; exam date: 05/30/2019)

MEMS Ph.D. First-Year Committee Member

1. Lily Behnke (advisor: R. Kramer-Bottiglio)
2. Will Johnson (advisor: R. Kramer-Bottiglio; presentation date: 05/18/2021)

Completed M.S. Independent Projects (Yale CPSC 692)

1. Yifan Li, *Future Engagement* (Fall 2021)
2. Jason Chen, *Sound Localization* (Spring 2019)

Completed Undergraduate Thesis Projects (Yale CPSC 490 unless noted)

2021-2022

1. Joe Connolly, *Welcome to Duloc, If You Want to Engage! Using Graph Neural Networks to Predict Social Engagement*
2. Greg Schwartz, *Classifying Social Situations with GNNs and Pedestrian Data*
3. Alex (Sasha) Lew, *Designing Artwork Re-enactments with a Social Robot* (Computing and the Arts)
4. Yofti Milkessa, *Making Shutter the Photographer Detect and Respond to Face Masks*
5. Rachel Sterneck, *Understanding Perceptions of Simulated Human-Robot Interactions*

2020-2021

1. Yash Samantaray, *Determining Socially Acceptable Positions in Typical Human Group Formations Using a Wasserstein Generative Adversarial Network*
2. Sally Ma, *Learning Motion Policies with Variational Autoencoder, Feature Disentanglement, and Temporal Coherence* (Statistics & Data Science)
3. Will Hu, *Learning to Orient in Group Conversations via Social State Abstraction*
4. Malak Khan, *3-Dimensional Human Mental State Modeling Through Video Footage*
5. Daniel Lee, *Deep Learning-based Anomaly Detection for Social Robot Navigation* (Statistics & Data Science) and *Direct Metric Optimization for Multi-Class Object Recognition* (CS)

2019-2020

1. Simon Mendelsohn, *Human-AI Interaction and Space Invaders*
2. Sally Ma, *Learning to Orient Towards the Focus of Attention in a Group Conversation Using Variational Auto-encoders*
3. Ananya Parthasarathy, *An Investigation of AI-Human Cooperation*
4. Isabella Teng, *Evaluating In-the-Wild Human-Robot Interactions With A Social Robot Photographer*
5. Allan Wu, *Deep Learning-Based Anomaly Detection for Time Series*
6. Claire Gorman, *Tabula Rasa* (Computing and the Arts)
7. Joseph Valdez, *Investigating Social Influences within Human Robot Interactions* (Psychology)

2018-2019

1. Dibyatanoy Bhattacharjee, *Long-Distance Human Gaze Tracking for Interactive Robots*
2. Peter Zhou, *Long-Distance Human Gaze Tracking for Interactive Robots*
3. David Shin, *Group Size and Behavior Patterns in Gaze Direction by Robots*
4. Kendrick Umstattd, *Marie: An Artificially Intelligent Camera*
5. Jared Weinstein, *Multi-agent RL for Cooperation in Social Dilemmas*
6. Roland Huang, *Deep Empathy Prediction Using Attention-based Multimodal Fusion*
7. Julia Lu, *Deep Empathy Prediction Using Attention-based Multimodal Fusion*
8. Tommy Huang, *?Where* (Computing and the Arts)
9. Jack Wesson, *Optical Glow* (Computing and the Arts)
10. Devon Merlette, *Yale Logo Detection* (Computing and the Arts)
11. Alexander Wisowaty, *Group Human-Robot Interaction: A Review* (Cognitive Science)

Completed Undergraduate Directed Research Projects (Yale CPSC 290)

2021-2022

1. Megha Joshi, *Investigation of Robots Influencing Social Context Based on Gaze Behavior*

2020-2021

1. Austin Chen, *Conversational Group Detection through Deep Learning and Graph Clustering*
2. Yoony Kim, *Human-Agent Interactions in Space Invaders*
3. Olivia Fugikawa, *Evaluating the ROS Navigation Stack with SEAN and SEAN-EP*

2019-2020

1. Jeacy Espinoza, *Implementation of a Virtual Box for Controlled and Effective Human-Robot Interaction*
2. William Hu, *VAEViz: A Visualization Tool for Understanding Variational Autoencoders*
3. Greg Schwartz, *Using Reputation-sensitive Motivation to Improve Cooperation in Intertemporal Social Dilemmas*
4. Abhijit Gupta, *Improving Social Awareness and Group Detection through Deep Learning*
5. Malak Khan, *Spatial Patterns of Behavior in HRI Under Environmental Spatial Constraints*

2018-2019

1. Joe Connolly, *Investigating Robot Abuse in Human-Robot Interaction Scenarios*
2. Simon Mendelsohn, *Creating and Studying Interactive 3-Dimensional Models of Robots*
3. Ileana Valdez, *Decreasing the Mona Lisa Effect in Robot Gaze* (Fall) and *Reducing the Mona Lisa Effect Through a Gaze Callibration Package* (Spring)
4. Annie Gao, *Enhancing Human Interaction and Camera Technique in Robot Photography*
5. Ananya Parthasarathy, *Investigating Robot Abuse in Social Situations*

Supervised Undergraduate Research Assistants and Research Fellows

1. Sophia DeVito (2022)
2. Helen Zhou (2022)
3. Alex Huang (2022, 2022 Yale College First-Year Summer Research Fellow)
4. Brian Choi (2022, Hahn Scholar)
5. Solomon Gonzalez (2022)
6. Grace Parmer (2022)
7. Peter Yu (2021-2022, 2021 Yale College First-Year Summer Research Fellow)
8. J.D. Zhao (2020, 2022, 2020 Yale College First-Year Summer Research Fellow)
9. Abhijit Gupta (2020-2022)
10. Megha Joshi (2022)
11. Alec Xiang (2021-2022)
12. Alex (Sasha) Lew (2021-2022)
13. Victor Del Carpio Gomez (2021)
14. Zoe Hsu (2021-2022, 2021 STARS Summer Research fellow)
15. Jesse Chen (2021)
16. Yoony Kim (2020-2021)
17. Sarah Saltzman (2021)
18. Kyle Andruczk (2021)
19. Suba Ramesh (2021, 2021 Yale College First-Year Summer Research Fellow)
20. Anjali Gupta (2021-2022, Hahn Scholar)
21. Jamie Large (2020)
22. Graham Stodolski (2020, 2020 Yale College First-Year Summer Research Fellow)
23. Xavier Ruiz (2020)
24. Eden Gorevoy (2019-2021, Hahn Scholar)
25. Annie Gao (2019)

26. Joe Connolly (2019-2021)
27. Joseph Valdez (2019)
28. Greg Schwartz (2019-2021, 2019 Yale College First-Year Summer Research Fellow)
29. Michelle M. Li (2019, 2019 STARS Summer Research fellow)
30. Yofti Milkessa (2019-2020, 2019 STARS Summer Research fellow)

High-school Interns

1. Ryan Kim (2022)
2. C. Burton Lyng-Olsen (2019; now undergrad at Yale)
3. Neha Govil (2018; now undergrad at MIT)

INDIVIDUAL STUDENT AWARDS

Austin Narcomey (PhD Student): 2021 Sterling Fellow
Kate Candon (PhD Student): 2022 NSF GRFP Honorable Mention
Nathan Tsoi (PhD Student): Teresa and Joshy Joseph Scholar (by the Nathan Hale Associates Program), 2021 HRI Pioneer, Alan J. Perlis Graduate Fellow
Joe Connolly (Undergrad Research Assistant): Finalist for the 2022 CRA Outstanding Undergraduate Researcher Award, 2020 HRI Pioneer

SELECTED PRESS

The Atlantic (04/19/2021). "No, You're Crying About a Helicopter on Mars"
Yale Engineering Magazine (11/23/2020). "Bleep-Bloop-Bleep! Say 'Cheese,' Human"
The Wall Street Journal (11/02/2020). "What Makes People Abuse Robots"
Analytics Insight (08/21/2020). "Demystifying the pro-social behavior of robots through Abuse"
IEEE Spectrum (08/19/2020). "Can Robots Keep Humans from Abusing Other Robots?"
The Norwalk Hour (07/03/2020). "Let's play, without leaving homes"
CT Insider (07/01/2020). "You can't come over, but we can play with the robot, thanks to Yale students"
Yale News (06/09/2020). "Fighting Social Isolation with Robots"
Stanford News (09/28/2018). "Stanford's JackRabbot 2: The polite pedestrian robot"
Nvidia Blog (04/03/2018). "Robot See, Robot Do: Bots Learn by Watching Human Behavior"
The Architect Show (09/01/2017). "AI Show: Marynel Vázquez on social integration for robots and people"
The Economist (08/08/2015). "Summon the comfy chairs! Domestic furniture may soon have a mind of its own"

PROFESSIONAL ACTIVITIES

Workshop on Social Robot Navigation: Advances and Evaluation, ICRA'22 May 2022
Workshop co-organizer

NSF National Robotics Initiative/Foundational Research in Robotics PI Meeting 2021-2022
Technical program co-chair for the annual PI meeting

2021 ICMI Doctoral Consortium, QC, CA October 2021
Mentor for participants in the Doctoral Consortium

Frontiers in Robotics & AI 2021-2022
Co-editor of the Social Dynamics in Multi-Agent Groups and Teams Research Topic

At Large Steering Committee Member, ACM/IEEE Int'l Conf. on Human-Robot Interaction 2021-2023
(Junior) At Large Steering Committee Member of the HRI Conference

Computing Innovation Fellows Program 2020, 2021
Served as reviewer to support PhD graduates in computing in light of the COVID-19 pandemic

U.S. Robotics Roadmap Workshop, UMass Lowell, MA, USA November 2019
Collaborated with colleagues to help define the 2020 U.S. Robotics Roadmap

Dagstuhl Seminar 19411: Social Agents for Teamwork and Group Interactions, GER October 2019
Invited participant

NESS-NextGen Data Science Day, Yale University, CT, USA October 2018
Panelist in "Recent developments and future trends in machine learning/deep learning"

Women in Robotics IV at Robotics: Science and Systems 2018, PA, USA June 2018
Workshop co-organizer

The First Workshop on Joint Detection, Tracking, and Prediction in the Wild, CVPR'18 June 2018
Workshop co-organizer

National Science Foundation Panel Member, VA, USA 2018-2021
Invited reviewer

Women in Robotics III, R:SS Workshops, MA, USA July 2017
Invited panelist

2013 HRI Pioneers Workshop, ACM/IEEE Int'l Conf. on Human-Robot Interaction 2012-2013
Member of the organizing committee for the workshop

Program Committees

- ACM/IEEE International Conference on Human Robot Interaction (HRI): 2018-2020 (PC Member); 2021 (Co-Chair of Late-Breaking Reports); 2023 (Co-Chair of Late-Breaking Reports)
- ACM Conference on Human Factors in Computing Systems (CHI): 2018-2022 (Associate Chair)
- International Joint Conference on Artificial Intelligence (IJCAI): 2021 (Senior PC Member)
- AAAI Conference on Artificial Intelligence: 2021 (PC Member)
- ACM Symposium on User Interface Software and Technology (UIST): 2018, 2019 (Associate Chair)

Occasional Reviewer

Journals: Frontiers Robotics and AI, Transactions on Human Robotics Interaction (THRI), Autonomous Robots (AURO), International Journal of Robotics Research (IJRR), ACM on Interactive, Multimedia, Wearable and Ubiquitous Technologies (IMWUT)

Conferences: ACM/IEEE International Conference on Human-Robot Interaction (HRI), ACM Conference on Human Factors in Computing Systems (CHI), ACM User Interface Software and Technology Symposium (UIST), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), International Symposium on Robot and Human Interactive Communication (RO-MAN), ACM International Conference on Multimodal Interaction (ICMI), IEEE-RAS International Conference on Humanoid Robots (HUMANOIDS), Robotics: Science and Systems (R:SS)

YALE UNIVERSITY COMMITTEES / SERVICE

- Member of the Yale College Executive Committee, 2022-2023
- Member of the CS Space Committee, 2022
- Freshman Advisor for CS Majors, 2021-2022
- Eli Whitney Faculty Advisor, 2021-2023
- Member of the Cognitive Science Faculty Recruiting Committee, 2021-2023
- Member of the Cognitive Science Executive Committee, 2021-2022
- Member of the Computer Science Faculty Recruiting Committee & AI Specialist Cmte., 2020-2022

– Member of the Computer Science PhD Admissions Committee, 2018-2022
– Member of the Yale Wu Tsai Institute Working Group on Neurocomputation & AI, 2021

OUTREACH ACTIVITIES

As a female and Hispanic scholar, I especially care about diversifying Computer Science and Robotics. Most of the activities listed below target girls, female undergraduate students and other under-represented minorities in STEM fields.

Yale Young Global Scholars (YYGS) Program, Yale University, CT, USA July 2022
Presented my research to high-school students from all around the world

Inclusion @ Robotics: Science & Systems, NY, USA June 2022
Invited panelists in the "Pathways Through Robotics" event at R:SS'22

Bethany Community School, CT, USA May 2022
Presented my research at the Girls Exploring Math and Science program for students in grades 4 through 6

Kimball Smith Series, Yale University, CT, USA November 2021
Panelist in the AI Ethics on the Global Stage event

Women in Robotics, MA, USA August 2021
Presented my research to the robotics community in the Boston area

Yale Young Global Scholars (YYGS) Program, Yale University, CT, USA June 2021
Presented my research to high-school students from all around the world

Harvard WECode 2021 March 2021
Invited panelist for the session "State of the Art CS Research"

INFORMS en Español December 2020
Presented my research in Spanish to Hispanic/Latinx students from all around the world

Yale Computer Science (CS) Information Session for URM, Yale University, CT, USA November 2020
Served as panelist to help attract prospective graduate students to our graduate programs in CS

Future Digileaders 2020, KTH, Stockholm, SE November 2020
Invited panelist for the session "What to expect from an academic career"

College Insider podcast, ATHENA by Women in STEM November 2020
Invited speaker in podcast that strives to support female high school students interested in STEM careers

CodeHaven, Yale University, CT, USA November 2020
Presented my work to more than a 100 middle school children from the local New Haven area

SheCode, Yale University, CT, USA October 2020
Talked about robotics to 30 middle school girls from the local New Haven area

Yale Young Global Scholars (YYGS) Program, Yale University, CT, USA July 2020
Presented my research to high-school students from all around the world

Yale Undergrad Summer Online Research Workshop, Yale University, CT, USA July 2020
Presented my research to Yale undergrads who received Yale College research fellowships

Faculty STARS Lecture Series, Yale University, CT, USA February 2020
Presented my research to historically underrepresented Yale students in the sciences and engineering

Yale Young Global Scholars (YYGS) Program, Yale University, CT, USA June 2019
Presented my research to high-school students from all around the world

Stanford AI4ALL, Stanford University, CA, USA June 2018
Demonstrated my research in robotics to 9th grade female students

Creative Technology Nights (TechNights), Carnegie Mellon University, PA, USA 2014-2017
Regularly volunteered to help run Computer Science workshops for local middle school girls

Fusion Forum, Carnegie Mellon University, PA, USA November 2013
Introduced CMU's Robotics Institute to people from Historically Black Colleges

Third National Robotics Competition (CCSBOTS), Caracas, VE September 2013
Presented my research to undergraduate students in Venezuela to motivate them to engage in research

MEMBERSHIPS

- Association for Computing Machinery (ACM), SIGCHI
- IEEE, Robotics and Automation Society (RAS)
- Association for the Advancement of Artificial Intelligence (AAAI)
- Society of Hispanic Professional Engineers (SHPE)