# AKANKSHA SARAN

https://asaran.github.io

## EDUCATION

**University of Texas at Austin** — Aug 2015 - Nov 2021
PhD in Computer Science — *GPA: 3.96/4.00*
Advisor: Prof. Scott Niekum

**Carnegie Mellon University** — Aug 2013 - Dec 2014
MS in Robotics — *GPA: 4.11/4.33*

**Indian Institute of Technology Jodhpur** — Aug 2009 - May 2013
Bachelor of Technology in Computer Science and Engineering — *GPA: 10.0/10.0*

## RESEARCH INTERESTS

Reinforcement Learning, Imitation Learning, Modeling Human Behavior across Multimodal Interfaces

## PUBLICATIONS

$\alpha - \beta$ indicates alphabetical author order, $*$ indicates equal contribution.

$(\alpha - \beta)$ Jessica Maghakian, Kishan Panaganti Badrinath, Paul Mineiro, Akanksha Saran, Cheng Tan. **Interaction-Grounded Learning for Recommender Systems.** Short Version: Workshop on Online Recommender Systems and User Modeling, RecSys 2022. Full Version: ICLR 2023.

Harshit Sikchi, Akanksha Saran, Wonjoon Goo, Scott Niekum. **A Ranking Game for Imitation Learning.** Short Version: Deep Reinforcement Learning Workshop, NeurIPS 2022. Full version: TMLR 2023.

Tengyang Xie$*$, Akanksha Saran$*$, Dylan Foster, Lekan Molu, Ida Momennejad, Nan Jiang, Paul Mineiro, John Langford. **Interaction-Grounded Learning with Action-Inclusive Feedback.** Short Version: Workshop on Complex Feedback for Online Learning, ICML 2022. Full version: NeurIPS 2022.

Akanksha Saran$*$, Kush Desai$*$, Mai Lee Chang, Rudolf Lioutikov, Andrea Thomaz, Scott Niekum. **Understanding Acoustic Patterns of Human Teachers Demonstrating Manipulation Tasks to Robots.** IROS 2022.

Yuchen Cui, Bo Liu, Akanksha Saran, Stephen Giguere, Peter Stone, Scott Niekum. **Aux-AIRL: End-to-End Self-Supervised Reward Learning for Extrapolating beyond Suboptimal Demonstrations.** Short Version: Workshop on Self-Supervised Learning for Reasoning and Perception, ICML 2021.

Akanksha Saran, Kush Desai, Andrea Thomaz, Scott Niekum. **A Case for Leveraging Human Prosody during Robot Learning.** Short Version: Workshop on Sound in Human-Robot Interaction, HRI 2021.

Akanksha Saran, Ruohan Zhang, Elaine Schaertl Short, Scott Niekum. **Efficiently Guiding Imitation Learning Algorithms with Human Gaze.** Short version: Workshop on Reinforcement Learning in Games, AAAI 2020. Full version: AAMAS 2021.

Ruohan Zhang, Akanksha Saran, Bo Liu, Yifeng Zhu, Sihang Guo, Scott Niekum, Dana H. Ballard and Mary M. Hayhoe. **Human Gaze Assisted Artificial Intelligence: A Review.** IJCAI 2020.

Akanksha Saran, Elaine Schaertl Short, Andrea Thomaz, Scott Niekum. **Understanding Teacher Gaze Patterns for Robot Learning.** Short version: Pioneers Workshop, HRI 2019. Full version: CoRL 2019.

Akanksha Saran, Srinjoy Majumdar, Elaine Schaertl Short, Andrea Thomaz, Scott Niekum. **Human Gaze Following for Human-Robot Interaction.** Short version: Workshop on Social Robots in the Wild, HRI 2018. Full version: IROS 2018.

Akanksha Saran, Branka Lakic, Srinjoy Majumdar, Juergen Hess, Scott Niekum. **Viewpoint Selection for Visual Failure Detection.** IROS 2017.

Akanksha Saran, Damien Teney, Kris Kitani. **Hand Parsing for Fine-Grained Recognition of Human Grasps in Monocular Images.** Short version: Workshop on Observing and Understanding Hands in Action, CVPR 2015. Full version: IROS 2015.

## WORKING PAPERS

Akanksha Saran, Safoora Yousefi, Akshay Krishnamurthy, John Langford, Jordan Ash. **Streaming Active Learning with Deep Neural Networks.**

Murat Han Aydoğan, Kenneth D Mitra, Kush Desai, Taylor Kessler Faulkner, Akanksha Saran*, Kim Baraka*. **"Yeess!" "No-oh-oh..." Implicit Robot Task Information from Prosody in Human Verbal Feedback.**

## WORK EXPERIENCE

**Microsoft Research, New York City, USA**                                      Dec 2021- Present
Postdoctoral Researcher                     *Supervisors: Akshay Krishnamurthy, John Langford*
  - Working as a member of the Reinforcement Learning group on problems related to interaction grounded learning, sequential decision making, and imitation learning.

**NVIDIA, Seattle, USA**                                                        May - Aug 2018
Graduate Robotics Research Intern               *Supervisors: Jonathan Tremblay, Mike Skolones*
  - Refining human hand and object pose estimation from a monocular camera.
  - Real-to-sim robot learning using generative adversarial imitation learning.

**Apple, Cupertino, USA**                                                       May - Aug 2016
Graduate Research Intern                             *Supervisors: Shalini Sahoo, Samir Gehani*
  - Worked with the Interactive Media Group (IMG) to develop algorithms pertaining to user media search.

**Quality of Life Technology Center, CMU, Pittsburgh, USA**                      Jan - June 2015
Research Associate Staff           *Supervisors: Aisling Kelliher, Thanassis Rikakis, Kris Kitani*
  - Worked on an inter-disciplinary project for a vision-based stroke rehabilitation system for the home.

**EPFL, Lausanne, Switzerland**                                                 May - July 2012
Undergraduate Research Intern                  *Supervisors: Madhura Purnaprajna, Paolo Ienne*
  - Search for heterogeneous logic blocks in FPGA architectures to achieve reduction in area and delay.

**IIT Delhi, New Delhi, India**                                                 May - July 2011
Undergraduate Intern                                  *Supervisor: Smruti Ranjan Sarangi*
  - Studying memory models for accelerators.

## TEACHING EXPERIENCE

**University of Texas at Austin** Fall 2018
*Course: Artificial Intelligence*

**University of Texas at Austin** Fall 2015
*Course: Elements of Computers and Programming*

**Carnegie Mellon University** Fall 2014
*Course: Computational Photography*

## INVITED TALKS

| | |
|---|---|
| HRI Student Speaker Series, Colorado School of Mines | August 2020 |
| Workshop on Solutions for Socially Intelligent HRI in Real World Scenarios | March 2021 |
| Microsoft Research | May 2021 |
| IBM Research | May 2021 |
| Facebook Reality Labs | June 2021 |
| Google Research | June 2021 |

## REVIEWING

HRI 2019, RSS 2019, ICRA 2019, HRI 2020, RSS 2020, NeurIPS 2020 (top 10%), AAAI 2021, ICLR 2021, IROS 2021, CoRL 2021, HRI 2022, IROS 2022, CoRL 2022

## UNDERGRADUATE MENTEES

| | |
|---|---|
| Sahil Jain | Aug 2020 - May 2022 |
| Kush Desai | Sept 2018 - Feb 2021 |
| Srinjoy Majumdar | Jan 2017 - Feb 2018 |

## LEADERSHIP

**Workshop Co-Organizer** 2022
*All Things Attention: Bridging Different Perspectives on Attention, NeurIPS 2022*

**Research Discussion Moderator** 2022
*Workshop on Human-Interactive Robot Learning, HRI 2022*

**Workshop Co-Organizer** 2020 - 2021
*Program Chair, HRI Pioneers 2021*

**Workshop Co-Organizer** 2020
*Advances and Challenges in Imitation Learning for Robotics, RSS 2020*

**Coordinator** 2020
*Girl Day, UT Austin*

**Workshop Co-Organizer** 2019 - 2020
*Web and Publicity Chair, HRI Pioneers 2020*

**Executive Committee Member** 2017 - 2018
*Graduate Representative Association of Computer Science (GRACS), UT Austin*

**Secretary** 2016 - 2017
*Graduate Women in Computing (GWC), UT Austin*

**Coordinator** 2012, 2013
*Entrepreneurship Meet, IIT Jodhpur*

| **Assistant Coordinator** | 2012, 2013 |
|---|---|

*Literature Club, IIT Jodhpur*

| **Festival Co-Organizer** | 2012, 2013 |
|---|---|

*Techno-Cultural Festival, IIT Jodhpur*

## OUTREACH

| **Panelist** | 2021 |
|---|---|

*IIT Jodhpur Undergraduate Orientation*

| **Panelist** | 2021 |
|---|---|

*UT Women in Computer Science Research Hackathon*

| **Volunteer** | 2021 |
|---|---|

*AAAI Undergraduate Consortium*

| **Volunteer** | 2019 |
|---|---|

*UTCS Robotics Summer Camp*

| **Volunteer** | 2018 |
|---|---|

*UT Explore*

| **Volunteer and Mentor** | 2017-2020 |
|---|---|

*Women in Engineering Program (WEP), UT Austin*

| **Volunteer** | 2016, 2019 |
|---|---|

*UTCS Hour of Code*

| **Mentor** | 2014, 2016 |
|---|---|

*#include Fellowship Program*

| **Volunteer** | 2014 |
|---|---|

*Women@SCS, CMU*

| **Mentor** | 2011-2012 |
|---|---|

*Programming Club, IIT Jodhpur*

| **Volunteer** | 2009-2010 |
|---|---|

*Weekly Rural Medical Health Program, IIT Kanpur*

## HONORS AND AWARDS

| | |
|---|---|
| AAMAS Scholar | 2021 |
| Google's CS Research Mentorship Program (CSRMP) Scholar | 2021 |
| Women in Engineering Leadership Scholarship, UT Austin | 2020 |
| HRI Pioneer | 2019 |
| Student and Developing Countries Travel Award, IROS | 2018 |
| ISSS Financial Aid Scholarship, UT Austin | 2018, 2020 |
| Adobe Research Fellowship Finalist | 2018 |
| CRA-W Graduate Women Cohort | 2017 |
| NSF Doctoral Consortium Award, IROS | 2017 |
| 3rd Place, RoboCup@Home Domestic Standard Platform League | 2017 |
| UT Professional Development Award for travel to HRI, RSS, IROS, CoRL | 2017-2020 |
| Young Women Researcher Grant, RSS | 2014 |
| GSA/Provost Research and Conference Funding Award, CMU | 2014 |
| EPFL Research Scholarship (Declined) | 2013 |
| Google Anita Borg Memorial Scholarship Asia Pacific | 2013 |
| TOEFL Scholarship | 2013 |

| | |
|---|---|
| American Alumni Association Scholarship | 2013 |
| President's Gold Medal, IIT Jodhpur | 2013 |
| Proficiency Medal, IIT Jodhpur | 2013 |
| Overall Performance Award, IIT Jodhpur | 2011-2013 |
| USC Viterbi Research Scholarship (Declined) | 2012 |
| IIT-EPFL Internship Scholarship (Among 7 students selected all over India) | 2012 |