

# AKANKSHA SARAN

<https://asaran.github.io>

## EDUCATION

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**University of Texas at Austin**

PhD in Computer Science

Advisor: Prof. Scott Niekum

Aug 2015 - Nov 2021

*GPA: 3.96/4.00*

**Carnegie Mellon University**

MS in Robotics

Aug 2013 - Dec 2014

*GPA: 4.11/4.33*

**Indian Institute of Technology Jodhpur**

Bachelor of Technology in Computer Science and Engineering

Aug 2009 - May 2013

*GPA: 10.0/10.0*

## RESEARCH INTERESTS

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

## PUBLICATIONS

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$\alpha - \beta$  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

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Akanksha Saran, Safoora Yousefi, Jordan Ash, Akshay Krishnamurthy, John Langford. **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

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**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

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<b>University of Texas at Austin</b> <i>Course: Artificial Intelligence</i>	Fall 2018
<b>University of Texas at Austin</b> <i>Course: Elements of Computers and Programming</i>	Fall 2015
<b>Carnegie Mellon University</b> <i>Course: Computational Photography</i>	Fall 2014

## INVITED TALKS

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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

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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

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

## LEADERSHIP

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<b>Workshop Co-Organizer</b> <i>All Things Attention: Bridging Different Perspectives on Attention, NeurIPS 2022</i>	2022
<b>Research Discussion Moderator</b> <i>Workshop on Human-Interactive Robot Learning, HRI 2022</i>	2022
<b>Workshop Co-Organizer</b> <i>Program Chair, HRI Pioneers 2021</i>	2020 - 2021
<b>Workshop Co-Organizer</b> <i>Advances and Challenges in Imitation Learning for Robotics, RSS 2020</i>	2020
<b>Coordinator</b> <i>Girl Day, UT Austin</i>	2020
<b>Workshop Co-Organizer</b> <i>Web and Publicity Chair, HRI Pioneers 2020</i>	2019 - 2020
<b>Executive Committee Member</b> <i>Graduate Representative Association of Computer Science (GRACS), UT Austin</i>	2017 - 2018
<b>Secretary</b> <i>Graduate Women in Computing (GWC), UT Austin</i>	2016 - 2017
<b>Coordinator</b> <i>Entrepreneurship Meet, IIT Jodhpur</i>	2012, 2013

<b>Assistant Coordinator</b> <i>Literature Club, IIT Jodhpur</i>	2012, 2013
<b>Festival Co-Organizer</b> <i>Techno-Cultural Festival, IIT Jodhpur</i>	2012, 2013

## OUTREACH

<b>Panelist</b> <i>IIT Jodhpur Undergraduate Orientation</i>	2021
<b>Panelist</b> <i>UT Women in Computer Science Research Hackathon</i>	2021
<b>Volunteer</b> <i>AAAI Undergraduate Consortium</i>	2021
<b>Volunteer</b> <i>UTCS Robotics Summer Camp</i>	2019
<b>Volunteer</b> <i>UT Explore</i>	2018
<b>Volunteer and Mentor</b> <i>Women in Engineering Program (WEP), UT Austin</i>	2017-2020
<b>Volunteer</b> <i>UTCS Hour of Code</i>	2016, 2019
<b>Mentor</b> <i>#include Fellowship Program</i>	2014, 2016
<b>Volunteer</b> <i>Women@SCS, CMU</i>	2014
<b>Mentor</b> <i>Programming Club, IIT Jodhpur</i>	2011-2012
<b>Volunteer</b> <i>Weekly Rural Medical Health Program, IIT Kanpur</i>	2009-2010

## 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