Himanshu Sahni

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CAREER OBJECTIVE

I am interested in research scientist positions in reinforcement learning and robotics.

EDUCATION

Georgia Institute of Technology — Fall 2014 - Present
PhD Computer Science — GPA: 3.87/4.00
Advisor: Prof. Charles Isbell

Georgia Institute of Technology — Fall 2011 - Spring 2014
M.S. Computer Science — GPA: 3.81/4.00
Advisor: Prof. Thad Starner

Indian Institute of Technology Delhi — Fall 2007 - Spring 2011
B. Tech. Chemical Engineering — GPA: 7.88/10.00
Thesis Advisor: Prof. Anurag Rathore

RESEARCH INTERESTS

Reinforcement Learning, Compositionality, Hierarchical Learning, Robotics

PUBLICATIONS

Himanshu Sahni, Shray Bansal, and Charles Isbell. "Attention Driven Dynamic Memory Maps". Bridging AI and Cognitive Science **(Workshop ICLR '20)**.

Ashley D Edwards, Himanshu Sahni, Rosanne Liu, Jane Hung, Ankit Jain, Rui Wang, Adrien Ecoffet, Thomas Miconi, Charles Isbell, and Jason Yosinski. "Estimating Q (s, s') with Deep Deterministic Dynamics Gradients". International Conference on Machine Learning **(ICML '20)**.

Himanshu Sahni, Toby Buckley, Pieter Abbeel, and Ilya Kuzovkin. "Addressing Sample Complexity in Visual Tasks Using HER and Hallucinatory GANs". Neural Information Processing Systems **(NeurIPS '19)**.

Ashley D Edwards, Himanshu Sahni, Yannick Schroecker, and Charles L Isbell. "Imitating latent policies from observation". International Conference on Machine Learning **(ICML '19)**.

Himanshu Sahni, Saurabh Kumar, Farhan Tejani, and Charles Isbell. "Learning to Compose Skills". Deep Reinforcement Learning Symposium **(Workshop NeurIPS '17)**.

Himanshu Sahni, Saurabh Kumar, Farhan Tejani, Yannick Schroecker, and Charles Isbell. "State Space Decomposition and Subgoal Creation for Transfer in Deep Reinforcement Learning." Multi-disciplinary Conference on Reinforcement Learning and Decision Making **(RLDM '17)**.

Himanshu Sahni, Brent Harrison, Kaushik Subramanian, Thomas Cederborg, Charles Isbell and Andrea Thomaz. "Policy Shaping in Domains with Multiple Optimal Policies." Autonomous Agent & Multiagent Systems **(AAMAS '16)**.

Zahoor Zafrulla, Himanshu Sahni, Abdelkareem Bedri, and Pavleen Thukral. "Hand Detection in American Sign Language Depth Data Using Domain-Driven Random Forest Regression." Face & Gesture **(FG '15)**.

Himanshu Sahni, Abdelkareem Bedri, Gabriel Reyes, Pavleen Thukral, Zehua Guo, Thad Starner, and Maysam Ghovanloo. "The tongue and ear interface: a wearable system for silent speech recognition." International Symposium on Wearable Computers **(ISWC '14)** *(Best paper nominee).*

B. Vashishta, M. Garg, R. Chaudhary, H. Sahni, R. Khanna, and A. S. Rathore. "Use of Computational Fluid Dynamics for Development and Scale-Up of a Helical Coil Heat Exchanger for Dissolution of a Thermally Labile API." Organic Process Research & Development **(OPRD '13)**.

TECHNICAL SKILLS

Pytorch, Tensorflow, Numpy/Scipy, OpenCV, Python, Java, C++

EXPERIENCE

OffWorld Inc. Summer 2018
Collaborators: Pieter Abbeel and Ilya Kuzovkin
Worked on using generative models (GANs) to improve sample efficiency of reinforcement learning in visual navigation tasks. Published at NeurIPS 2019.

Facebook Summer 2017
Collaborators: Dhruv Mahajan and Manohar Paluri
Worked in the Applied Machine Learning group in Facebook on the understanding and control of 360° videos using imitation and reinforcement learning.

Microsoft Research Fall 2016
Collaborators: Dr. Katja Hofmann
Automated curriculum learning for deep RL agents to work in the open-ended, partially observable world of Minecraft.

Tesla Summer 2016
Supervisor: Dr. David Nister
Training end-to-end convolutional neural networks to perform object detection and semantic segmentation which aid in Autopilot. I worked on a scenario where training labels were sparse and developed an approach for data augmentation.

IBM Research Summer 2014
Collaborators: Dr. Osamuyi Stewart
Investigated the relation of demographics to social beliefs as expressed through text in SMSs. I was also involved in the implementation of a speech recognition toolkit in the local Swahili language.

TEACHING AND SERVICE

Graduate Teaching Assistant (Machine Learning)	2017-2019
Graduate Teaching Assistant (Mathematics)	2012-2013
Organizer of GoalsRL workshop	ICML '18
Committee Member for Future of Interactive Machine Learning workshop	NIPS '16
NeurIPS Reviewer	NeurIPS '20
ICLR Reviewer	ICLR '20