Samir Yitzhak Gadre

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Research Interests

3D Computer Vision
Machine Learning
Robot Manipulation

Education

Sept 2020–Present **Columbia University**, Ph.D. Computer Science
Studying 3D computer vision, robotic perception, and machine learning.

Sept 2014–May 2018 **Brown University**, Sc.B. Computer Science w/ Honors
GPA: 3.66, *Computer Science GPA:* 3.94
Thesis: Teaching Robots Using Mixed Reality
Academic Elections: Sigma Xi

Selected Coursework: Robotics, Reinforcement Learning, Artificial Intelligence, Machine Learning, Probabilistic Methods, Algorithms, Cryptography, Operating Systems, Distributed Systems

Work Experience

Feb 2019–Aug 2020 **Microsoft HoloLens**, Software Engineer II
Manager: Dr. Harpreet Sawhney
Worked on object detection and six degree of freedom pose estimation problems that take RGB and RGB-D inputs. Co-mentored an intern on a dense depth completion from stereo project.

Past Research Experience

May–July 2018 **Brown University**, Robotics Researcher
Advisors: Professors George Konidaris & Stefanie Tellex
First author on accepted ICRA 2019 paper titled End-User Robot Programming Using Mixed Reality (video). Built an Augmented Reality experience to allow users to program a robot motion. Allowed for users to adapt demonstrations and modify motion plans.

Sept 2017–May 2018 **Brown University**, Honors Candidate
Advisors: Professors George Konidaris & Stefanie Tellex
Defended a thesis titled Teaching Robots Using Mixed Reality (video). Created a Mixed Reality interface to teleoperation an end-effector. Used

the interface to train general movement primitives for pick-and-place tasks.

May–Aug 2016 **Brown University**, Computer Vision Researcher
Advisor: Professor Benjamin Kimia
Received an Undergraduate Teaching and Research Award. Implemented a Visual Odometry module in C++ that approximates camera rotation and translation by minimizing reprojection error of matched feature points between previous and current stereo images.

Teaching Experience

Sept–Present **Computational Aspects of Robotics**, Teaching Assistant
Taught by: Professor Shuran Song

Jan–May 2018 **Algorithms & Data Structures**, Teaching Assistant
Taught by: Professor Seny Kamara
Co-led weekly sections and office hours to help students understand canonical algorithms. Graded code and proofs of correctness.

Sept–Dec 2016 **Object Oriented Programming**, Teaching Assistant
Taught by: Professor Andy van Dam
Held office hours to help students understand object oriented paradigms and debug code. Graded code based on functionality and style.

Invited Talks

Oct 2018 **University of Washington Robotics Colloquium**, Speaker
Gave talk titled Virtual and Mixed Reality Interfaces for Human-Robot Interaction, which addressed the design and implementation of such interfaces. Discussed applications for open problems in robot programming, learning from demonstration, and symbol grounding.

Outreach

Sept 2014–May 2016 **Outdoor Leadership and Environmental Education**, Mentor
Mentored 3-5 high school students per year on topics related to college admissions and internships. Taught science workshops covering topics like climate change, geological time, and engineering design.

Skills

Languages python, C, C++, C#
Some Experience: Java, MATLAB, Go

Technologies pytorch, ROS, MoveIt!, Unity, Linux, Windows, Baxter

Interests ultimate frisbee, books, skiing, house plants

References

Dr. Harpreet Sawhney, Microsoft: harpreet.sawhney@microsoft.com
Professor George Konidaris, Brown University: gdk@cs.brown.edu
Professor Stefanie Tellex, Brown University: stefie10@cs.brown.edu