

Shubham Agrawal

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EDUCATION

Columbia University in the City of New York

Master of Science in Computer Science; Vision, Graphics, Interaction and Robotics track; CGPA: 3.8/4.0

New York, NY

Aug 2019 - May 2021

Indian Institute of Technology Kanpur

Bachelor of Technology in Computer Science; CGPA: 8.7/10.0

Kanpur, India

Jul 2013 - Apr 2017

EXPERIENCE

Samsung Research America

Engineer Machine Learning Research

New York, NY, USA

Jun 2021 - Present

- **Led perception team for the inter-team table-clearing benchmark competition.** Key components: (a) In-house 6DoF Perception Data collection and labeling tool, (b) instance segmentation, (c) 6DoF pose estimation, (d) glass detection, (e) stereo depth prediction, and (f) fusion of single view predictions into a coherent world map
- Research on 3D shape reconstruction for grasping. Relevant papers: Simultaneous object reconstruction and grasp prediction **IROS22** [✉](#), Object Shell Reconstruction [arXiv](#) [✉](#)

Tesla Inc

Autopilot Intern (Non Disclosure Agreement)

Palo Alto, USA (remote)

Jun 2020 - Aug 2020

- Worked on identifying and associating the same objects visible in multiple cameras to create object tracks across time.

Adobe Inc

Member of Technical Staff (C++, JavaScript Software Developer)

Noida, India

Jul 2017 - Jan 2019

- Implemented CRUD operations for highlight/underline/sticky notes for next generation PDF webview using Javascript. Formulated efficient algorithm for modeling an annotation's position across multiple PDF views (with variable structure and content)

Adobe Inc

Research Intern (Machine Learning)

Bangalore, India

May 2016 - Aug 2016 (voluntarily working till Jun 2017)

- Created a novel end-to-end system for automated design of affinity (user's interest) based smart geo-fences for selective targeting. US Patent US20180232767A1 [✉](#). ACM SIGSPATIAL'17 conference paper [✉](#)

PROJECTS AND PUBLICATIONS

- **[2022 IEEE IROS] SEaT: Scene Editing as Teleoperation:** Shubham Agrawal*, Yulong Li*, Jen-Shuo Liu, Steven K. Feiner, and Shuran Song. Scene Editing as Teleoperation: A Case Study in 6DoF Kit Assembly. (* = equal contributions). [arXiv](#) [✉](#), [Website](#) [✉](#).
- **[2021 PMLR CoRL] Fit2Form: 3D Generative Model for Robot Gripper Form Design:** Shubham Agrawal*, Huy Ha*, and Shuran Song. PMLR CoRL [✉](#), [Website](#) [✉](#).
- **[2021 IEEE ICRA] AdaGrasp: Learning an Adaptive Gripper-Aware Grasping Policy:** Zhenjia Xu, Beichun Qi, Shubham Agrawal, Shuran Song. [arXiv](#) [✉](#), [Website](#) [✉](#).
- **[2022 IEEE IROS] Simultaneous object reconstruction and grasp prediction using camera-centric object shell representation:** Nikhil Chavan Daffe, Sergiy Popovich, Shubham Agrawal, Daniel Lee, Volkan Isler. IROS [✉](#)
- **[2021 ACM SIGSPATIAL] Smart Geo-fencing with Location Sensitive Product Affinity:** Ankur Garg, Sunav Choudhary, Payal Bajaj, Sweta Agrawal, Abhishek Kedia, Shubham Agrawal. [scholar](#) [✉](#).
- **[2021 US Patent] Smart geo-fencing using location sensitive product affinity:** Ankur Garg, Sweta Agrawal, Shubham Agrawal, Payal Bajaj, Abhishek Kedia. Google patents [✉](#)
- **[2021 arXiv] Automatic differentiation and continuous sensitivity analysis of rigid body dynamics:** David Millard, Eric Heiden, Shubham Agrawal, Gaurav S Sukhatme. [Scholar](#) [✉](#)
- **Porn Block:** Chrome extension for realtime identification and blurring of sensual images from webpages. Trained VGG-net on scrapped data using KerasJS. Wrote a proxy server to bypass CORS while generating the client-side image matrix. [Code](#) [✉](#).

SKILLS

- **Languages:** C++, Python, JavaScript
- **Tools:** PyTorch, Scikit-Learn, Numpy, Pandas, UR5 Robot, (WSG50, RG2, BHand) Grippers, RGB-D Camera

ACHIEVEMENTS & EXTRACIRRICULAR

- **Course Assistant Fellowship**, Columbia University: awarded for stellar academic performance and outstanding work as a TA
- Selected for **Advanced Master Research Specialization** at Columbia University offering one fully - funded semester of research
- **All India Rank 191**, IIT-JEE Advanced 2013 (among 150K candidates)
- Course assistantships: Computational Aspects of Robotics (**Head TA**) [✉](#), Applied Machine Learning [✉](#), Advanced Database Systems [✉](#)
- Research assistantships: Shuran Song Columbia University [✉](#) (Sept 2019 - present), Gaurav Sukhatame USC [✉](#) (May 2019 - Aug 2019)
- Received *Academic Excellence Award* for excellent academic performance during 2013-14 curriculum at IIT Kanpur
- Served as CS Department Senator at Viterbi Graduate Student Association, University of Southern California for spring semester, 2019
- Co-created TOEFL Infinite [✉](#), an android application for TOEFL and GRE exam preparation with 150K downloads on Google Play