

Rahul Arora

CONTACT INFORMATION

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RESEARCH INTERESTS

Interactive Computer Graphics
Human-Computer Interaction
Virtual and Augmented Realities

EDUCATION

PhD, University of Toronto 2015-Present
Major: Computer Science
Thesis: Creative Expression in Immersive 3D Environments (Tentative title)
Adviser: Prof. Karan Singh
CGPA: 4.0/4.0

MTech, Indian Institute of Technology, Kanpur 2014-2015
Major: Computer Science and Engineering
Thesis: Exploring Design Space by Interpolating between Multiple Sketches
Advisers: Prof. Vinay P. Namboodiri and Dr. Adrien Bousseau
CGPA: 9.6/10.0

BTech, Indian Institute of Technology, Kanpur 2010-2015
Major: Computer Science and Engineering
CGPA: 8.5/10.0

PEER-REVIEWED PUBLICATIONS

CASSIE: Curve and Surface Sketching in Immersive Environments
Emilie Yu, **Rahul Arora**, Tibor Stanko, J. Andreas Bærentzen, Karan Singh, Adrien Bousseau
ACM SIGCHI Conference on Human Factors in Computing Systems 2021 (CHI '21), Conditionally Accepted

MagicalHands: Mid-Air Hand Gestures for Animating in VR
Rahul Arora, Rubaiat Habib Kazi, Danny Kaufman, Wilmot Li, and Karan Singh
ACM Symposium on User Interface Software and Technology 2019 (UIST '19)
<https://www.dgp.toronto.edu/projects/magical-hands/>

Volumetric Michell Trusses for Parametric Design & Fabrication
Rahul Arora, Alec Jacobson, Timothy R. Langlois, Yijiang Huang, Caitlin Mueller, Wojciech Matusik, Ariel Shamir, Karan Singh, and David I.W. Levin
ACM Symposium on Computational Fabrication 2019 (SCF '19)
<https://www.dgp.toronto.edu/projects/michell/>

SymbiosisSketch: Combining 2D and 3D Sketching for Designing Detailed 3D Objects in Situ
Rahul Arora, Rubaiat Habib Kazi, Tovi Grossman, George Fitzmaurice, and Karan Singh
ACM SIGCHI Conference on Human Factors in Computing Systems 2018 (CHI '18)
<https://doi.org/10.1145/3328939.3328999>

Experimental Evaluation of Sketching on Surfaces in VR

Rahul Arora, Rubaiat Habib Kazi, Fraser Anderson, Tovi Grossman, Karan Singh, and George Fitzmaurice

ACM SIGCHI Conference on Human Factors in Computing Systems 2017 (CHI '17)

<http://dx.doi.org/10.1145/3025453.3025474>

SketchSoup: Exploratory Ideation using Design Sketching

Rahul Arora, Ishan Darolia, Vinay P. Namboodiri, Karan Singh, and Adrien Bousseau

Computer Graphics Forum (CGF) 2017, presented at Eurographics 2017

<http://dx.doi.org/10.1111/cgf.13081>

Derandomizing Isolation Lemma for $K_{3,3}$ -free and K_5 -free Bipartite Graphs

Rahul Arora, Ashu Gupta, Rohit Gurjar, and Raghunath Tewari

Symposium on Theoretical Aspects of Computer Science (STACS) 2016

<http://dx.doi.org/10.4230/LIPIcs.STACS.2016.10>

OTHER PUBLICATIONS

Sketching in 3D Space (Invited Book Chapter)

Mayra Donaji Barrera Machuca, **Rahul Arora**, Philipp Wacker, Johann Habakuk Israel, and Daniel Keefe

In Interactive Sketch-Based Interfaces and Modelling for Product Design (ed. Alexandra Bartolo). River Publishers. In press.

Mid-Air Drawing of Curves on 3D Surfaces in AR/VR (Preprint)

Rahul Arora and Karan Singh

arXiv preprint

<https://arxiv.org/abs/2009.09029>

Creative Expression with Immersive 3D Interactions (Juried)

Rahul Arora

Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20 Doctoral Consortium)

<https://dl.acm.org/doi/10.1145/3334480.3375028>

Designing Volumetric Truss Structures for Computational Fabrication (Juried)

Rahul Arora, Alec Jacobson, Timothy R. Langlois, Karan Singh, and David I.W. Levin

Graphics Interface 2018 Posters (GI '18)

<https://bit.ly/31CTjtw>

AWARDS AND RECOGNITION

Wolfond Scholarship in Wireless Information Technology: CA \$10,000	2019
UofT Libraries Grad Exhibit Competition (3 winners): CA \$1,000	2019
Adobe Research Fellowship 2019 (11 fellows): US \$10,000	2018
Adobe Research Fellowship 2018 Finalist	2017
Mitacs Accelerate Award for industrial partnership: CA \$15,000	2016
Merit-cum-Means Scholarship, IIT Kanpur: Full tuition amount	2010–2014
Academic Excellence Award, IIT Kanpur (top 5% students)	2013

INTERNSHIPS	Adobe Research, Seattle, USA <i>with Timothy Langlois, Danny Kaufman, and Rubaiat Habib</i> Worked on techniques for creating stylized animations of 2D fluids.	Summer 2019
	Adobe Research, Seattle, USA <i>with Rubaiat Habib, Danny Kaufman, and Wil Li</i> Studied gestural methods for authoring animations in VR.	Summer 2018
	Autodesk Research, Toronto, Canada <i>with Tovi Grossman and Rubaiat Habib</i> Developed an augmented reality tool for 3D concept sketching.	Winter 2017
	Autodesk Research, Toronto, Canada <i>with Tovi Grossman and Rubaiat Habib</i> Conducted lab experiments to understand 3D sketching ability.	Summer 2016
	Inria, Sophia-Antipolis, France <i>with Adrien Bousseau</i> Developed a user-guided method for ideation sketch interpolation.	Summer 2014
	Adobe Research, Bangalore, India <i>with Ramesh Srinivasaraghavan</i> Built a gamified crowdsourcing platform for object recognition tasks.	Summer 2013
TEACHING EXPERIENCE	Computer Graphics , University of Toronto Teaching Assistant for Prof. Alec Jacobson	Fall 2019
	Computer Graphics , University of Toronto Teaching Assistant for Prof. David Levin	Winter 2019
	Computer Graphics , University of Toronto Teaching Assistant for Prof. Karan Singh and Prof. David Levin	Winter 2018
	Computer Graphics , University of Toronto Teaching Assistant for Prof. Karan Singh and Prof. Alec Jacobson	Fall 2017
	Intro to Theory of Computation , University of Toronto Teaching Assistant for Prof. Azadeh Farzan	Fall 2015
	Introduction to Computer Graphics , IIT Kanpur Teaching Assistant for Prof. Vinay P. Namboodiri	Fall 2014
ACTIVITIES	Committee Member for SIGGRAPH Asia 2021 XR Program.	
	Area Chair for Graphics Interface (GI) 2020.	
	Student Volunteer at User Interface Software and Technology (UIST) 2019.	
	Reviewer for computer graphics conferences: SIGGRAPH, SIGGRAPH Asia, and Graphics Interface (GI).	

Reviewer for computer graphics journals: Computer Graphics Forum (CGF), Transactions on Visualization and Computer Graphics (TVCG), Computer-Aided Design (CAD), and Computer Graphics & Applications (CG&A).

Reviewer for HCI conferences: User Interfaces Software and Technology (UIST), Conference on Human Factors in Computing Systems (CHI), Designing Interactive Systems (DIS), and Graphics Interface (GI).

Reviewer for specialized VR/AR conferences: Virtual Reality (IEEE VR), Virtual Reality Software and Technology (VRST), International Symposium on Mixed and Augmented Reality (ISMAR), Spatial User Interaction (SUI).

Reviewer for other venues: Springer Nature Applied Sciences (SNAS).