

Current Position	Research Scientist and Manager, Meta Reality Labs, USA Embodied AI for contextual and adaptive augmented reality assistance.	Fall 2018 – Present
Education	Carnegie Mellon University, USA Ph.D. in Robotics (GPA: 3.80/4.0) Thesis: Robot design for everyone– Computational tools that democratize robot design	2013 - 2018 Advisors: Stelian Coros and Jim McCann
	Carnegie Mellon University, USA Master of Science in Robotics (GPA: 3.83/4.0)	2011 - 2012 Advisors: Hartmut Geyer and Chris Atkeson
	National Institute of Technology (NIT) Surat, India Bachelor of Technology in Electronics Engineering (GPA: 9.26/10)	2007 - 2011
Research Experience	Carnegie Mellon University, Pittsburgh, USA Advisors: Stelian Coros and Jim McCann Human-AI systems that enable casual users to design and build robots.	Graduate Research Assistant Fall 2015 – Fall 2018
	Autodesk Research, Toronto, Canada Advisors: Fraser Anderson, Justin Matejka, and Tovi Grossman Data-driven, semantic, human-AI system for creating expressive robot behaviors.	Research Intern Summer 2017
	Carnegie Mellon University, Pittsburgh, USA Advisors: Jessica Hodgins and Hartmut Geyer Bipedal lateral balance controller for flat and uneven surfaces like seesaw.	Graduate Research Assistant Fall 2013 – Spring 2015
	Disney Research, Pittsburgh, USA Advisor: Jessica Hodgins Human motor skill acquisition and adaptation research using motion capture data.	Research Intern Spring 2013
	Carnegie Mellon University, Pittsburgh, USA Advisors: Hartmut Geyer and Chris Atkeson Neural hypothesis of human leg placement during gait and its extension for prosthetic control.	Graduate Research Assistant 2011 – 2012
	Technische Universitat Ilmenau, Germany Advisor: Horst Michael Gross Camera pose estimation approaches for effective 3D structure reconstruction.	Research Intern Summer 2010
	Indian Institute of Science (IISc.), Bangalore, India Advisor: Debasish Ghose Swarm optimization approaches for in-house swarm robots to enable search and localization.	Research Intern Summer 2009
Publications	T. Nagarajan, Sk Ramakrishnan, R. Desai , J. Hillis, and K. Grauman, “Egocentric Scene Context for Human-centric Environment Understanding from Video”, European Conference on Computer Vision (ECCV), 2022 [In review].	
	K. Pertsch, R. Desai , F. Meier, V. Kumar, D. Batra, and A. Rai, “Cross-Domain Imitation Learning via Semantic Skills”, International Conference on Machine Learning (ICML), 2022 [In review].	
	S. Datta, S. Dharur, V. Cartillier, R. Desai , M. Khanna, D. Batra, and D. Parikh, “Episodic Memory Question Answering”, The Conference on Computer Vision and Pattern Recognition (CVPR), 2022 [Accepted].	

S. Tsutsui, **R. Desai**, and K. Ridgeway, “Self-supervised Representation Learning with Egocentric Video and Head-mounted IMU”, EPIC workshop at International Conference on Computer Vision (ICCV), 2021 [[PDF](#)].

B. Newman, K. Carlberg, and **R. Desai**, “Optimal Assistance for Object-Rearrangement Tasks in Augmented Reality”, Preprint, 2020 [[arXiv](#)].

N. Medathati, **R. Desai**, and J. Hillis, “Towards inferring cognitive state changes from pupil size variations in real world”, ACM Symposium on Eye Tracking Research and Applications (ETRA), 2020 [[PDF](#)].

R. Desai, F. Anderson, J. Matejka, S. Coros, J. McCann, G. Fitzmaurice and T. Grossman, “Geppetto: Enabling Semantic Design of Expressive Robot Behaviours”, ACM Conference on Human Factors in Computing Systems (CHI), 2019 [[PDF](#)]. *Best Paper Award*

R. Desai, B. Li, Y. Yuan and S. Coros, “Interactive Co-Design of Form and Function for Legged Robots using the Adjoint Method”, International Conference on Climbing and Walking Robots (CLAWAR), 2018 [[arXiv](#)]. *Best Paper Award*

R. Desai, J. McCann and S. Coros, “Assembly-aware Design of Printable Electromechanical Devices”, ACM User Interface Software and Technology Symposium (UIST), 2018 [[PDF](#)].

M. Geilinger, R. Poranne, **R. Desai**, B. Thomaszewski and S. Coros, “Skaterbots: Optimization-based Design and Motion Synthesis for Robotic Creatures with Legs and Wheels”, ACM Transaction on Graphics (ACM SIGGRAPH), 2018 [[PDF](#)].

R. Desai, M. Safonova, K. Muelling and S. Coros, “Automatic Design of Task-specific Robotic Arms”, Workshop on Autonomous Robot Design, ICRA, 2018 [[PDF](#)].

R. Desai, Y. Yuan and S. Coros, “Computational Abstractions for Interactive Design of Robotic Devices”, IEEE International Conference on Robotics and Automation (ICRA), 2017 [[PDF](#)].

M. Vasquez, E. Brockmeyer, **R. Desai**, S.E. Hudson and C. Harrison, “3D Printing Pneumatic Device Controls with Variable Activation Force Capabilities”, ACM Conference on Human Factors in Computing Systems (CHI), 2015 [[PDF](#)].

R. Desai, J. K. Hodgins, “A Simple Model of Skill Acquisition in a Dynamic Balance Task”, Dynamic Walking, 2015 [[PDF](#)].

R. Desai, H. Geyer and J. K. Hodgins, “Virtual Model Control for Dynamic Lateral Balance”, IEEE International Conference on Humanoid Robots (Humanoids), 2014 [[PDF](#)].

R. Desai, H. Geyer, “Muscle-Reflex Control of Robust Swing Leg Placement”, IEEE International Conference on Robotics and Automation (ICRA), 2013 [[PDF](#)].

S. Song, **R. Desai**, and H. Geyer, “Integration of an Adaptive Swing Control into a Neuromuscular Human Walking Model”, 35th Annual International Conference of IEEE Engineering in Medicine and Biology Society (EMBS), 2013 [[PDF](#)].

R. Desai, H. Geyer, “Robust Swing Leg Placement under Large Disturbances”, IEEE International Conference on Robotics and Biomimetics, 2012 [[PDF](#)].

Patents

F. Anderson, S. Coros, **R. Desai**, T. Grossman, J.F. Matejka, G. Fitzmaurice “Generative design techniques for robot behavior”, US Patent No. US-2020-0034514-A1, 2020 [[link](#)].

R. Desai, H. Geyer, “Robust Swing Leg Controller under Large Disturbances”, US Patent No. US-2015-0066156-A1, 2014 [[link](#)].

Honors and Awards	Best Paper Award, ACM CHI Conference (2019)
	Best Paper Award, CLAWAR Conference (2018)
	Dr. Kanako Muira Award for Women Researchers, IEEE Humanoids Conference (2014)
	Siebel Scholarship, Outstanding CS students in CMU (2013)
	Google Anita Borg Memorial Scholarship (2012)
	German Academic Exchange Service (DAAD) WISE Scholarship (2010)
	Indian National Association of Engineers (INAE) Fellowship (2010)
	Dhirubhai Ambani Foundation (DAF) Undergraduate Scholarship (2006 - 2010)
Academic Service	Conference Committee
	ACM CHI Conference Associate Chair (2021, 2020)
	ACM UIST Conference Program Committee (2020, 2019)
	Reviewer
	IEEE IROS, IEEE ICRA, ACM GI, ACM UIST, ACM CHI, IEEE WHC, ACM TEI (2015 - 2021)
	Teaching and Admissions
	CMU RI Summer Scholar (Undergraduate Researchers) Selection Committee (2017)
	Teaching Assistant for Biomechanics and Human Motor Control Graduate Course (2014)
Invited Talks	DUB Seminar , University of Washington (2020)
	BID Seminar , University of California, Berkeley (2019)
	GRASP Seminar , University of Pennsylvania (2019)
Mentoring	Intern Manager at Meta
	Paul Schydlo, PhD student at Carnegie Mellon University (Fall 2021).
	Satoshi Tsutsui, PhD student at Indiana University (Spring 2021).
	Ben Newman, PhD student at Carnegie Mellon University (Fall 2019).
	Intern Advisor at Carnegie Mellon University (CMU)
	Beichen Li, Tshingua University (Summer 2017), later PhD at MIT EECS.
Outreach Activities	Shuangning Liu, Tshingua University (Summer 2016), later MS at CMU.
	Volunteer, Women@SCS 2012-2016
	Volunteering in Technights and Roadshows for school outreach at Carnegie Mellon.
	Organizing Committee, OurCS 2015
	Organizing a 3-day workshop for undergraduate women to encourage them in research with Women@SCS.
	Founding member, CMU Laptop Rehab 2014-2015
	Started a student organization which refurbishes old computers and donates them to schools in Pittsburgh and India.
	Planning committee, Google Anita Borg Scholarship Alumni Community 2014-2015
	Reaching out organizations working for Women in Tech and organizing activities to encourage girls in computer science.
	Seminar committee, Robotics Institute 2013-2015
	Publicizing department seminar. Co-organizing a student-run meta seminar series.
	Charity Chair, Indian Graduate Student Association (IGSA) 2013-2014
	Initiating community service activities for Indian graduate students at Carnegie Mellon.

**Selected
Press**

[Techcrunch](#), New toolkit makes it easy to drag and drop your own robot (2017).
[ACM Communications](#), Robot Design For Dummies (2017).
[EurekAlert](#), CMU's interactive tool helps novices and experts make custom robots (2017).
[NSF ERC](#), Graduate Student Earns Prestigious Scholarships for Women - Ruta Desai (2012).
[CMU SCS](#), Five SCS Students Named Siebel Scholars (2012).

Skills

Programming Languages: C++, Python, C, Embedded Microcontroller programming, HTML.
Platforms and Tools: Pytorch, Tensorflow, Matlab, Simulink, Mathematica, Visual Studio, Solid-works, OpenSCAD, Blender, Photoshop, Premiere.
HCI and Prototyping: User studies, Surveys, Interviews, Crowdsourcing, Arduino, 3D printing.