Positions	Research Scientist, Fundamental AI Research (FAIR), Meta, USA Aug. 20 Embodied AI, Human-AI Collaboration.	023 -
	Tech Lead Manager, Meta Reality Labs Research, USAJan. 2021 – Aug.Embodied AI for Augmented Reality.	2023
	Research Scientist, Meta Reality Labs Research, USANov. 2018 – Jan.Contextual AI for Augmented Reality.	2021
Research Interests	Embodied AI, Vision and Language, Human Robot and Human Computer Interaction.	
Education	Carnegie Mellon University, USA2013 - 20	2018 Cann <mark>gn</mark>
	Carnegie Mellon University, USA2011 - 2Master of Science in Robotics (GPA: 3.83/4.0)Advisors: Hartmut Geyer and Chris Atk	2012 æson
	National Institute of Technology (NIT) Surat, India2007 - 3Bachelor of Technology in Electronics Engineering (GPA: 9.26/10)2007 - 3	2011
Research Experience	Carnegie Mellon University, Pittsburgh, USAGraduate Research AssisAdvisors: Stelian Coros and Jim McCannFall 2015 – Fall 2	stant 2018
	Autodesk Research, Toronto, CanadaResearch InAdvisors: Fraser Anderson, Justin Matejka, and Tovi GrossmanSummer 2Data-driven, semantic, human-AI system for creating expressive robot behaviors.Summer 2	itern 2017
	Carnegie Mellon University, Pittsburgh, USAGraduate Research AssisAdvisors: Jessica Hodgins and Hartmut GeyerFall 2013 – Spring 2Bipedal lateral balance controller for flat and uneven surfaces like seesaw.	stant 2015
	Disney Research, Pittsburgh, USA Research In Advisor: Jessica Hodgins Spring 2 Human motor skill acquisition and adaptation research using motion capture data.	ntern 2013
	Carnegie Mellon University, Pittsburgh, USAGraduate Research AssisAdvisors: Hartmut Geyer and Chris Atkeson2011 – 2Neural hypothesis of human leg placement during gait and its extension for prosthetic cont	stant 2012 crol.
	Technische Universitat Ilmenau, GermanyResearch InAdvisor: Horst Michael GrossSummer 2Camera pose estimation approaches for effective 3D structure reconstruction.Summer 2	ntern 2010
	Indian Institute of Science (IISc.), Bangalore, IndiaResearch InAdvisor: Debasish GhoseSummer SSwarm optimization approaches for in-house swarm robots to enable search and localization	ntern 2009 n.
Publications Google Scholar	X. Puig [*] , E. Undersander [*] , A. Szot [*] , M. Cote [*] , R. Partsey [*] , J. Yang [*] , R. Desai [*] , A. Clegg R. Mottaghi, A. Rai, "Habitat 3.0: A Co-Habitat for Humans, Avatars and Robots", Intertional Conference on Learning Representations (ICLR), 2024 [PDF][Website].	g*,, erna-
	D. Patel, H. Engbalzadeh, N. Kamra, M. L. Iuzzolino, U. Jain, R. Desai , "Pretrained Lang Models as Visual Planners for Human Assistance", International Conference on Computer sion (ICCV), 2023 [PDF][Code].	juage r Vi-

R. Hazra, B. Chen, A. Rai, N. Kamra, **R. Desai**, "EgoTV: Egocentric Task Verification from Natural Language Task Descriptions", International Conference on Computer Vision (ICCV), 2023 [PDF][Code].

A. Szot, U. Jain, Z. Kira, D. Batra, **R. Desai**, and A. Rai, "Adaptive Coordination in Social Embodied Rearrangement", International Conference on Machine Learning (ICML), 2023 [PDF].

T. Nagarajan, Sk Ramakrishnan, **R. Desai**, J. Hillis, and K. Grauman, "Egocentric Scene Context for Human-centric Environment Understanding from Video", Advances in Neural Information Processing Systems (Neurips), 2023 [PDF][Webpage].

W. Mao, **R. Desai**, M. Iuzzolino, and N. Kamra, "Action Dynamics Task Graphs for Learning Plannable Representations of Procedural Tasks", Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI) Workshop, 2023 [PDF].

E. Tekin, E. Barati, N. Kamra, and **R. Desai**, "Effective Baselines for Multiple Object Rearrangement Planning in Partially Observable Mapped Environments", Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI) Workshop, 2023 [PDF].

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 [PDF].

K. Pertsch, **R. Desai**, F. Meier, V. Kumar, D. Batra, and A. Rai, "Cross-Domain Imitation Learning via Semantic Skills", Conference on Robot Learning (CoRL), 2022 [PDF].

D. Yu, **R. Desai**, T. Zhang, H. Benko, T. Jonker, and A. Gupta, "Optimizing the Timing of Intelligent Suggestion in Virtual Reality", ACM User Interface Software and Technology Symposium (UIST), 2022 [PDF].

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: Optimizationbased 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 Neuro- muscular 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	B. Newman, K. Carlberg, R. Desai , J. Hillis, "Optimal Assistance for Object-Rearrangement Tasks in Augmented Reality", US Patent No. US-2022-0114366-A1, 2022 [link].
	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 and Workshops Organizer, CVPR Workshop on Causal and Object-centric Representations for Robotics (2024) Conference Associate Chair, ACM CHI (2021, 2020) Conference Program Committee, ACM UIST (2020, 2019)
	Reviewer IEEE IROS, IEEE ICRA, ACM GI, ACM UIST, ACM CHI, IEEE WHC, ACM TEI, IEEE CVPR, IEEE ICCV, ICLR, Neurips, ICML (2015 - 2024)
	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	Guest Lecture in Generating Expressiveness in Intelligent Agents and Avatars, University of Florida (2022) DUB Seminar, University of Washington (2020) BID Seminar, University of California, Berkeley (2019) GRASP Seminar, University of Pennsylvania (2019)
Mentoring	Intern Manager at Meta Mrinal Verghese, PhD student at Carnegie Mellon University (Fall 2023) Rishi Hazra, PhD student at Orebo University, Sweden (Fall 2022) Dhruvesh Patel, PhD student at UMass Amherst (Summer 2022) Andrew Szot, PhD student at Georgia Tech, co-mentor with Akshara Rai (Summer 2022)

Intern Advisor at Carnegie Mellon University (CMU) Beichen Li, Tshingua University (Summer 2017), later PhD at MIT EECS. Shuangning Liu, Tshingua University (Summer 2016), later MS at CMU.	
Outreach ActivitiesVolunteer, Women@SCS Volunteering in Technights and Roadshows for school outreach at Carnegie Mellon.20	012-2016
Organizing Committee, OurCS Organizing a 3-day workshop for undergraduate women to encourage them in resear Women@SCS.	2015 rch with
Founding member, CMU Laptop Rehab 20 Started a student organization which refurbishes old computers and donates them to so Pittsburgh and India.	014-2015 chools in
Planning committee, Google Anita Borg Scholarship Alumni Community 20 Reaching out organizations working for Women in Tech and organizing activities to er girls in computer science.	014-2015 ncourage
Seminar committee, Robotics Institute20Publicizing department seminar. Co-organizing a student-run meta seminar series.20	013-2015
Charity Chair, Indian Graduate Student Association (IGSA) 20 Initiating community service activities for Indian graduate students at Carnegie Mellon	013-2014 n.
SelectedSilicon Angle, Meta's Habitat 3.0 simulates real-world environments for intelligent A training (2023).	AI robot
Techcrunch, Embodied AI spins a pen and helps clean the living room in new research Techcrunch, New toolkit makes it easy to drag and drop your own robot (2017). ACM Communications, Robot Design For Dummies (2017).	(2023).
EurekAlert, CMU's interactive tool helps novices and experts make custom robots (201 NSF ERC, Graduate Student Earns Prestigious Scholarships for Women - Ruta Desai (CMU SCS, Five SCS Students Named Siebel Scholars (2012).	17). (2012).
Skills Programming Languages: C++, Python, C, Embedded Microcontroller programming, H Platforms and Tools: Pytorch, Tensorflow, Matlab, Simulink, Mathematica, Visual Studi works, OpenSCAD, Blender, Photoshop, Premiere. HCL and Prototyming: User studies Surveys Interviews Crowdsourcing Arduine 3D responses	HTML. io, Solid-