

Karthik Desingh

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Research Experience	Postdoctoral Scholar University of Washington, Seattle, USA PI: Prof. Dieter Fox	2020 - Present
	Graduate Student Research Assistant University of Michigan, Ann Arbor, USA PI: Prof. Chad Jenkins	2016 - 2020
	Graduate Student Research Assistant Brown University, Providence, USA PI: Prof. Chad Jenkins	2013 - 2015
	Research Assistant International Institute of Information Technology, Hyderabad, India PI: Prof. K Madhava Krishna	2010 - 2013

Education	University of Michigan, Ann Arbor, USA Ph.D. in Computer Science and Engineering Thesis: Efficient Belief Propagation for Perception and Manipulation in Clutter Advisor: Prof. Chad Jenkins Committee: Prof. Dmitry Berenson , Prof. Benjamin Kuipers , Prof. Edwin Olson , Prof. Gaurav Sukhatme	2016 - 2020
	Brown University, USA Master of Science in Computer Science Advisor: Prof. Chad Jenkins	2013 - 2015
	International Institute of Information Technology, India Master of Science in Computer Science Thesis: Visual Saliency and Next Best View Models for Object Recognition and Search Advisor: Prof. K Madhava Krishna	2010 - 2013
	Osmania University, India Bachelor of Engineering in Electronics and Communication	2004 - 2008

Teaching Experience	University of Michigan Ann Arbor, MI, USA Assisting <i>Programming and Intro to Data structures</i> course in teaching computer science fundamentals and programming in C++. Course page	Graduate Student Instructor Sept 19 - Apr 20
	University of Michigan Ann Arbor, MI, USA Assisted <i>Autonomous Robotics Laboratory</i> course covering state estimation algorithms for mobile robots. Course videos	Graduate Student Instructor Jan 19 - Apr 19
	Brown University Providence, RI, USA Assisted <i>Designing Humanity Centered Robots</i> course to build robots from scratch. Course page	Teaching Assistant Aug 15 - Dec 15
	Brown University Providence, RI, USA Assisted <i>Human Robot Interaction</i> seminar course covering state-of-the-art SLAM research. Course page	Teaching Assistant Aug 14 - Dec 14

Publications and Articles	J. Pavlasek, S. Lewis, K. Desingh, O. C. Jenkins <i>Parts-Based Articulated Object Localization in Clutter Using Belief Propagation</i>	IROS 2020
	T. Cohn, O. C. Jenkins, K. Desingh , Z. Zeng <i>TSPB: Tangent Space Belief Propagation for Manifold Learning</i>	RA-L 2020 (IROS)
	K. Desingh , J. Pavlasek, C. Kokenoz, O. C. Jenkins <i>Tracking Large Scale Articulated Models with Belief Propagation for Task Informed Grasping and Manipulation - Best workshop paper</i>	RSS Workshop 2019
	J. Pavlasek, K. Desingh , O. C. Jenkins <i>Scene Understanding using Part-Based Object Affordances</i>	RSS Workshop 2019
	K. Desingh , S. Lu, A. Opipari, O. C. Jenkins <i>Efficient Nonparametric Belief Propagation for Pose Estimation and Manipulation of Articulated Objects</i>	Science Robotics May 2019
	K. Desingh , S. Lu, A. Opipari, O. C. Jenkins <i>Factored Pose Estimation of Articulated Objects using Efficient Nonparametric Belief Propagation</i>	ICRA 2019
	S. Masnadi, J. J. LaViola, J. Pavlasek, X. Zhu, K. Desingh , O. C. Jenkins <i>Sketching Affordances for Human-in-the-loop Robotic Manipulation Tasks</i>	ICRA Workshop'19
	K. Desingh , A. Opipari, O. C. Jenkins <i>Pull Message Passing for Nonparametric Belief Propagation</i>	arXiv 2018
	Z. Zeng, Y. Zhou, O. C. Jenkins, K. Desingh <i>Semantic Mapping with Simultaneous Object Detection and Localization</i>	IROS 2018
	K. Desingh , A. Opipari, O. C. Jenkins <i>Analysis of Goal-directed Manipulation in Clutter using Scene Graph Belief Propagation</i>	ICRA Workshop-MRP 2018
	M. Maghoumi, J. LaViola, K. Desingh , O. C. Jenkins <i>GemSketch: Interactive Image-Guided Geometry Extraction from Point Clouds</i>	ICRA 2018
	S. R. Gouravajhala, J. Yim, K. Desingh , Y. Huang, O. C. Jenkins, W. S. Lasecki <i>EURECA: Enhanced Understanding of Real Environments via Crowd Assistance</i>	HCOMP 2018
	Z. Sui, L. Xiang, O. C. Jenkins, K. Desingh <i>Goal-directed Robot Manipulation through Axiomatic Scene Estimation</i>	IJRR 2017
	N. Daskalova, K. Desingh , A. Papoutsaki, D. Schulze, H. Sha, J. Huang <i>Lessons Learned from Two Cohorts of Personal Informatics Self-Experiments</i>	UbiComp 2017
	K. Desingh , O. C. Jenkins, L. Reveret, Z. Sui <i>Physically Plausible Scene Estimation for Manipulation in Clutter</i>	Humanoids 2016
K. Desingh , M. Maghoumi, J. J. LaViola, O. C. Jenkins <i>Object Manipulation in Cluttered Scenes Informed by Physics and Sketching</i>	RSS Workshop 2016	
Z. Sui, O. C. Jenkins, K. Desingh <i>Axiomatic Particle Filtering for Goal-directed Robotic Manipulation</i>	IROS 2015	
Z. Sui, O. C. Jenkins, K. Desingh <i>Axiomatic Scene Estimation for Robotic Manipulation</i>	ICRA Workshop 2015	

**Professional
Service and
Volunteering**

- Served as a **reviewer** for conference and journal proceedings:
 - IEEE Robotics and Automation Letters (RA-L).
 - Autonomous Robots Journal (AURO).
 - IEEE International Conference on Robotics and Automation (ICRA).
 - IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
 - Robotics: Science and Systems (RSS).
 - IEEE-RAS International Conference on Humanoid Robots (Humanoids).
 - AAAI Conference on Artificial Intelligence.
 - International Joint Conferences on Artificial Intelligence (IJCAI).
 - International Conference on Robot Learning (CoRL).
- Served as a **staff mentor** for Fall 2017 freshmen in University of Michigan Mentorship Program.
- Served on the University of Michigan CSE Ph.D. admissions committee for Fall 2018

**Notable
Activities
and Awards**

- Presented Poster at NEMS 2019 (New York, NY).
- Research Talk at ML conference 2019 (Ann Arbor, MI).
- Presented Paper at ICRA 2019 (Montreal, Canada).
- Invited Poster at Amazon Graduate Research Symposium 2019 (Seattle, WA)
- Presented Poster at Michigan AI Symposium 2018 (Ann Arbor, MI).
- Participated in the AI Honors competition 2018 with research talk.
- Presented Poster at NSF PI meeting 2018 (Arlington VA).
- Presented Paper at ICRA 2018 (Brisbane, Australia).
- Presented Poster at Engineering Graduate Symposium (EGS) 2017 (Ann Arbor, MI).
- Presented Poster at NEMS 2017 (Boston, MA).
- Presented Paper at IEEE Humanoids Conference 2016 (Cancun, Mexico).
- Presented Poster at RSS 2016 Workshop (Ann Arbor, MI).
- Presented at ICRA 2015 PhD Forum (Seattle, WA).
- Co-presented talk at NEMS 2015 (Boston, MA).
- PCL - Point Cloud Library Developer and Contributor.
- “Best Microsoft Project Award” - Hack@Brown 2015.
- “Best Performer Award” Capgemini 2008.