

Charles C. Kemp

Associate Professor
Wallace H. Coulter Department of Biomedical Engineering

January 29, 2015

1 Earned Degrees

Ph.D., Massachusetts Institute of Technology
2005, Electrical Engineering and Computer Science
Advisor: Prof. Rodney Brooks

M.Eng., Massachusetts Institute of Technology
1998, Electrical Engineering and Computer Science

B.S., Massachusetts Institute of Technology
1997, Computer Science and Engineering
Minor: Cognitive Science

2 Employment

Associate Professor July 2013 – present
Wallace H. Coulter Department of Biomedical Engineering
Georgia Institute of Technology and Emory University

Adjunct April 2011 – present
School of Electrical and Computer Engineering
Georgia Institute of Technology

Adjunct February 2008 – present
School of Interactive Computing
Georgia Institute of Technology

Assistant Professor August 2007 – June 2013
Wallace H. Coulter Department of Biomedical Engineering
Georgia Institute of Technology and Emory University

Senior Research Scientist September 2006 – August 2007
Health Systems Institute and Wallace H. Coulter Department of Biomedical Engineering
Georgia Institute of Technology and Emory University

Postdoctoral Researcher September 2005 – July 2006
Computer Science and Artificial Intelligence Laboratory
Massachusetts Institute of Technology
Research Advisor: Rodney Brooks

Research Assistant December 1998 – May 2005
AI Lab and Computer Science and Artificial Intelligence Laboratory
Massachusetts Institute of Technology
Research Advisor: Rodney Brooks

3 Teaching

3.1 Individual Student Guidance

3.1.1 Postdoctoral Fellows

PAST

Chih Hung “Aaron” King

advising period: summer 2009 - February 2012
Current position: Research Scientist at DTI Robotics US Inc.

3.1.2 Ph.D. Students

PAST

Tiffany Chen

Graduated with PhD in 2014
Thesis: Haptic Interaction Between Naive Participants and Mobile Manipulators in the Context of Healthcare
Current position: Principal Research Scientist & Assistant Project Manager at Toyota Partner Robot Group
NSF Graduate Research Fellow (2009-2012)
Advising period: fall 2008 - April 2014
Biomedical Engineering (BME) home school, Robotics PhD program

Marc Killpack

Graduated with PhD in winter 2013
Thesis: Model Predictive Control with Haptic Feedback for Robot Manipulation in Cluttered Scenarios
Current position: Tenure-track assistant professor in the Department of Mechanical Engineering at Brigham Young University (BYU)
Advising period: summer 2009 - November 2013
Mechanical Engineering (ME) home school, Robotics PhD program

Hai Nguyen

Graduated with PhD in winter 2013
Thesis: Constructing Mobile Manipulation Behaviors Using Expert Interfaces and Autonomous Robot Learning
Current position: Robotics Engineer at Bosch Research and Technology Center
Advising period: fall 2007 - November 2013
Interactive Computing (IC) home school, Robotics PhD program

Advait Jain

Successfully defended dissertation on July 20, 2012
Thesis: Mobile Manipulation in Unstructured Environments with Haptic Sensing and Compliant Joints
Current position: Google (Cofounder of Redwood Robotics acquired by Google)
TI:GER Fellow (2010-2012)
Advising period: fall 2007 - summer 2012
Interactive Computing (IC) home school, Robotics PhD program

Travis Deyle

Graduated with PhD in winter 2011

Thesis: Ultra High Frequency (UHF) Radio-Frequency Identification (RFID) for Robot Perception and Mobile Manipulation

Current position: Google[x] (previously at Lollipuff as Cofounder)

NSF Graduate Research Fellow (2007-2010)

Advising period: fall 2007 - fall 2011

Electrical and Computer Engineering (ECE) home school, ECE PhD program

Young Sang Choi

Graduated with PhD in summer 2009

Thesis: A Study of Human-Robot Interaction with an Assistive Robot to Help People with Severe Motor Impairments

Current position: Senior researcher at the Samsung Advanced Institute of Technology (SAIT)

Advising period: spring 2008 - summer 2009

Industrial and Systems Engineering (ISyE) home school, ISyE PhD program

CURRENT**Phillip Grice**

NSF Graduate Research Fellow

Current topic: Robotic Manipulation Around the Human Body for Assistance

Advising period: fall 2010 - present

Biomedical Engineering (BME) home school, Robotics PhD program

Tapomayukh Bhattacharjee

Current topic: Tactile Sensing and Physical Human-Robot Interaction

Advising period: fall 2011 - present

Biomedical Engineering (BME) home school, Robotics PhD program

Daehyung Park

Current topic: Intelligent Robot Manipulation

Advising period: fall 2012 - present

Interactive Computing (IC) home school, Robotics PhD program

Ari Kapusta

Advising period: spring 2013 - present

Mechanical Engineering (ME) home school, Robotics PhD program

Yash Chitalia

Advising period: fall 2014 - present

Mechanical Engineering (ME) home school, Robotics PhD program

3.1.3 M.S. Students Who Have Conducted Research in Dr. Kemp's Lab**PAST**

Jeffrey Hawke	fall 2012 - spring 2013	Mechanical Engineering
Victor Emeli	fall 2011 - fall 2012	Electrical and Computer Engineering
Kelsey Hawkins	fall 2010 - summer 2012	College of Computing
Jason Okerman	spring 2010	Electrical and Computer Engineering
Zhengqin "James" Fan	summer 2009 - spring 2010	Applied Physiology
Martin Schuster	fall 2009 - spring 2010	College of Computing
Jae Wook Yoo	summer 2009	College of Computing
Aaron Bozorg	spring 2009	College of Computing
Abhishek Bhatkhande	spring 2009	Industrial and Systems Engineering
Guilain Bohineust	spring 2009	College of Computing
Zhe "Joseph" Xu	fall 2007 - summer 2008	Health Systems Institute
Cressel Anderson	fall 2007 - fall 2008	Electrical and Computer Engineering

CURRENT

Newton K. Chan	spring 2015 - present	Mechanical Engineering
Ashwin A. Shenoi	fall 2014 - present	Electrical and Computer Engineering
Kevin Chow	fall 2012 - present	Mechanical Engineering

3.1.4 Undergraduate Students Who Have Conducted Research in Dr. Kemp's Lab

PAST

Christopher Birmingham	summer 2014	SURE Robotics student (now Marshall Scholar)
Caleb Little	summer 2014	SURE Robotics student
Connor Eaton	summer 2013 - spring 2014	Biomedical Engineering
Yen Huang	fall 2013 - spring 2014	Biomedical Engineering
Inez Raharjo	summer 2013 - spring 2014	Biomedical Engineering
Jacquelyn Borinski	spring 2013 - spring 2014	Biomedical Engineering
Sarvagya Vaish	spring 2012 - spring 2013	Electrical and Computer Engineering
Anjana Kallarackal	fall 2012	Biomedical Engineering
Ishwarya Venkatachalam	fall 2011 - fall 2012	College of Computing
Jasmine Lawrence	spring 2012 - fall 2012	College of Computing
Ahalya Prabhakar	summer 2012	Caltech Mechanical Engineering
Fang Qi	spring 2012 - summer 2012	Biomedical Engineering
Akhil Kumar	spring 2012	Biomedical Engineering
Joel Mathew	spring 2010 - fall 2011	Mechanical Engineering
Kayode Sanni	summer 2011	SURE student
Mrinal "Neil" Rath	spring 2009 - spring 2011	Biomedical Engineering
Kristina Falkenstrom	fall 2009 & spring 2010	Biomedical Engineering
Alex McNeely	summer 2009 and summer 2010	ARTSI student
Aakanksha Gupta	fall 2009	Biomedical Engineering
Christopher Romano	summer 2009	Chemical and Biomolecular Engineering
Hamza Darb	summer 2009	Biomedical Engineering
Ian Guthridge	fall 2008	College of Computing
Khang Nguyen	fall 2008	Biomedical Engineering
Carlos Torres	summer 2008	SURE student
Sugandha Arora	summer 2008	SURE student

CURRENT

Hyder Hasnain	spring 2015 - present	Biomedical Engineering
Megan Rich	summer 2014 - present	Biomedical Engineering (Petit Scholar)
Joshua C. Wade	fall 2013 - present	Mechanical Engineering
You-Keun Kim	spring 2013 - present	Biomedical Engineering

3.2 Other Teaching Activities

3.2.1 New Courses Developed

BMED 8813 : Haptic Manipulation in Biology and Robotics (fall 2011)

New graduate-level seminar course Dr. Kemp developed that focuses on the role of haptic sensing during biological manipulation, and how principles of haptic manipulation from biology can be applied to robotics.

4632B/8803 : Advanced Intelligent Robotics - Mobile Manipulation (spring 2007)

Co-instructor with Henrik Christensen on new graduate level course. Developed and presented lectures, and advised students on projects. Students used a mobile manipulator to prepare and serve coffee.

3.2.2 Existing Courses

Instructor

BMED 3400 : Introduction to Biomechanics	spring/fall 2008, fall 2009, spring 2010, fall 2012, spring/fall 2013, spring/fall 2014, spring 2015
BMED 1300 : Problems in Biomedical Engineering I	spring 2009, spring 2011
BMED 3510 : Biomedical Systems and Modeling	fall 2010

Co-instructor

8750/8751: Multidisciplinary Robotics Research fall 2007, spring/fall 2008 - 2015

Guest Lectures

BMED 7002 : Teaching Practicum	October 6, 2014
DPT 988 at Emory : Interfacing Engineering Technology and Rehabilitation	April 10, 2014
ROB 7785 : Intro to Robotics	Once in fall 2011, 2012, 2013
BMED 4400 : Neuroengineering Fundamentals	March 8, 2010
CS 3630 : IPR - Introduction to Perception and Robotics	February 25, 2010
CS 3600 : Introduction to Artificial Intelligence	April 3, 2009
HS 6300 : Health Systems Information Technology	February 9, 2007

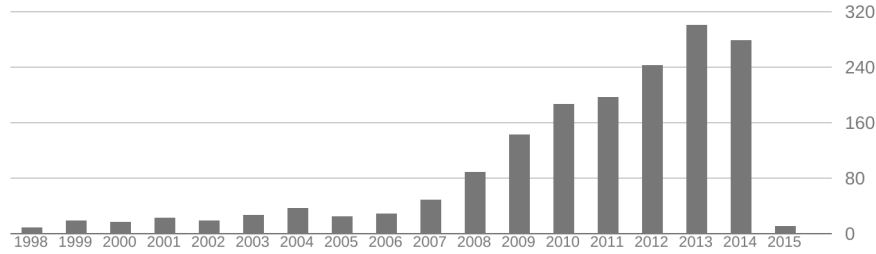
4 Scholarly Accomplishments

As of January 28, 2015, Google Scholar provides the following estimates of citation indices for Dr. Kemp on his Google Scholar profile page with a list of Dr. Kemp's publications curated by Dr. Kemp:

	All	Since 2010
Citations	1728	1221
h-index	23	20
i10-index	41	36

A chart of citations to Dr. Kemp's work over time from Google Scholar on January 28, 2015 follows: Details can be found on Dr. Kemp's Google Scholar profile page via the following link:

<http://scholar.google.com/citations?hl=en&user=uh7PNBoAAAAJ>



4.1 Published Books and Parts of Books

1. Charles C. Kemp, Paul Fitzpatrick, Hirohisa Hirukawa, Kazuhito Yokoi, Kensuke Harada, and Yoshio Matsumoto. *Springer Handbook of Robotics*, chapter 56: Humanoids, pages 1307–1333. Springer, July 2008
2. Aaron Edsinger and Charles C. Kemp. *Recent Progress in Robotics: Viable Robotic Service to Human*, volume 370 of *Lecture Notes in Control and Information Sciences*, chapter : Two Arms Are Better Than One: A Behavior Based Control System for Assistive Bimanual Manipulation, pages 345–355. Springer, Berlin / Heidelberg, 2008

4.2 Refereed Publications

The following quote describes the contents of this section. It is from the Georgia Institute of Technology, College of Engineering standard format CV for reappointment, promotion, and tenure for academic year 2011-2012:

*“List all refereed journal publications, then refereed conference proceedings, and then other refereed materials. **Refereed means a full paper, not an abstract, reviewed by two or more peers.** Review by an editor is not considered refereed. Include those accepted or submitted and indicate their status. Do not include working papers.”*

4.2.1 Refereed Journal Publications

3. Cory-Ann Smarr, Tracy L. Mitzner, Jenay M. Beer, Akanksha Prakash, Tiffany L. Chen, Charles C. Kemp, and Wendy A. Rogers. Domestic robots for older adults: Attitudes, preferences, and potential. *International Journal of Social Robotics*, 6(2):229–247, 2014
4. TracyL. Mitzner, Tiffany L. Chen, Charles C. Kemp, and Wendy A. Rogers. Identifying the potential for robotics to assist older adults in different living environments. *International Journal of Social Robotics*, 6(2):213–227, 2014
5. Hai Nguyen and Charles C. Kemp. Autonomously learning to visually detect where manipulation will succeed. *Autonomous Robots*, pages 1–16, 2013
6. Tiffany L. Chen, Chih-Hung Aaron King, Andrea L. Thomaz, and Charles C. Kemp. An investigation of responses to robot-initiated touch in a nursing context. *International Journal of Social Robotics*, pages 1–21, 2013
7. Advait Jain and Charles C. Kemp. Improving robot manipulation with data-driven object-centric models of everyday forces. *Autonomous Robots*, 35:143–159, 2013
8. Advait Jain, Marc D. Killpack, Aaron Edsinger, and Charles C. Kemp. Reaching in clutter with whole-arm tactile sensing. *The International Journal of Robotics Research*, 32(4):458–482, 2013

9. Tiffany L. Chen, Matei Ciocarlie, Steve Cousins, Phillip Grice, Kelsey Hawkins, Kaijen Hsiao, Charles C. Kemp, Chih-Hung King, Daniel A. Lazewatsky, Adam Leeper, Hai Nguyen, Andreas Paepcke, Caroline Pantofaru, William D. Smart, and Leila Takayama. Robots for humanity: Using assistive robotics to empower people with disabilities. *IEEE Robotics & Automation Magazine*, 20:30–39, 2013
10. Chih-Hung King, Tiffany L. Chen, Zhengqin Fan, Jonathan D. Glass, and Charles C. Kemp. Dusty: an assistive mobile manipulator that retrieves dropped objects for people with motor impairments. *Disability and Rehabilitation: Assistive Technology*, 7(2):168–179, 2012. PMID: 22013888
11. Tiffany L. Chen and Charles C. Kemp. A direct physical interface for navigation and positioning of a robotic nursing assistant. *Advanced Robotics*, 25(5):605–627, 2011
12. Travis Deyle, Hai Nguyen, Matt Reynolds, and Charles C. Kemp. Rfid-guided robots for pervasive automation. *IEEE Pervasive Computing*, 9(2):37–45, April-June 2010
13. Advait Jain and Charles C. Kemp. El-e: An assistive mobile manipulator that autonomously fetches objects from flat surfaces. *Autonomous Robots*, 28(1):45–64, January 2010
14. Charles C. Kemp, Aaron Edsinger, and Eduardo Torres-Jara. Challenges for robot manipulation in human environments. *IEEE Robotics & Automation Magazine*, 14(1):20–29, March 2007
15. Rodney Brooks, Lijin Aryananda, Aaron Edsinger, Paul Fitzpatrick, Charles Kemp, Una-May O’Reilly, Eduardo Torres-Jara, Paulina Varshavskaya, and Jeff Weber. Sensing and manipulating built-for-human environments. *International Journal of Humanoid Robotics (IJHR)*, 1:1–28, March 2004

4.2.2 Refereed Conference Publications

16. Kelsey Hawkins, Phillip M. Grice, Tiffany L. Chen, Chih-Hung King, and Charles C. Kemp. Assistive mobile manipulation for self-care tasks around the head. In *2014 IEEE Symposium on Computational Intelligence in Robotic Rehabilitation and Assistive Technologies*, December 2014
17. Daehyung Park, Ariel Kapusta, Jeffrey Hawke, and Charles C. Kemp. Interleaving planning and control for efficient haptically-guided reaching in unknown environments. In *IEEE-RAS International Conference on Humanoid Robots (Humanoids)*, 2014
18. Travis Deyle, Matt Reynolds, and Charles C. Kemp. Finding and navigating to household objects with uhf rfid tags by optimizing rf signal strength. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2014
19. Daehyung Park, Ariel Kapusta, You Keun Kim, James M. Rehg, and Charles C. Kemp. Learning to reach into the unknown: Selecting initial conditions when reaching in clutter. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2014
20. Akanksha Prakash, Charles C. Kemp, and Wendy A. Rogers. Older adults’ reactions to a robot’s appearance in the context of home use. In *Proceedings of the 2014 ACM/IEEE International Conference on Human-robot Interaction*, pages 268–269, New York, NY, USA, 2014. ACM
21. Marc D. Killpack and Charles C. Kemp. Fast reaching in clutter while regulating forces using model predictive control. In *IEEE-RAS International Conference on Humanoid Robots (Humanoids)*, 2013
22. Tapomayukh Bhattacharjee, Ariel Kapusta, James M. Rehg, and Charles C. Kemp. Rapid categorization of object properties from incidental contact with a tactile sensing robot arm. In *IEEE-RAS International Conference on Humanoid Robots (Humanoids)*, 2013
23. Phillip M. Grice, Marc D. Killpack, Advait Jain, Sarvagya Vaish, Jeffrey Hawke, and Charles C. Kemp. Whole-arm tactile sensing for beneficial and acceptable contact during robotic assistance. In *13th International Conference on Rehabilitation Robotics (ICORR)*, 2013

24. Tapomayukh Bhattacharjee, Advait Jain, Sarvagya Vaish, Marc D. Killpack, and Charles C. Kemp. Tactile sensing over articulated joints with stretchable sensors. In *IEEE World Haptics Conference (WHC)*, April 2013
25. Hai Nguyen, Matei Ciocarlie, Kaijen Hsiao, and Charles C. Kemp. Ros commander (rosco): Behavior creation for home robots. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2013
26. Travis Deyle, Christopher Tralie, Matthew Reynolds, and Charles C. Kemp. In-hand radio frequency identification (rfid) for robotic manipulation. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2013
27. Akanksha Prakash, Jenay M. Beer, Travis Deyle, Tiffany L. Chen Cory-Ann Smarr, Tracy L. Mitzner, Charles C. Kemp, and Wendy A. Rogers. Older adults medication management in the home: How can robots help? In *ACM/IEEE international conference on Human-Robot Interaction*. ACM, 2012
28. Tapomayukh Bhattacharjee, James M. Rehg, and Charles C. Kemp. Haptic classification and recognition of objects using a tactile sensing forearm. In *International Conference on Intelligent Robots and Systems (IROS)*, 2012
29. Kelsey Hawkins, Chih-Hung King, Tiffany Chen, and Charles C. Kemp. Informing assistive robots with models of contact forces from able-bodied face wiping and shaving. In *21st IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, 2012
30. Phillip Grice, Andy Lee, Henry W. Evans, and Charles C. Kemp. The wouse: A wearable wince detector to stop assistive robots. In *21st IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, 2012
31. Cory-Ann Smarr, Akanksha Prakash, Jenay Beer, Tracy Mitzner, Charlie Kemp, and Wendy Rogers. Older adults preferences for and acceptance of robot assistance for everyday living tasks. In *Human Factors and Ergonomics Society's 56th Annual Meeting (HFES)*, 2012
32. Jenay M. Beer, Cory-Ann Smarr, Akanksha Prakash, Tracy Mitzner, Charlie Kemp, and Wendy Rogers. "telling your robot what to do" older adults preferences for controlling home robots. In *Human Factors and Ergonomics Society's 56th Annual Meeting (HFES)*, 2012
33. Jenay M. Beer, Cory-Ann Smarr, Tiffany L. Chen, Akanksha Prakash, Tracy L. Mitzner, Charles C. Kemp, and Wendy A. Rogers. The domesticated robot: design guidelines for assisting older adults to age in place. In *Proceedings of the seventh annual ACM/IEEE international conference on Human-Robot Interaction*, pages 335–342. ACM, 2012
34. Tracy L. Mitzner, Tiffany L. Chen, Charles C. Kemp, and Wendy A. Rogers. Older adults needs for assistance as a function of living environment. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 55(1):152–156, 2011
35. Tiffany L. Chen, Chih-Hung King, Andrea L. Thomaz, and Charles C. Kemp. Touched by a robot: an investigation of subjective responses to robot-initiated touch. In *Proceedings of the 6th international conference on Human-robot interaction*, pages 457–464. ACM, 2011
36. Martin Schuster, Jason Okerman, Hai Nguyen, James M. Rehg, and Charles C. Kemp. Perceiving clutter and surfaces for object placement in indoor environments. In *Humanoid Robots (Humanoids), 2010 10th IEEE-RAS International Conference on*, pages 152–159. IEEE, 2010
37. Chih-Hung King, Tiffany Chen, Advait Jain, and Charles C. Kemp. Towards an assistive robot that autonomously performs bed baths for patient hygiene. In *Intelligent Robots and Systems (IROS), 2010 IEEE/RSJ International Conference on*, pages 319–324. IEEE, 2010

38. Jurgen Sturm, Advait Jain, Cyrill Stachniss, Charles C. Kemp, and Wolfram Burgard. Operating articulated objects based on experience. In *Intelligent Robots and Systems (IROS), 2010 IEEE/RISJ International Conference on*, pages 2739–2744. IEEE, 2010
39. Marc Killpack, Travis Deyle, Cressel Anderson, and Charles C. Kemp. Visual odometry and control for an omnidirectional mobile robot with a downward-facing camera. In *Intelligent Robots and Systems (IROS), 2010 IEEE/RISJ International Conference on*, pages 139–146. IEEE, 2010
40. Advait Jain, Hai Nguyen, Mrinal Rath, Jason Okerman, and Charles C. Kemp. The complex structure of simple devices: A survey of trajectories and forces that open doors and drawers. In *Biomedical Robotics and Biomechatronics (BioRob), 2010 3rd IEEE RAS and EMBS International Conference on*, pages 184–190. IEEE, 2010
41. Chih-Hung King, Marc D. Killpack, and Charles C. Kemp. Effects of force feedback and arm compliance on teleoperation for a hygiene task. In *EuroHaptics*, pages 248–255. Springer, 2010
42. Advait Jain and Charles C. Kemp. Pulling open doors and drawers: Coordinating an omni-directional base and a compliant arm with equilibrium point control. In *Robotics and Automation (ICRA), 2010 IEEE International Conference on*, pages 1807–1814. IEEE, 2010
43. Tiffany L. Chen and Charles C. Kemp. Lead me by the hand: evaluation of a direct physical interface for nursing assistant robots. In *Proceeding of the 5th ACM/IEEE international conference on Human-robot interaction*, pages 367–374. ACM, 2010
44. Advait Jain and Charles C. Kemp. Pulling open novel doors and drawers with equilibrium point control. In *Humanoid Robots, 2009. Humanoids 2009. 9th IEEE-RAS International Conference on*, pages 498–505. IEEE, 2009
45. Travis Deyle, Hai Nguyen, Matt Reynolds, and Charles C. Kemp. Rf vision: Rfid receive signal strength indicator (rssi) images for sensor fusion and mobile manipulation. In *Proceedings of the IEEE/RISJ International Conference on Intelligent Robots and Systems (IROS)*, pages 5553–5560, October 2009
46. Young Sang Choi, Tiffany Chen, Advait Jain, Cressel Anderson, Jonathan D. Glass, and Charles C. Kemp. Hand it over or set it down: A user study of object delivery with an assistive mobile manipulator. In *Proceedings of the IEEE 18th International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 736–743, September 2009
47. Young Sang Choi, Travis Deyle, Tiffany Chen, Jonathan D. Glass, and Charles C. Kemp. A list of household objects for robotic retrieval prioritized by people with als. In *Proceedings of the IEEE 11th International Conference on Rehabilitation Robotics (ICORR)*, pages 510–517, June 2009
48. Zhe Xu, Travis Deyle, and Charles C. Kemp. 1000 trials: An empirically validated end effector that robustly grasps objects from the floor. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pages 2160–2167, May 2009
49. Alex Trevor, Hae Won Park, Ayanna Howard, and Charles C. Kemp. Playing with toys: Towards autonomous robot manipulation for therapeutic play. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pages 2139–2145, May 2009
50. Hai Nguyen and Charles C. Kemp. Bio-inspired assistive robotics: Service dogs as a model for human-robot interaction and mobile manipulation. In *Proceedings of the IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob 2008)*, pages 542–549, October 2008
51. Young Sang Choi, Cressel Anderson, Jonathan D. Glass, and Charles C. Kemp. Laser pointers and a touch screen: Intuitive interfaces to an autonomous mobile robot for the motor impaired. In *Proceedings of the 10th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2008)*, pages 225–232, October 2008

52. Hai Nguyen, Advait Jain, Cressel Anderson, and Charles C. Kemp. A clickable world: Behavior selection through pointing and context for mobile manipulation. In *Proceedings of the IEEE/RJS International Conference on Intelligent Robots and Systems (IROS)*, pages 787–793, September 2008
53. Travis Deyle, Charles C. Kemp, and Matt Reynolds. Probabilistic uhf rfid tag pose estimation with multiple antennas and a multipath rf propagation model. In *Proceedings of the IEEE/RJS International Conference on Intelligent Robots and Systems (IROS)*, pages 1379–1384, September 2008
54. Travis Deyle, Cressel Anderson, Charles C. Kemp, and Matt Reynolds. A foveated passive uhf rfid system for mobile manipulation. In *Proceedings of the IEEE/RJS International Conference on Intelligent Robots and Systems (IROS)*, pages 3711–3716, September 2008
55. Ayanna Howard, Hae Won Park, and Charles C. Kemp. Extracting play primitives for a robot playmate by sequencing low-level motion behaviors. In *Proceedings of the IEEE 17th International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 360–365, August 2008
56. Charles C. Kemp, Cressel Anderson, Hai Nguyen, Alexander J. Trevor, and Zhe Xu. A point-and-click interface for the real world: Laser designation of objects for mobile manipulation. In *Proceedings of the 3rd ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, pages 241–248, March 2008
57. Aaron Edsinger and Charles C. Kemp. Human-robot interaction for cooperative manipulation: Handing objects to one another. In *Proceedings of the 16th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, pages 1167–1172, August 2007
58. Aaron Edsinger and Charles C. Kemp. Two arms are better than one: A behavior-based control system for assistive bimanual manipulation. In *Proceedings of the 13th International Conference on Advanced Robotics (ICAR)*, August 2007
59. Aaron Edsinger and Charles C. Kemp. Manipulation in human environments. In *Proceedings of the IEEE-RAS International Conference on Humanoid Robotics (Humanoids06)*, pages 102–109, December 2006
60. Aaron Edsinger and Charles C. Kemp. What can i control? a framework for robot self-discovery. In *Proceedings of the Sixth International Conference on Epigenetic Robotics (EpiRob 2006)*, September 2006
61. Charles C. Kemp and Aaron Edsinger. What can i control?: The development of visual categories for a robot’s body and the world that it influences. In *Proceedings of the 5th IEEE International Conference on Development and Learning (ICDL5): Special Session on Perceptual Systems and their Development (<http://www.mentaldev.org/>)*, June 2006
62. Charles C. Kemp and Aaron Edsinger. Robot manipulation of human tools: Autonomous detection and control of task relevant features. In *Proceedings of the 5th IEEE International Conference on Development and Learning (ICDL5): Special Session on Classifying Activities in Manual Tasks (<http://www.mentaldev.org/>)*, June 2006
63. Paul Fitzpatrick and Charles C. Kemp. Shoes as a platform for vision. In *Proceedings of the Seventh IEEE International Symposium on Wearable Computers (ISWC)*, pages 231–234, October 2003
64. Charles C. Kemp. Duo: A human/wearable hybrid for learning about common manipulable objects. In *Proceedings of the Third IEEE International Conference on Humanoid Robots (Humanoids 2003)*, October 2003
65. Artur Arsenio, Paul Fitzpatrick, Charles C. Kemp, and Giorgio Metta. The whole world in your hand: Active and interactive segmentation. In *Proceedings of the Third International Workshop on Epigenetic Robotics*, volume 101, pages 49–56. Lund University Cognitive Studies, 2003

66. Rodney A. Brooks, Cynthia Breazeal (Ferrell), Robert Irie, Charles C. Kemp, Matthew Marjanovic, Brian Scassellati, and Matthew M. Williamson. Alternative essences of intelligence. In *Proceedings of the Fifteenth National Conference on Artificial Intelligence (AAAI-98)*, pages 961–968, September 1998

4.2.3 Refereed Workshop Publications

67. Tapomayukh Bhattacharjee, Phillip M. Grice, Ariel Kapusta, Marc D. Killpack, Daehyung Park, and Charles C. Kemp. A robotic system for reaching in dense clutter that integrates model predictive control learning haptic mapping and planning. In *IROS 2014 workshop: 3rd Workshop on Robots in Clutter: Perception and Interaction in Clutter*, 2014
68. Hai Nguyen and Charles C. Kemp. Autonomous active learning of task-relevant features for mobile manipulation. In *RSS 2011 Workshop – Mobile Manipulation: Learning to Manipulate*, June 2011
69. Hai Nguyen, Travis Deyle, Matt Reynolds, and Charles C. Kemp. Pps-tags: Physical, perceptual and semantic tags for autonomous mobile manipulation. In *IROS Workshop: Semantic Perception for Mobile Manipulation*, October 2009
70. Advait Jain and Charles C. Kemp. Behaviors for robust door opening and doorway traversal with a force-sensing mobile manipulator. *RSS Manipulation Workshop: Intelligence in Human Environments*, June 2008
71. Hai Nguyen, Cressel Anderson, Alexander J. Trevor, Advait Jain, Zhe Xu, and Charles C. Kemp. El-e: An assistive robot that fetches objects from flat surfaces. In *Technical Report 470: Proceedings of "Robotic Helpers: User Interaction, Interfaces and Companions in Assistive and Therapy Robotics", a Workshop at ACM/IEEE HRI 2008, Amsterdam, the Netherlands*. University of Hertfordshire, UK, March 2008
72. Cynthia B. Ferrell and Charles C. Kemp. An ontogenetic perspective to scaling sensorimotor intelligence. In *Embodied Cognition and Action: Papers from the 1996 AAAI Fall Symposium*, 1996

4.3 Other Publications

The following quote describes the contents of this section. It is from the Georgia Institute of Technology College of Engineering standard format CV for reappointment, promotion, and tenure for academic year 2011-2012:

“List all other publications that are not otherwise included in Sections IV. A. and B. Do not list (here or elsewhere) M.S. or Ph.D. theses, or research reports that are contractual obligations of the completion of research grants and contracts.”

73. Tapomayukh Bhattacharjee, James M. Rehg, and Charles C. Kemp. Inferring object properties from incidental contact with a tactile sensing forearm. Technical Report arXiv:1409.4972, September 2014
74. Victor Emeli, Alan R. Wagner, and Charles C. Kemp. A robotic system for autonomous medication and water delivery. Technical Report GT-IC-12-01, Georgia Institute of Technology, 2012
75. Victor Emeli, Charles C. Kemp, and Mike Stilman. Push planning for object placement in clutter using the pr-2. In *IROS 2011: The PR2 Workshop*, 2011
76. Tracy L. Mitzner, Cory-Ann Smarr, Jenay M. Beer, Tiffany L. Chen, Jennifer M. Springman, Akanksha Prakash, Charles C. Kemp, and Wendy A. Rogers. Older adults’ acceptance of assistive robots for the home. Technical Report HFA-TR-1105, Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory, 2011

77. Zhengqin Fan, Chih-Hung King, Hamza Darb, and Charles C. Kemp. Dusty: A teleoperated assistive mobile manipulator that retrieves objects from the floor. In *Second Quality of Life Technology Symposium*, 2010
78. Advait Jain and Charles C. Kemp. Behavior-based door opening with equilibrium point control. In *RSS Workshop: Mobile Manipulation in Human Environments*, June 2009
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4.4 Presentations

4.4.1 External Invited Talks

Kinross Wolaroi School (KWS) Speech Day in Australia via Skype with Henry Evans (~ 1200 attendees), December 2014

American Institute for Medical and Biological Engineering (AIMBE) Annual Meeting, March 2014

Rehabilitative and Regenerative Medicine for Minority Health and Health Disparities (REMEDY) at Morehouse School of Medicine, June 2014

Humanoids, Workshop “From Safety to Comfort in the Humanoid Coworker and Assistant”, October 2013

Human-Robot Interaction (HRI), Workshop on Collaborative Manipulation, March 2013

1st Piper Health Solutions Workshop on Rehabilitation Robotics at ASU, February 23, 2013

Atlanta Chapter of the IEEE Engineering in Medicine and Biology Society (EMBS), January 31, 2013

Early Career Spotlight talk at Robotics: Science and Systems (RSS), July 2012

Workshop on Robots in Clutter at Robotics: Science and Systems (RSS), July 2012

Cornell, Feb. 2, 2012

IEEE Workshop on Advanced Robotics and its Social Impacts (ARSO), Oct. 2, 2011
IEEE Int'l Conference on Intelligent Robots and Systems (IROS), The PR2 Workshop, Sept. 30, 2011
IROS, Workshop on Active Semantic Perception and Object Search in the Real World, Sept. 26, 2011
IROS, Workshop on Knowledge Representation for Autonomous Robots, Sept. 25, 2011
State of the Science Conference on Workplace Accommodations, April 26, 2011
TU Munich, Germany, October 8, 2010
Learning, Planning and Sharing Robot Knowledge for HRI, Dagstuhl Castle, Germany, Oct. 2010
PR2 Beta Program Workshop, May 27, 2010
IEEE Int'l Conference on Robotics and Automation (ICRA), Mobile Manipulation Workshop, May 7, 2010
CMU: Robotics Institute Seminar, October 31, 2008
Third Interlink-Workshop on Intelligent Cognitive Systems, September 2008
ARTSI Faculty Summer Workshop, August 6, 2008
AAAI Workshop on Mobility and Manipulation, July 14, 2008
Robotics@Intel: Personal Robotics and Mobile Manipulation Workshop, Intel Headquarters, June 12, 2008
University of Cambridge, Daniel Wolpert's lab, Cambridge, UK, July 2007
International Conference on Development and Learning (ICDL), London, UK, July 2007

4.4.2 Internal Invited Talks

The Petit Institute Breakfast Club, August 12, 2014
SURE Robotics REU research seminar series, June 5, 2014
SURE REU research seminar series, July 18, 2013
Southern Society for Clinical Surgeons Meeting, April 18, 2012
Georgia Tech Homecoming Talk for Alumni, October 28, 2011
TRIBES-GTRI Workshop, March 30, 2011
Family Weekend Talk for BME, September 24, 2010
GVU Brown Bag Lecture, November 18, 2010
Engineering Psychology Colloquium, February 2, 2010
RIM Center Talks for GT Development, January 25, 2010
GVU Brown Bag Lecture, November 13, 2008
Deka and Dean Kamen Visit, Student Center Theater, May 2, 2008
Health Systems Student Symposium keynote presentation, April 27, 2007

4.4.3 Conference & Workshop Presentations

RIM Center: Conference on Us, Georgia Tech, March 3, 2012
Second International Symposium on Quality of Life Technology, June 28, 2010
International Conference on Biomedical Robotics and Biomechatronics (BioRob), October 2008
HRI: Workshop on Helper Robots, March 12, 2008
Sixth International Conference on Epigenetic Robotics, September 2006
International Conference on Development and Learning (ICDL), June 2006
NASA Kennedy Space Center, May 2006
PyCon2006, February 2006
Workshop on Humanoid Manipulation at Robotics: Science & Systems, June 2005
International Symposium on Wearable Computers, 2004
International Symposium on Wearable Computers, 2003
IEEE International Conference on Humanoid Robots, 2003
DARPA Omni LifeLog Workshop, 2002
AAAI Fall Symposium: Embodied Cognition and Action, 1996

4.5 Other Scholarly Accomplishments

Dr. Kemp's lab has released open source software under the BSD license. Code from his lab has been used by people across the world, including researchers at the University of Tokyo, Bosch, UPenn, and other Georgia Tech labs. The repository found via the following link hosts code from Dr. Kemp's lab:

<https://github.com/gt-ros-pkg/>

Links to other open source code and open hardware from Dr. Kemp's lab can be found on his lab's website via the following link:

<http://healthcare-robotics.com>

5 Service

5.1 Professional Contributions

5.1.1 Organizing

2013	Tour Co-Chair	IEEE-RAS International Conference on Humanoid Robots (Humanoids)
2009, 2010	Associate Editor	International Conference on Robotics and Automation (ICRA)
2008-2011	Editorial Board	International Journal of Human-Computer Interaction (IJHCI)
2009	Guest Editor	Autonomous Robots, Special Issue on Autonomous Mobile Manipulation
2008	Publicity Chair	International Conference on Development and Learning (ICDL)
2008	Workshop Chair	Robotics: Science and Systems Conference (RSS)
2008	Co-Organizer	RSS Manipulation Workshop: Intelligence in Human Environments
2007	Lead Organizer	RSS Manipulation Workshop: Sensing and Adapting to the Real World
2006	Lead Organizer	RSS Workshop: Manipulation for Human Environments

5.1.2 Reviewing

NSF

2012	Panel	Washington DC
2011	Adhoc	
2009	Panel	Washington DC
2008	Panel	Washington DC
2008	Adhoc	

EU

2011 & 2012 Served on three person panel for 3rd and 4th year reviews of DEXMART, an FP7 large scale integrating project (8.12 million euro) with 8 institutions involved. Reviews were held at DLR and at the Karlsruhe Institute of Technology.

2009 External Reviewer for Mario Prats Sanchez's Doctoral Thesis at Jaume I University, Castellón de la Plana, Spain (His thesis won the Georges Giralt PhD Award).

Canada

2009 Canada Foundation for Innovation (CFI), Leaders Opportunity Fund (LOF)

Conferences

2008, 2010, 2013	International Conference on Robotics and Automation (ICRA)
2012	IEEE-RAS International Conference on Humanoid Robots (Humanoids)
2011	Proceedings of the IEEE
2009-2010	ACM Conference on Human Factors in Computing Systems (CHI)
2007-2009, 2014	International Conference on Intelligent Robots and Systems (IROS)
2009	RSS Workshop: Mobile Manipulation in Human Environments
2009	IEEE International Conference on Rehabilitation Robotics (ICORR)
2009	IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)
2008-2009	ACM/IEEE International Conference on Human-Robot Interaction (HRI)
2008-2009	International Symposium on Robot and Human Interactive Communication (RO-MAN)
2009	IROS Workshop: Semantic Perception for Mobile Manipulation
2008-2009	Robotics: Science and Systems Conference (RSS)
2008	IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)
2007	Conference on Artificial Intelligence (AAAI)
2007-2008	International Conference on Development and Learning (ICDL)

Journals

2007-2008, 2011 - 2014	The International Journal of Robotics Research (IJRR)
2012	Transactions on Haptics
2006-2007, 2012	Robotics & Automation Magazine
2011	Proceedings of the IEEE
2008-2010	IEEE Transactions on Robotics (TRO)
2009, 2010	Intelligent Service Robotics
2008, 2010	IEEE Transactions on Systems, Man, and Cybernetics
2006-2009	International Journal of Human-Computer Interaction (IJHCI)
2008-2009	Interaction Studies
2009	International Journal of Social Robotics (IJSR)
2006-2007	International Journal of Humanoid Robotics (IJHR)

5.1.3 Participating

2012	US Service Robotics Roadmapping Workshop (held at UW)
2012	US Medical and Healthcare Robotics Roadmapping Workshop (held at USC)
2008	CRA/CCC Roadmapping for Robotics Workshop: Domestic and Professional Service Robotics

5.2 Campus Contributions

5.2.1 Standing Committees

fall 2007 - present	Robotics PhD Program Committee
fall 2012 - present	Undergraduate Curriculum Committee
fall 2009 - 2013	BME Young Innovator Speaker Series Selection Committee
fall 2007 - 2014	BME Admissions Committee

5.2.2 Dissertation Committees

<i>Year</i>	<i>Student</i>	<i>Advisor</i>	<i>PhD Program</i>
2013	Jenay Beer	Dan Fisk	Engineering Psychology
2013	Katherine E. Olson	Dan Fisk	Engineering Psychology
2012	Douglas A. Brooks	Ayanna Howard	ECE
2009	Sekou L. Remy	Ayanna Howard	ECE
2008	Leanne N. Metcalfe	Brani Vidakovic	BME
2007	Shane Migliore	Steve DeWeerth	ECE, BioE

5.2.3 Doctoral Preliminary Exam Committees

<i>Year</i>	<i>Student</i>	<i>Advisor</i>	<i>PhD Program</i>
2013	Cory-Ann Smarr	Dan Fisk	Engineering Psychology
2011	Jenay Beer	Dan Fisk	Engineering Psychology

5.2.4 Written Qualifying Exams

Dr Kemp contributed to the following parts of the Robotics PhD Program (ROBO) written qualifying exam.

<i>Year</i>	<i>Area(s)</i>	<i>PhD Program</i>
2014	Human-Robot Interaction	ROBO
2013	Autonomy and Human-Robot Interaction	ROBO
2012	Autonomy and Human-Robot Interaction	ROBO
2011	Human-Robot Interaction	ROBO
2010	Autonomy and Human-Robot Interaction	ROBO

5.2.5 Oral Qualifying Exams

Dr. Kemp contributed to examining the following students as part of oral qualifying exam committees.

<i>Year</i>	<i>Evaluated Student</i>	<i>Student's Advisor(s)</i>	<i>PhD Program</i>
2014	Sebastien Mamessier	Karen Feigh	ROBO
2013	Carol Young	Fumin Zhang	ROBO
2013	Ana Huaman	Mike Stilman	ROBO
2012	Baris Akgun	Andrea Thomaz	ROBO
2011	Tobias Kunz	Mike Stilman	ROBO
2011	Michael Novitzky	Tucker Balch	ROBO
2010	Crystal Chao	Andrea Thomaz	ROBO
2010	Neal Laxpati	Steve Potter and Bob Gross	BME
2009	Douglas Ollerenshaw	Garrett Stanley	BME
2008	Steven Brink	Paul Hasler and Robert Liu	BioE
2008	Frank Lin	Robert Liu and Robert Butera	BioE

5.2.6 Research Centers and Institutes

Dr. Kemp has been an active member of and contributor to the following research centers and institutes.

Institute for Robotics and Intelligent Machines (IRIM)	2013 - present
Center for Robotics and Intelligent Machines (RIM)	2006 - 2013
Institute for People and Technology (IPaT)	2011 - present
Health Systems Institute (HSI)	2006 - 2013

5.2.7 Events

Healthcare Robotics Research Summit: Lead Organizer, held at the Health Systems Institute, June 5, 2008

5.2.8 Reviewing

Health Systems Institute (HSI) Seed Grant Reviewer: 2007, 2008, 2009, 2010

5.3 Other Contributions

5.3.1 Select Examples of Broader Impact and Outreach Activities

2007 – 2015	Other lab tours, including for a Girl Scout group and Duke Talent Identification Program
2010 – 2014	National Robotics Week tours for Atlanta area high school students organized by RIM
2012	Robot demo (Dusty) to celebrate 100 days to Olympics for British Consulate Atlanta event
2010 – 2011	Hosted Dr. Mohamed Sahbi Bellamine, a Fulbright Fellow from Tunisia, for 10 months
2011	Release of commercial robot (Meka M1) inspired by robot from Dr. Kemp's lab (Cody)
2011 – 2012	Design of lab robot EL-E influences hobbyist robots (e.g., Maxwell & Pi Robot)
2009 – 2010	Atlanta Abilities Expo (Assistive Technology Pavilion) Presentations and Demos
2010	Demonstration at the ALS Association of Georgia Educational Symposium

5.3.2 Select Media Coverage

This section describes select popular media coverage of research from Dr. Kemp and his lab.

Sept 2014	CNET, <i>RFID helps robots locate objects</i> by Michelle Starr
Dec 2013	Reuters, <i>A sense of touch makes robots more "human"</i> by Ben Gruber
April 2013	The New York Times, <i>Researchers Put Sense of Touch in Reach for Robots</i> by John Markoff
July 2012	CBS Evening News on Robots for Humanity: <i>New robots giving the disabled independence</i>
Aug 2011	ABC News on Robots for Humanity: <i>Personal Robot Gives Paralyzed Man Daily Help</i>
Mar 2011	Story on <i>Touched by a Robot</i> research widely covered: Slashdot, IEEE Spectrum, ...
Feb 2011	PBS NOVA: <i>Social Robots</i> has Dr. Kemp, 2 lab robots, & robot delivery to older adult
Jan 2011	Interview with Dr. Kemp about Future of Healthcare Robotics (nextbigfuture.com)
May 2011	Lab's work featured in <i>I, Domestic Robot</i> in <i>Communications of the ACM</i>
Nov 2010	Robot skin cleansing (Cody) on NPR news, "Wait Wait... Don't Tell Me!", PopSci ...
Oct 2010	Dr. Kemp & T. Deyle on CNN: give live demo of RFID-guided robot delivery to Ali Velshi
Aug 2010	Interview with Dr. Kemp on <i>Inside The Black Box</i> , a WREK radio show
2009	Small robot that retrieves dropped objects (Dusty) in United Spinal Association Magazine
May 2009	Video of service dog research with EL-E shown on Good Morning America
Feb 2009	Service dog research with EL-E featured in Popular Mechanics (full page)
Dec 2008	CNN shows video of service dog research with EL-E
Oct 2008	Service dog research with EL-E on local Fox 5 News, EE Times, Engadget, Tech. Review ...
May 2008	GT Communications: EL-E 3rd biggest GT story for year (17.85x10 ⁶ potential views)
2008	EL-E coverage: USA Today, Newsweek, AJC, Times of India, Sydney Morning Herald ...
Mar 2008	The New York Times article on EL-E, a laser pointer controlled mobile manipulator
Mar 2008	Dr. Kemp quoted in Nursing Spectrum article on robots as assistants to nurses
Mar 2005	Interview & demo of wearable (thesis) on CNN (Dr. Sanjay Gupta's show)
2003	Interview & demo of wearable (thesis) on local news nationwide via Ivanhoe Productions

6 Honors and Awards

2014	Finalist for RoboCup Best Paper Award at IROS <i>(22 out of 1616 submitted papers were nominated for an award - 1.36%)</i>
2013	Best paper finalist, IEEE-RAS International Conference on Humanoid Robots
2012	Atlanta Magazine Groundbreaker Award for the robot GATSBII <i>(awarded to Prof. Wendy Rogers, Prof. Charlie Kemp, and their team)</i>
2012	NSF CAREER Award
2011	Georgia Tech Research Corporation Robotics Award <i>(first time given, single robotics award across campus)</i>
2011	3M Non-Tenured Faculty Award
2010	Finalist for KUKA Service Robotics Best Paper Award at ICRA <i>(36 out of 2034 submitted papers were nominated for an award - 1.77%)</i>
2009	Nominee for World Technology Award
2007	Best paper finalist (<i>top 4</i>), International Conference on Advanced Robotics
2006	Best paper award, IEEE-RAS International Conference on Humanoid Robotics
MIT grad	Sigma Xi, scientific research honor society
MIT undergrad	Tau Beta Pi, national engineering honor society
MIT undergrad	Eta Kappa Nu, IEEE electrical and computer engineering honor society