

16-848 Presentation Dates and References – Spring 2018

Feb 12 – Sherman Lam – Robonaut 2 Hand

Bridgwater, Lyndon B., C. A. Ihrke, Myron A. Diftler, Muhammad E. Abdallah, Nicolaus A. Radford, J. M. Rogers, S. Yayathi, R. Scott Askew, and D. Marty Linn. "The robonaut 2 hand-designed to do work with tools." In *Robotics and Automation (ICRA), 2012 IEEE International Conference on*, pp. 3425-3430. IEEE, 2012.
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Abdallah, Muhammad E., Robert Platt, Charles W. Wampler, and Brian Hargrave. "Applied joint-space torque and stiffness control of tendon-driven fingers." In *Humanoid Robots (Humanoids), 2010 10th IEEE-RAS International Conference on*, pp. 74-79. IEEE, 2010.
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A video of simulated and real grasping with the Robonaut 2 hand (Michael Koval's research):

<https://www.youtube.com/watch?v=-hk1QoZq27Q&feature=youtu.be>

Feb 14 – Michael Beck – Hand Design Survey

Deimel, Raphael, and Oliver Brock. "A novel type of compliant and underactuated robotic hand for dexterous grasping." *The International Journal of Robotics Research* 35, no. 1-3 (2016): 161-185.
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<http://ieeexplore.ieee.org/abstract/document/6523131/>

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<http://ieeexplore.ieee.org/abstract/document/6630954/>

Homberg, Bianca S., Robert K. Katzschmann, Mehmet R. Dogar, and Daniela Rus. "Haptic identification of objects using a modular soft robotic gripper." In *Intelligent Robots and Systems (IROS), 2015 IEEE/RSJ International Conference on*, pp. 1698-1705. IEEE, 2015.

<http://ieeexplore.ieee.org/abstract/document/7353596/>

Feb 19 – Emily Pruc – Soft Grippers

Galloway, Kevin C., Kaitlyn P. Becker, Brennan Phillips, Jordan Kirby, Stephen Licht, Dan Tchernov, Robert J. Wood, and David F. Gruber. "Soft robotic grippers for biological sampling on deep reefs." *Soft robotics* 3, no. 1 (2016): 23-33.

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Thompson-Bean, Elliot, R. Das, and A. McDaid. "Methodology for designing and manufacturing complex biologically inspired soft robotic fluidic actuators: prosthetic hand case study." *Bioinspiration & biomimetics* 11, no. 6 (2016): 066005.

<http://iopscience.iop.org/article/10.1088/1748-3190/11/6/066005/meta>

Feb 21 – Matthew Martone – Microspine Grippers

Parness, Aaron, Mathew Frost, Nitish Thatte, Jonathan P. King, Kevin Witkoe, Moises Nevarez, Michael Garrett, Hrand Aghazarian, and Brett Kennedy. "Gravity-independent Rock-climbing Robot and a Sample Acquisition Tool with Microspine Grippers." *Journal of Field Robotics* 30, no. 6 (2013): 897-915.

<http://onlinelibrary.wiley.com/doi/10.1002/rob.21476/full>

Merriam, Ezekiel G., Andrew B. Berg, Andrew Willig, Aaron Parness, Tim Frey, and Larry L. Howell. "Microspine gripping mechanism for asteroid capture." (2016).

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boulders on the asteroid redirect mission." In *Aerospace Conference, 2017 IEEE*, pp. 1-10. IEEE, 2017.

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Martone, Matt, "Design and Testing of the Microspine Gripper Tool for the Asteroid Redirect Mission"

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Mar 21 – Alex Volkov – Tactile Sensors

Kappassov, Zhanat, Juan-Antonio Corrales, and Véronique Perdereau. "Tactile sensing in dexterous robot hands." *Robotics and Autonomous Systems* 74 (2015): 195-220.

<https://www.sciencedirect.com/science/article/pii/S0921889015001621>

Mar 28 – Pragna Mannam – Tactile Sensing / Object Pose

Koval, Michael C., Nancy S. Pollard, and Siddhartha S. Srinivasa. "Pose estimation for planar contact manipulation with manifold particle filters." *The International Journal of Robotics Research* 34, no. 7 (2015): 922-945.

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Spiers, Adam J., Minas V. Liarokapis, Berk Calli, and Aaron M. Dollar. "Single-grasp object classification and feature extraction with simple robot hands and tactile sensors." *IEEE transactions on haptics* 9, no. 2 (2016): 207-220.

<http://ieeexplore.ieee.org/abstract/document/7390277/>

Apr 16 – Arpit Agarwal – Learning for Manipulation

Nagabandi, Anusha, Gregory Kahn, Ronald S. Fearing, and Sergey Levine. "Neural network dynamics for model-based deep reinforcement learning with model-free fine-tuning." *arXiv preprint arXiv:1708.02596* (2017).

<https://arxiv.org/pdf/1708.02596.pdf>

Apr 18 – Dominik Bauer – More Learning for Manipulation

Rajeswaran, Aravind, Vikash Kumar, Abhishek Gupta, John Schulman, Emanuel Todorov, and Sergey Levine. "Learning complex dexterous manipulation with deep reinforcement learning and demonstrations." *arXiv preprint arXiv:1709.10087* (2017).

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