16-848 Reference List for February 14, 2022

Following Kevin's talk, I spent a little bit of time talking about manipulation related competitions.

The summary paper we referenced is here:

Sun, Yu, Joe Falco, Máximo A. Roa, and Berk Calli. "Research challenges and progress in robotic grasping and manipulation competitions." *IEEE robotics and automation letters* 7, no. 2 (2021): 874-881. https://arxiv.org/abs/2108.01483

Interestingly, the ICRA 2022 competition has just been announced. You can still enter (by March 10)! https://rpal.cse.usf.edu/rgmc_icra2022/

You will see from the website there are three tracks:
- Open Cloud Robot Table Organization Challenge http://www.ocrtoc.org/#/
  - Remote experiments. Rearrange items on a table into a predetermined configuration (e.g., stack plates).
- Service track https://rpal.cse.usf.edu/rgmc_icra2022/Competition-Task-Service.pdf
  - Perform a table setting task, including filling a glass and cup
- Manufacturing track https://www.nist.gov/el/intelligent-systems-division-73500/robotic-grasping-and-manipulation-assembly/assembly
  - Create an assembly on a NIST task board similar to those in the link above

We also spoke of the ongoing Avatar X prize competition
https://www.xprize.org/prizes/avatar

..and had a look at the top ranking NimbRo team: http://nimbro.net/AVATAR/
https://arxiv.org/pdf/2109.13772.pdf

From past competitions, I mentioned the DARPA ARM challenge:
https://www.jstage.jst.go.jp/article/jrsj/31/4/31_31_326/_pdf
https://www.mkoval.org/projects/graduate/darpa-arm-s
https://www.youtube.com/watch?v=jeABMoYJGEU
https://newatlas.com/darpa-autonomous-robotic-arms/26944/

We also looked at this competition from a group of researchers at MPI in Germany:
https://real-robot-challenge.com/