Lecture

https://www.youtube.com/watch?v=ac_W9IgKX2c

Papers to read:

- Sim to Real Robot learning from Pixels with progressive nets | Progressive nets (Supervised Domain Adaptation,min 35:59)
    - It’s interesting the concept of the last layer
- Sim-to-real transfer of robotic control with dynamics randomization (min 55:46)
- Combine Sim ID and domain randomization, concept SimOpt, Closing the Sim to Real Loop: Adapting Simulation Randomization with Real World Experience. 1H Min 12
    - Apply simulation on real an correct simulation, every x steps
- Auto tune simulation parameters with meta-learning, Learning to Simulate (1h min 14)
    - Learn which simulation parameters improve more the algorithm in the real world
- Websites recommended by Josh (1h
    - Sim2Real AI (https://sim2realai.github.io/
    - Domain Randomization for Sim2Real Transfer (https://lilianweng.github.io/lil-log/2019/05/05/domain-randomization.html)
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Interesting Elements:

- Get 3D models and place them realistic (min 25:30)
- Progressive nets (min 35:59), add layers to net and train these ones to adapt to real world with out losing what has been learned.
- Bayesian Prior??? (min 37:52)
- Separate the vision module (min 59:38)
- Combine Randomization and System ID (1h min 2)
- Simulation problem harder than the real one (1h min 4)
- Randomization also what we know it’s not determinant to avoid the algorithm learn it (1h 5min)
- Pipeline to implement domain randomization (1h 10 min)
- Real to Simulation to Real (1h 21 min)

Papers interesting:

- Domain randomization for transferring deep neural networks from simulation to the real world(Domain Randomization, min 45:54)
    - It’s a grasping problem
- Virtual World as Proxy for Multi-Object Tracking Analysis (min 15:07)
- Using Simulation and Domain Augmentation to improve Efficiency of Deep Robotic Grasping (Unsupervised Domain adaptation, min 40:20)
- CAD² RL : Real Single-Image Flight Without a Single Real Image (Domain Randomization, min 45:05)
- Domain randomization and generative models for robotic grasping (min 54:09)
- Canonical representation , intermediate environment???, Sim to Real via Sim to Sim: Data efficient Robotic Grasping via Randomized to Canonical Adaptation Networks (1h 11 min)