



LEAP Hand is an open-source robot hand for machine learning:

- 1) Extremely Dexterous
- 2) Low-Cost and Easy to Build
- 3) Strong and Durable

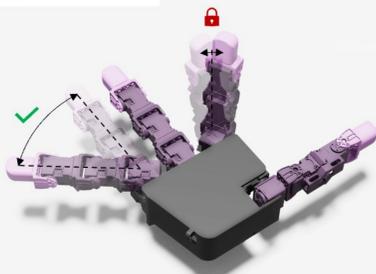
Visit us at: <http://leaphand.com>



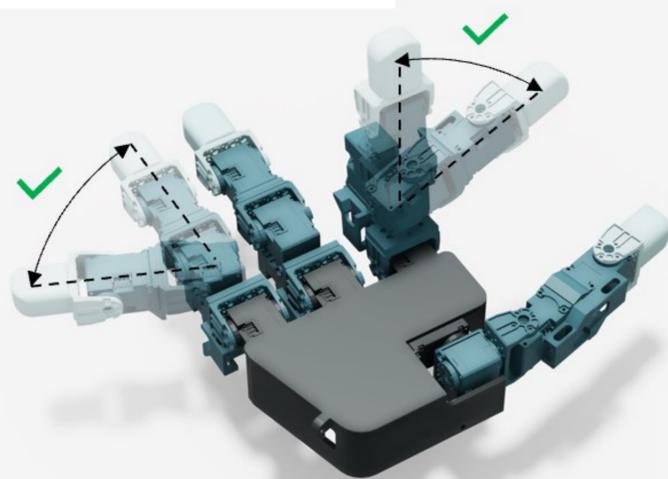
1) Extremely Dexterous

(A) LEAP Hand (ours)

(B) LEAP-C Hand



(C) Allegro Hand



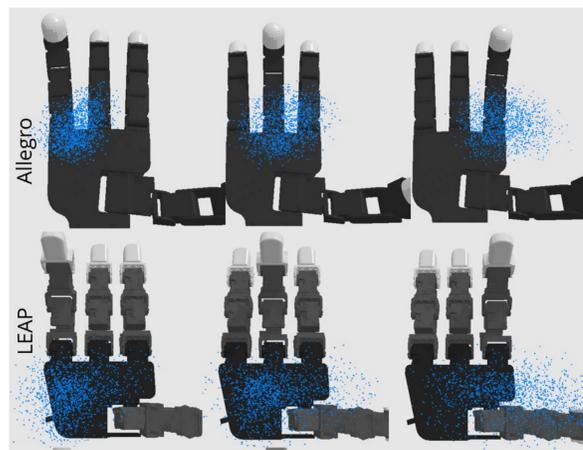
2) Low-Cost (\$2000)



LEAP Hand can be built in under 3 hours using a 3D printer, off-the-shelf parts and 3 hand tools.

3) Strong and Durable

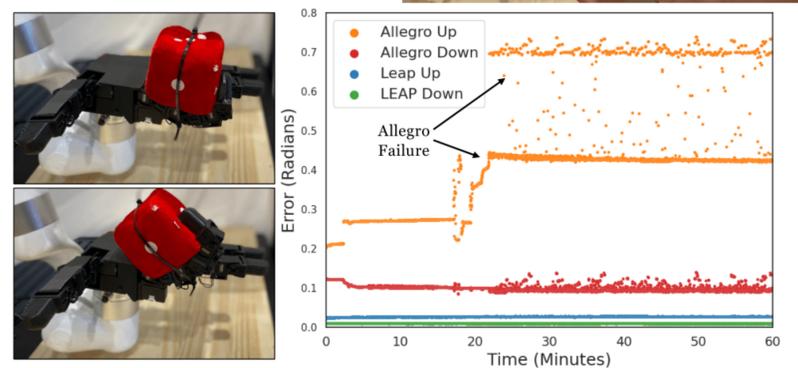
Thanks to its novel abduction-adduction mechanism LEAP Hand is dexterous in all finger configurations.



Opposability Vol.	Index (mm ³)	Middle (mm ³)	Ring (mm ³)
Allegro	409,135	348,809	204,281
LEAP-C Hand	834,516	743,764	638,605
LEAP Hand (ours)	1,125,556	1,056,746	804,618

Object	Grasp Type [61]	LEAP	LEAP-C	Allegro	D'Manus	Inmoov
Power:						
Mustard	Med. Palm+Pad	20	20	13	8	Y
Toy Kick Ball	Lrg. Palm+Pad	20	20	9	20	N
Golf Ball	Small Pad	16	20	7	0	Y
Softball	Large Pad	20	20	10	15	N
Drill	Trigger Press	20	20	15	0	N
Intermediate:						
Chopsticks	Tripod Grasp	16	13	0	0	N
Wood Cylinder	Cigarette Grasp	4	5	0	0	N
Precision:						
1" Cube	2 Finger Precision	20	20	20	0	N
M&M	Tip Pinch Grasp	Y	Y	Y	N	N
Wine Glass	Flat Hand Cupping	20	20	4	0	N
Credit Card	Lateral Pinch	20	20	8	0	N

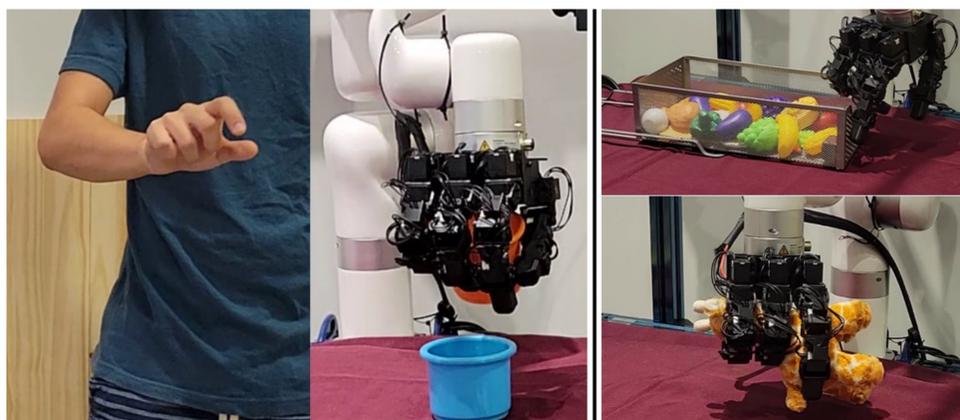
Hand	Strength (N)	Power Density
Bauer et. al [28]	37.4	0.677
Allegro Hand [20]	8.5	0.35
D'Manus [21]	27.8	0.313
Inmoov Hand [18]	5.8	0.116
Adult Human Hand	26.5	2.199
LEAP Hand	19.5	1.045
LEAP-C Hand	21.5	1.15



LEAP Hand has improved thumb to finger opposability which means it can grasp objects more easily.

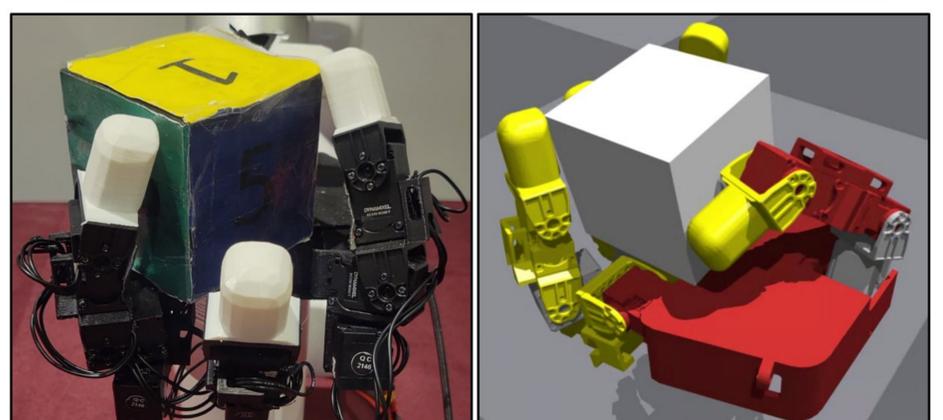
LEAP is the strongest, durable and most repeatable robot hand of those available for ML.

ML: Learning From Humans



LEAP Hand can learn from human videos using joint-to-joint mappings or an energy function.

ML: Sim2Real Manipulation



LEAP Hand's URDF is faithfully accurate to the real robot hand and can be used in many RL frameworks.