Category	Actuator Type	Strain (%)	Power Density (kW/kg)
Rigid	EM motor [141]	0	1-3
	Piezoelectric bimorph [142]	0.1	1.2
Soft	Electrostatic film actuator [135]	0	0.061
	Acrylic dielectric elastomer actuator (DEA) [136]	30	0.04
	Silicone DEA [143]	15	1.2
	Planar DEA [64]	20	1.0
	Hydraulically amplified electrostatic actuator [51]	10-15	0.16
	Polyvinylidene fluoride actuator [138]	<3	<0.01
	Liquid crystal elastomer actuator [144]	<5	<0.1
	Shape memory actuator [145]	6	<0.1
	Electrified hydrogel actuator [146]	50	0.03
	Catalytic soft actuator [147]	3	0.01
	Pneumatic soft actuator [134]	50	0.01
	Combustion-based soft actuator [43]	40	0.9
Muscle	Skeletal muscle [148]	15	0.4

Supplementary Table 1: Comparison of different actuator types based on strain and power density.

Category	Robot/Material	Strain (%)	Energy Density (J/kg)
Robot	MIT cheetah	0	0
	Kuka arm	0	0
	Hopping SoftFly [75]	30	1.96
	EPFL jumper [92]	55*	13.7
	Hopcopter [74]	32	16
	UCSB jumper [88]	62*	1075
	Springtail microrobot [91]	40*	5
	Flea-inspired jumper [90]	50*	6.3
	Jumping Dash [87]	87.5*	46.7
	Multimodal millirobot [149]	45*	1.38
	Light-powered soft robot [89]	100*	0.78
Material	Tendon [150]	8	367.2
	Rubber bands (Hopcopter) [74]	385	860
	Resilin [151]	150	2100
	Silicon [152]	0.26	280
	PDMS [153]	300	3400
	Polyimide [154]	2	400
	Latex [155]	1000	4000

Supplementary Table 2: Comparison of elastic energy storage in robots and materials. Asterisks represents our best estimate of quantities where they were not directly reported in the studies.

Category	Robot	Body Strain (%)	Speed (Body Length/s)
Rigid	KAIST Hound [21]	0	6
	Black Panther 2 [156]	0	16
	RoboBee [157]	0	12
	HAMR-Jr [85]	0	14
	HAMR [113]	0	11
Animal	Animal Cheetah* [158]	20	28
	Greyhound* [159]	15	20
	Cockroach [28]	>60	50
	Octopus* [160]	>80	9.1
Soft	SoftFly [50]	0	25
	CRAM [28]	46	0.78
	CLARI [110]	33	0.79
	mCLARI [111]	20	3
	Pneunet Robot [161]	80	0.93
	Electrostatic inchworm [135]	50	4
	Octopus robot* [162]	70	6

Supplementary Table 3: Comparison of different robots based on body strain and speed. Asterisks represents our best estimate of quantities where they were not directly reported in the studies.

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