



NYU

**TANDON SCHOOL
OF ENGINEERING**



Promoting robotic design and entrepreneurship
experiences among students and teachers

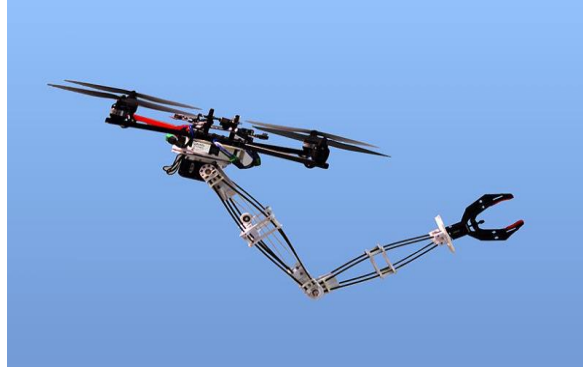
Lesson 2: Robots in the industry



- Categories of robots
- Robots in the industry
- Robots at NYU

ROBOT CATEGORIES

- **Stationary** robots
- **Mobile** robots
 - Wheeled robots
 - Legged robots
 - Underwater robots
 - Aerial robots



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AERIAL ROBOTS



DJI Mavic Air 2S



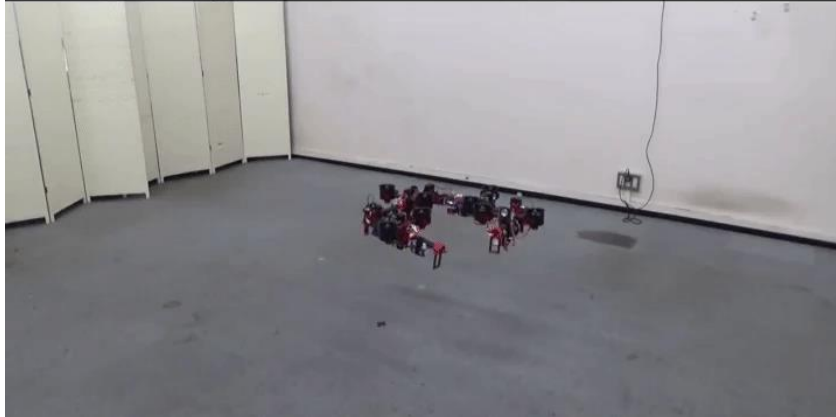
Video: Skydio R1



EXAMPLES CONTD.

Dragon Drone - University of Tokyo

Large Scale Aerial Transformation



Flight Motion of Passing through Small Opening by DRAGON: Transformable Multilinked Aerial Robot

Moju Zhao, Fan Shi, Tomoki Anzai, Krishneel Chaudhary,
Xiangyu Chen, Kei Okada, Masayuki Inaba

[Video](#)

AGRICULTURE ROBOTS



Drones for watering



Plant monitoring di-wheel robot



1933: Ford chassis assembly line



1973: Placing an F-Series bed onto the frame



[Video 2021: Robotics at the General assembly line](#)

CONSTRUCTION INDUSTRY

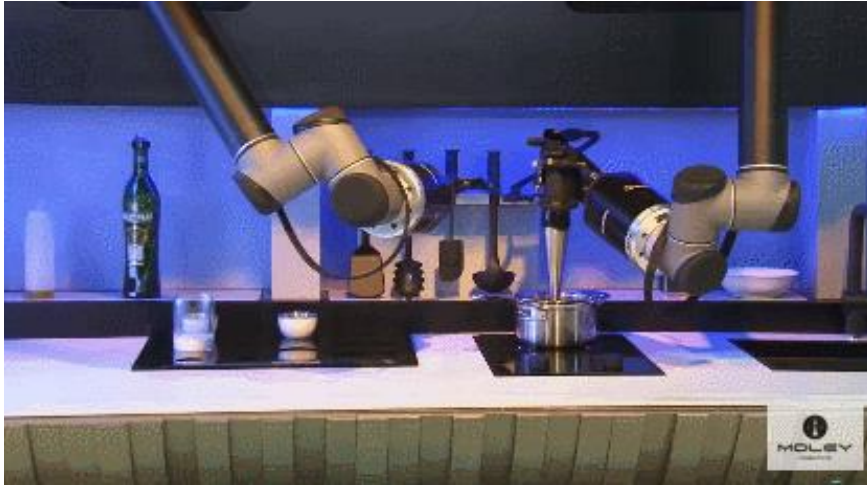


Brick-laying robot



Robots 3D-Printing the house

HOME AUTOMATION INDUSTRY



Moley Robotic Kitchen

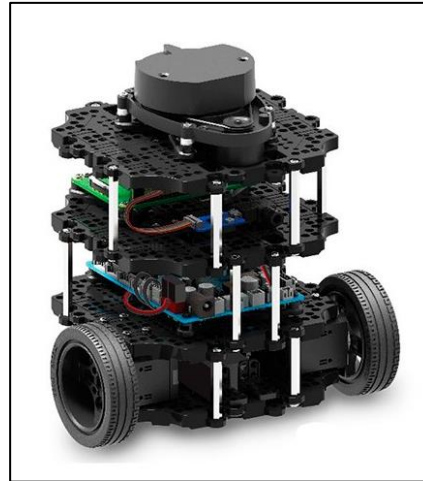


Vaccum cleaning robot

ROBOTS IN EDUCATION



Pioneer



Turtlebot 3



Activity bot

HUMANOID ROBOTS

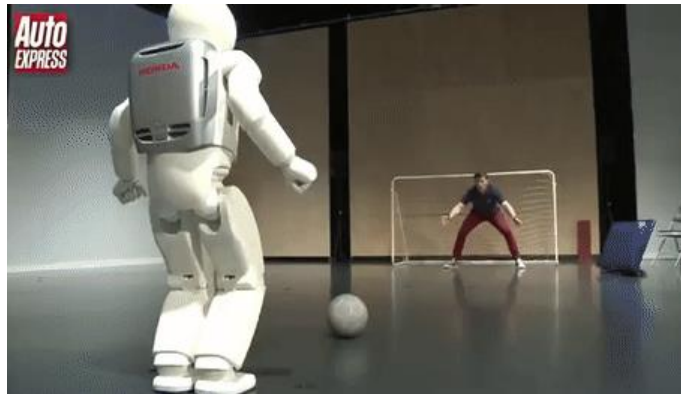
Humanoid robot Sophia



Honda Asimov



Video





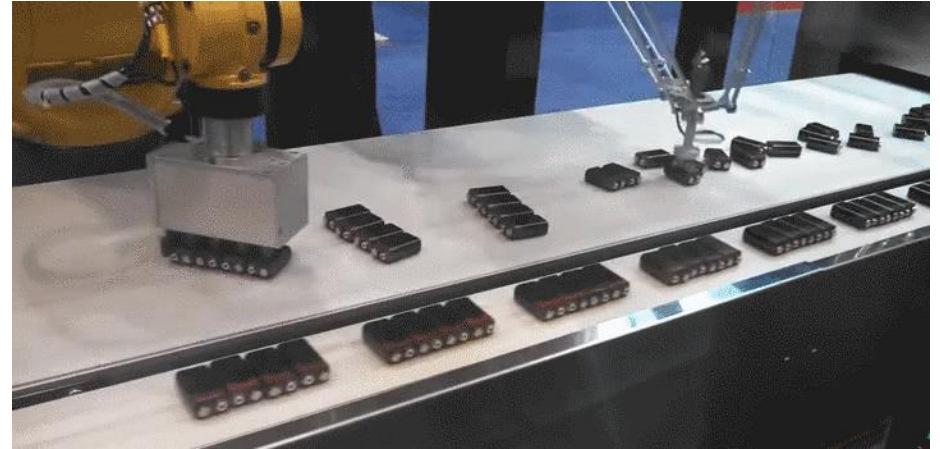
[K5 Security robot](#)



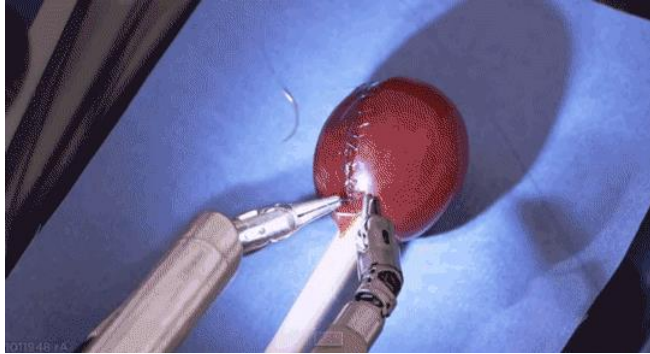
[Robot police dog](#)



[Yunda wind power production site: The hub bolt fastening robot system](#)



[Electronics manufacturing](#)



Robotic surgical system stitching a grape



Robotic Surgical system



Video: Zeus Surgical Robotic System

EXAMPLES CONTD.

- **Da Vinci Surgical System**, at Robert Wood Johnson University Hospital in New Brunswick, NJ
- Used for facilitating complex surgery by using minimally invasive approach

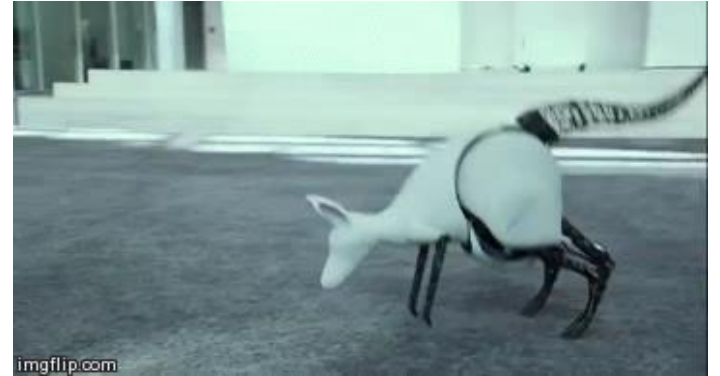


[Video](#)

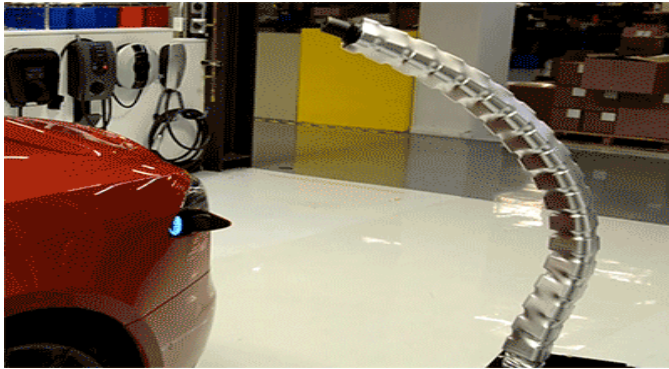
BIO-INSPIRED ROBOTS



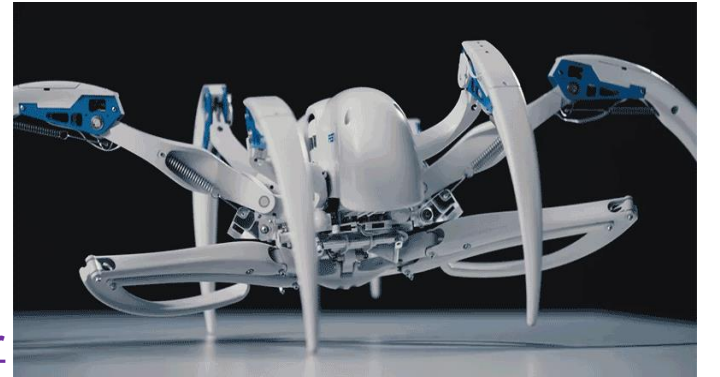
Robotic fish



Robotic kangaroo



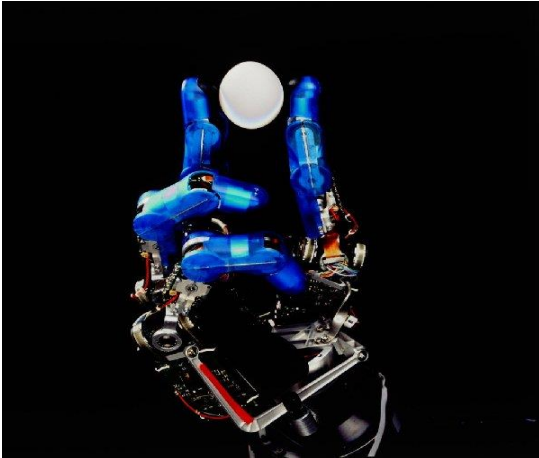
Robotic snake



Robotic spider

BIONIC HANDS

Robotic **hand** developed by DLR (German Aerospace Center)



Robotic **hand** developed by Esper Bionics



[Esper Bionics Robotic hand](#)

MILITARY ROBOTS

2022: China introduces world's largest electrically-powered quadruped robot to assist the military on logistics and reconnaissance missions.



[Video](#)

MILITARY ROBOTS

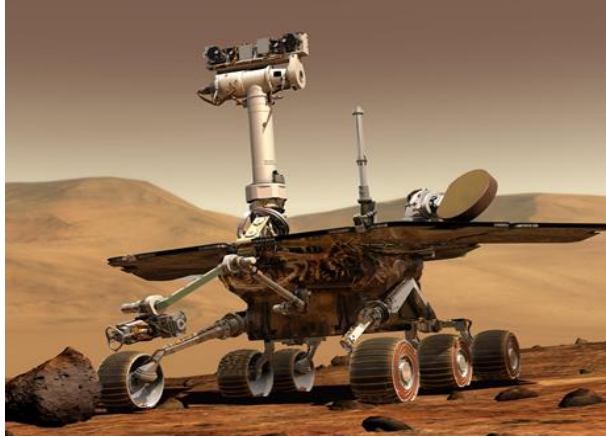


Patrol robot



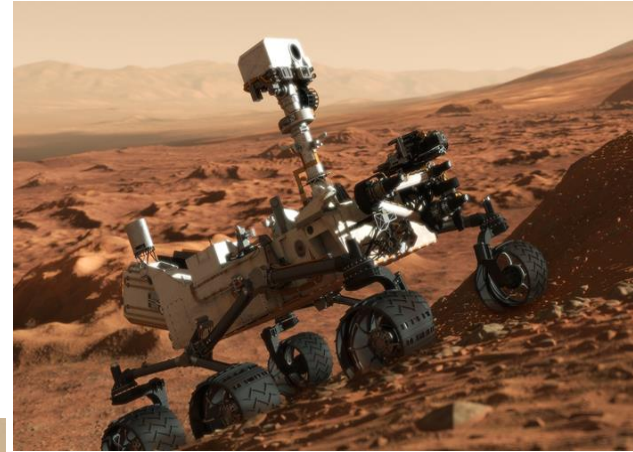
Combat robot

SPACE EXPLORATION ROBOTS



Spirit robot for JPL's Mars exploration mission

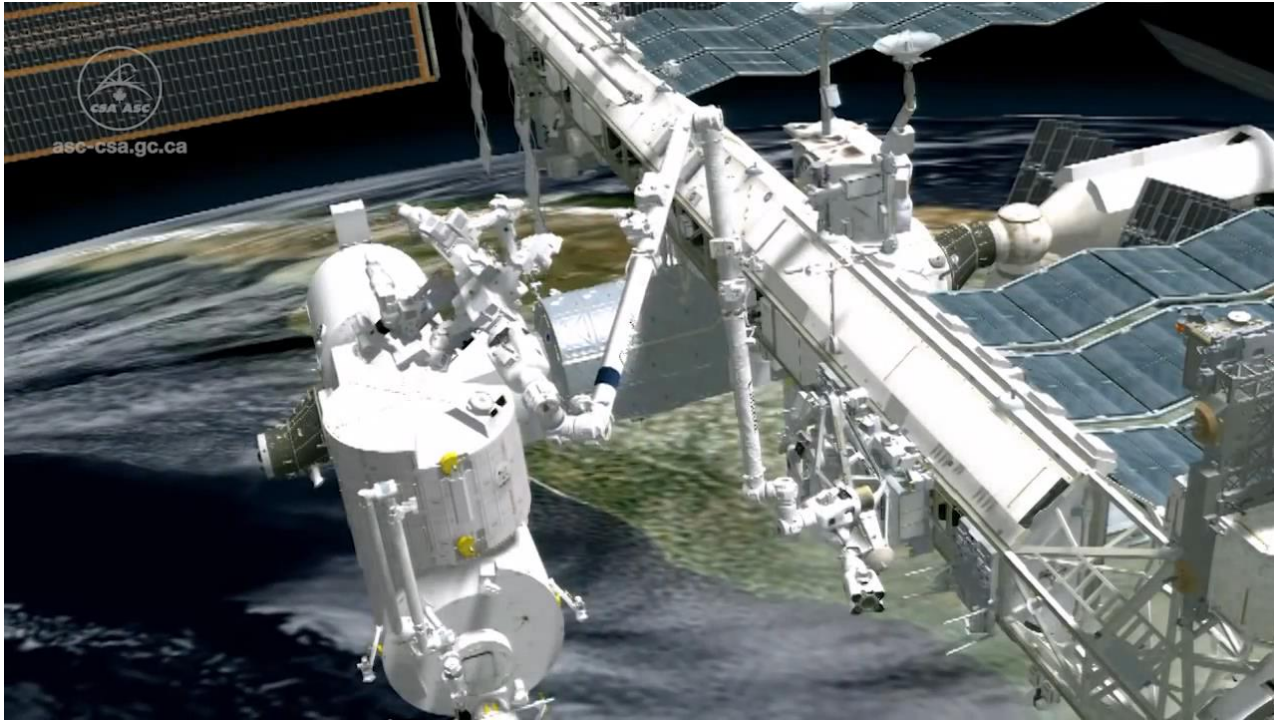
Curiosity rover



Opportunity over finds methane on Mars



SPACE MANIPLATORS FOR REPAIR



[Video](#)

AUTONOMOUS VEHICLES



Waymo

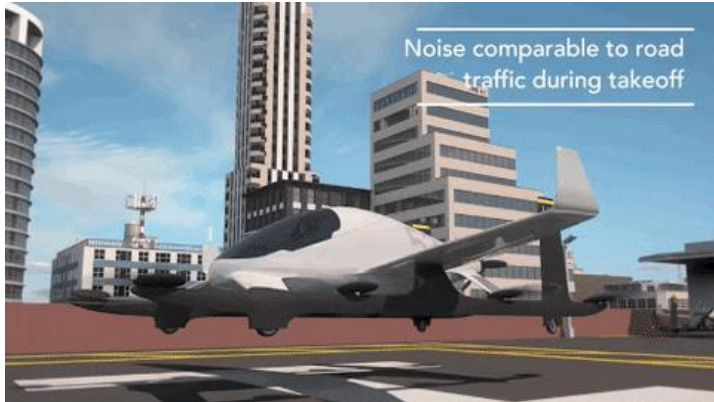


Uber



Tesla's semi truck

TRANSPORTATION INDUSTRY



UBER

Ehang 184



Airbus

Kitty hawk's Flyer



ROBOTS IN UTILITIES



Ultrasonic inspection of a boiler



Power line inspection robot

WAREHOUSE ROBOTS



Material transfer robots



Pick-and-place robots

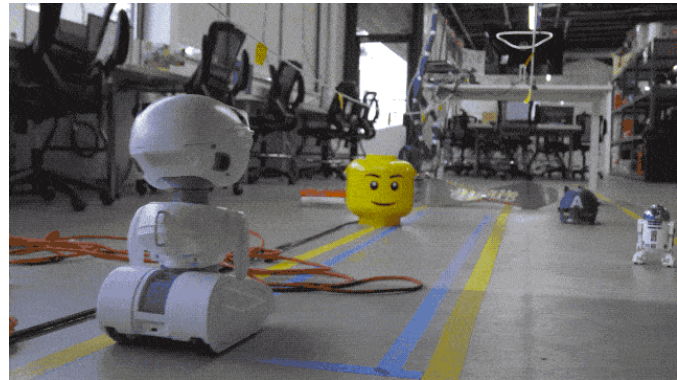
A FEW FUN ROBOTS



Cozmo robot



Nao robot



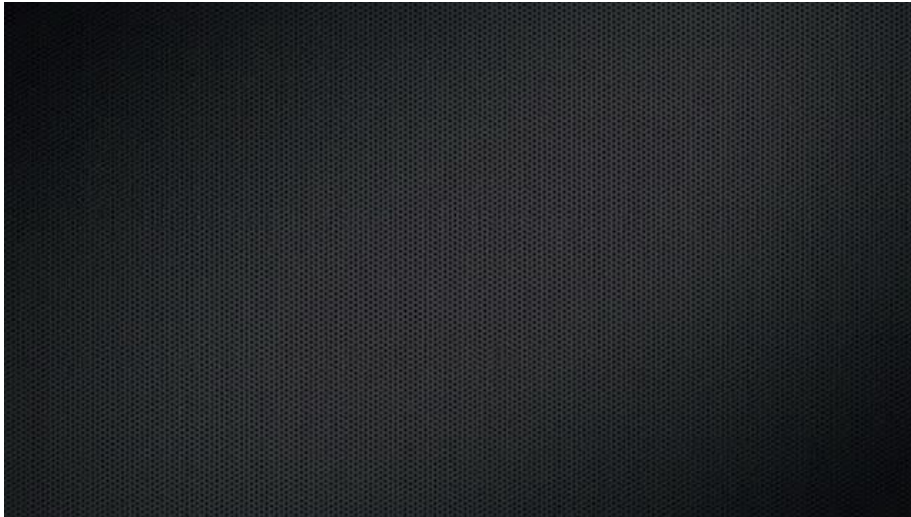
Misty



DJI Robomaster S1

EXAMPLES OF NYU!

3D Printed Robotic Arm developed by NYU



[Video](#)

Prosthetic hand developed by NYU



EXAMPLES CONTD.

Shapeshifting Robotic snake created by NYU



ACTIVITY

When do you call something a robot?



[Source](#)



[Source](#)



[Source](#)



[Source](#)

ACTIVITY



Source



Source



Source



WHEN TO CALL SOMETHING A ROBOT?



[Source](#)



[Source](#)



[Source](#)



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Thank You!

Questions and Feedback?