SAAST

ROBOTICS

Text

2012 Program Overview


FANUC Robot M-410 i H/S

料理の鉄腕人
好み焼きロボット】

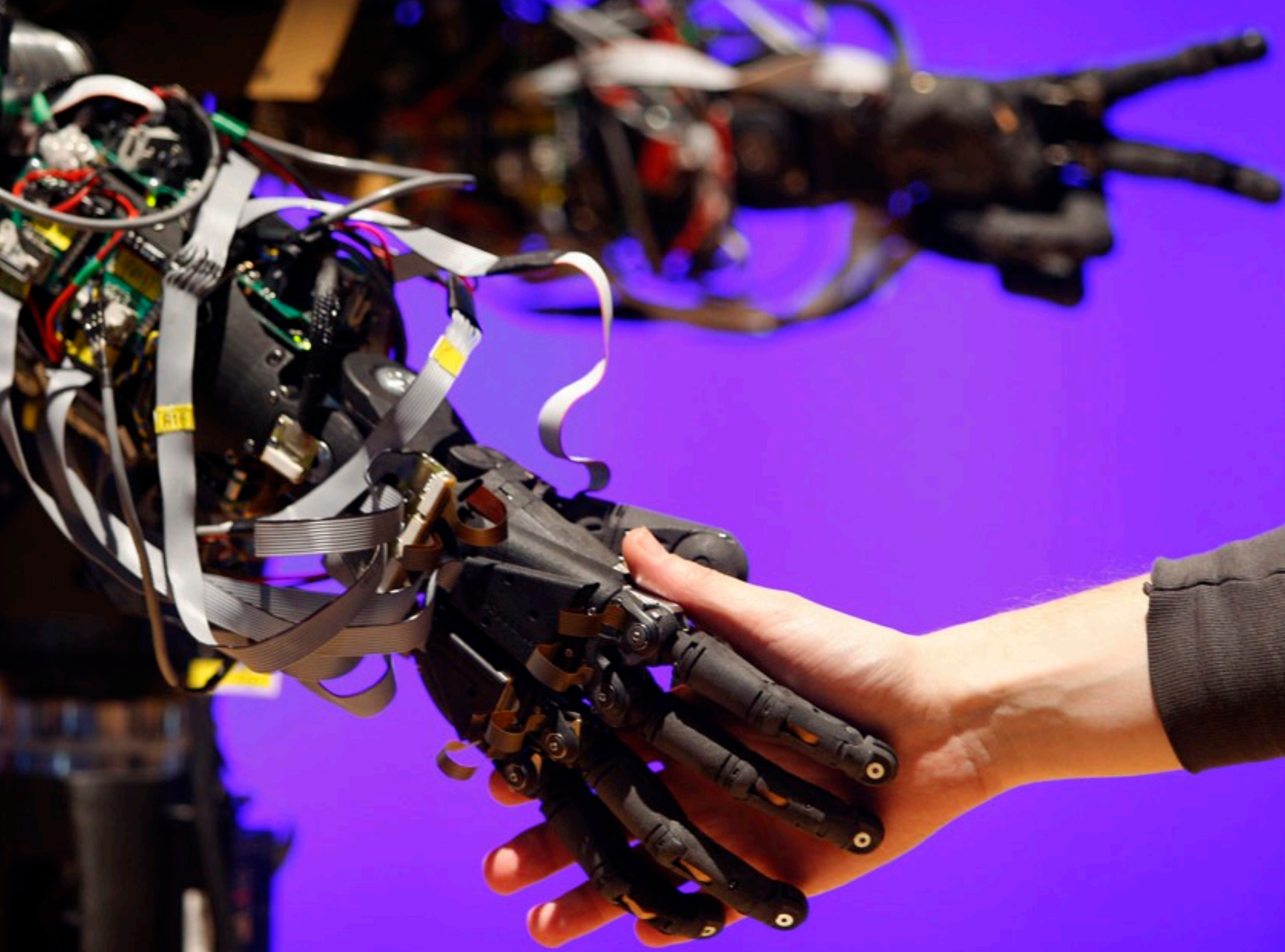
-出展協力-

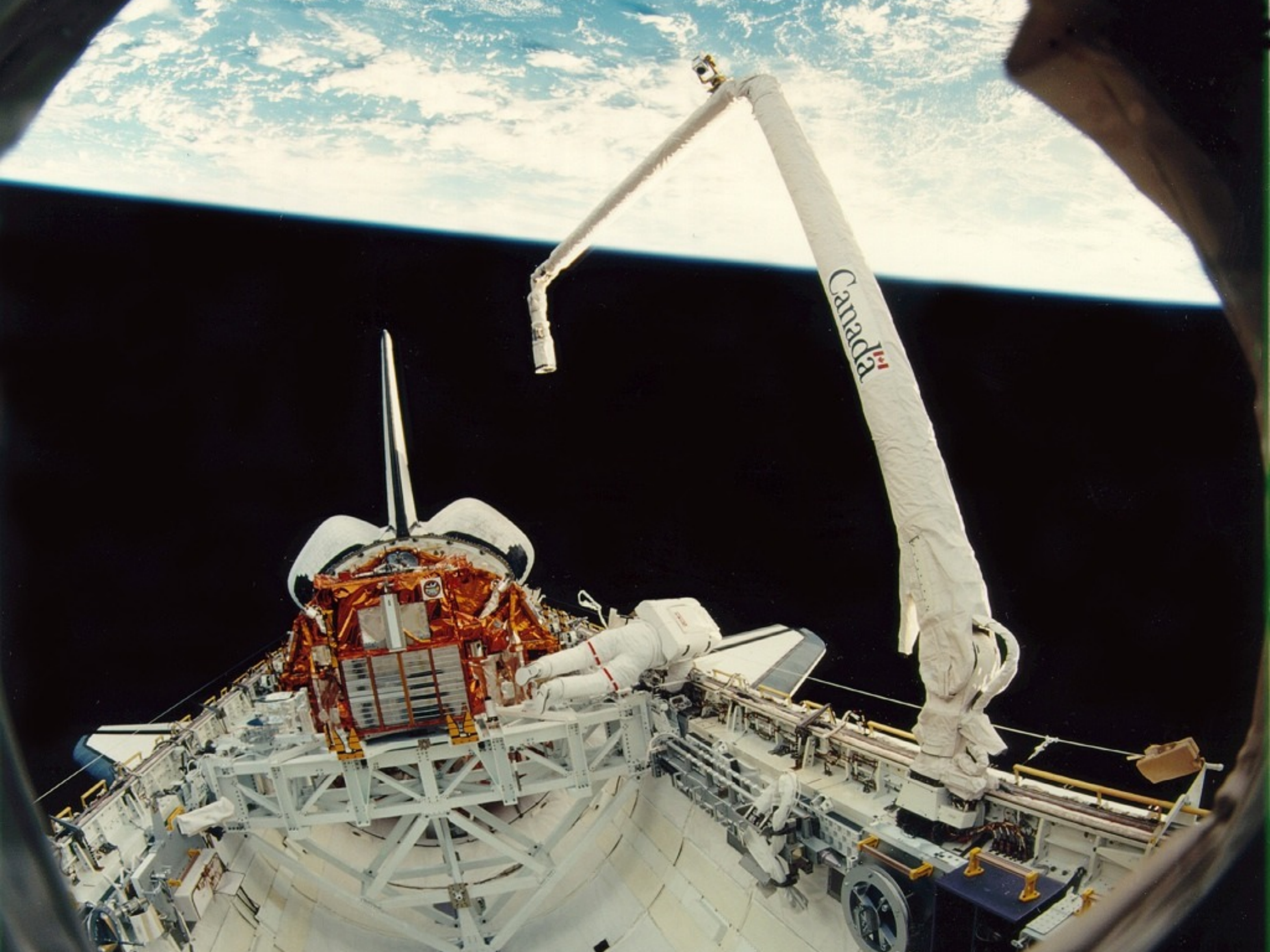
-特徴-

MOTOMAN

MOTOMAN

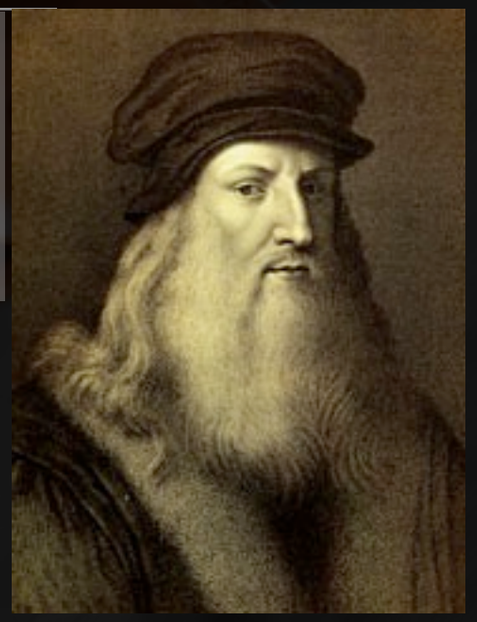

DLR




Canada

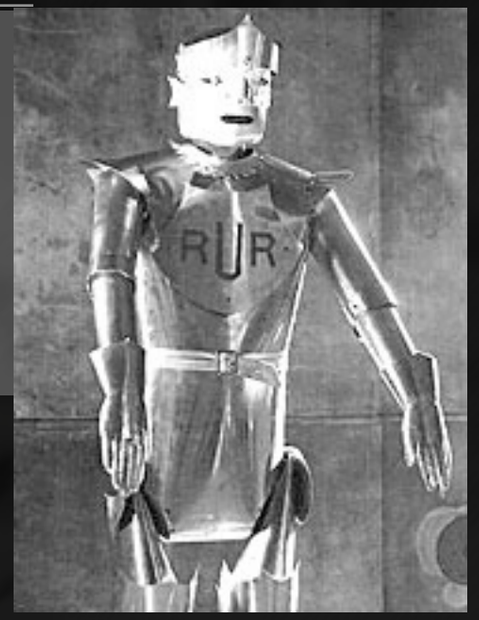
322 B.C. - “If every tool, when ordered, or even of its own accord, could do the work that befits it... then there would be no need either of apprentices for the master workers or of slaves for the lords.” - Aristotle

1495 - Leonard da Vinci designs a mechanical clockwork that sits up, waves its arms, and moves its head.



1769 - Wolfgang von Kempelen builds “The Turk”, which gains fame as an automaton capable of playing chess - until the hidden human operator was discovered!

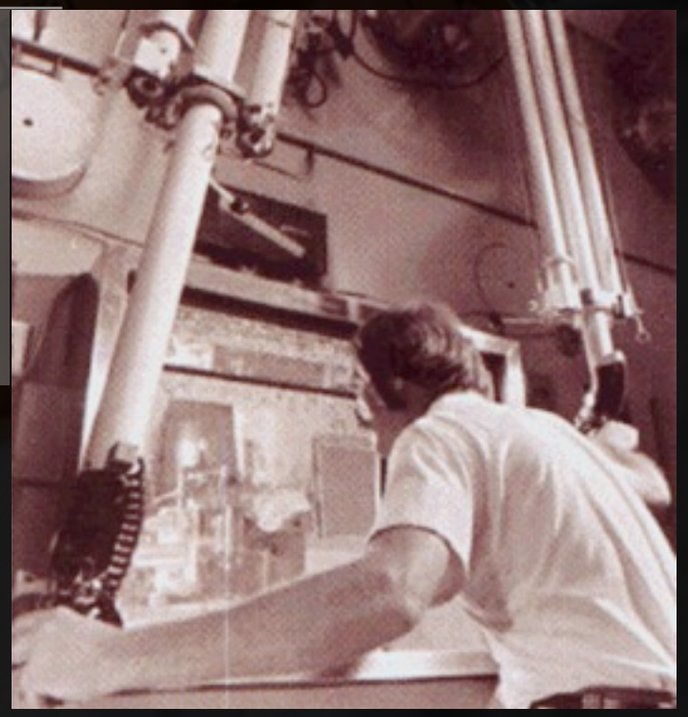
1921 - Karel Capek popularizes the term “robot” in a play called *R.U.R. (Rossum’s Universal Robots)* wherein robot workers take over the earth.

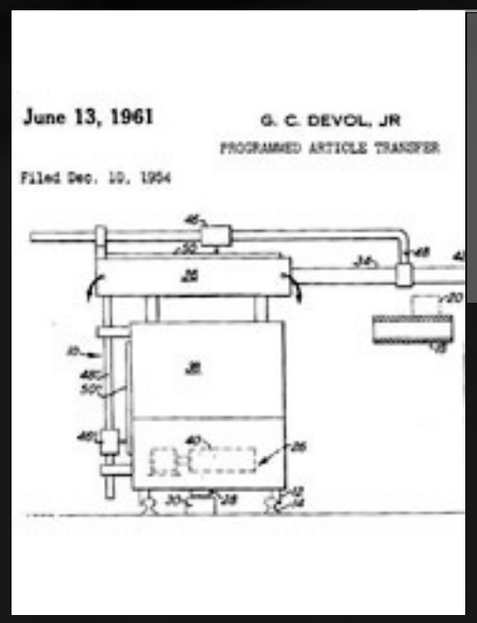


Adapted from “25 Great Moments in Robotics History” on *The Mr. Beng* Blog

1942 - Isaac Asimov publishes *Runaround*, which introduces the three "laws" of robotics.

1951 - Raymond Goertz builds the first master/slave teleoperation system for handling radioactive material.



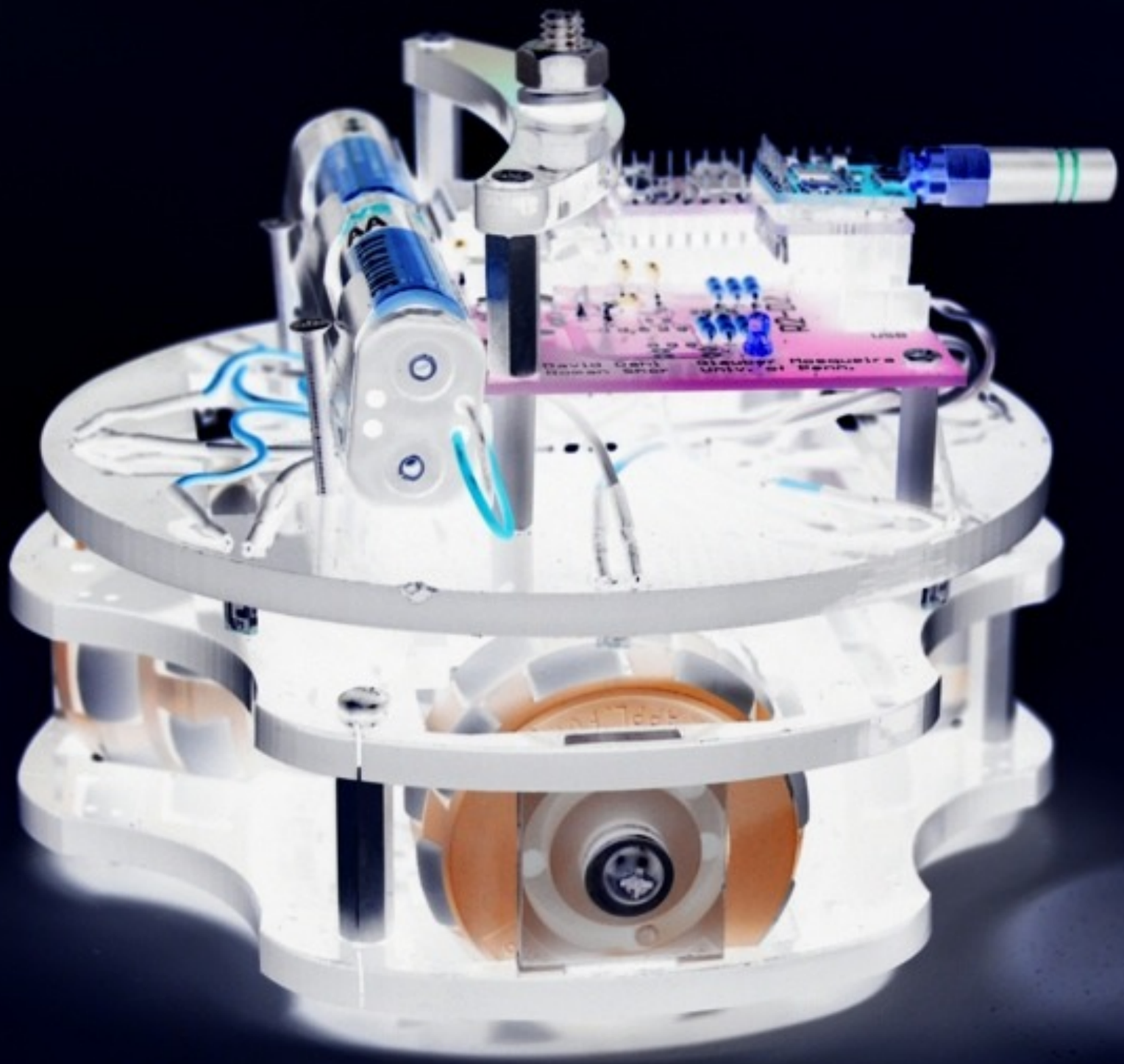


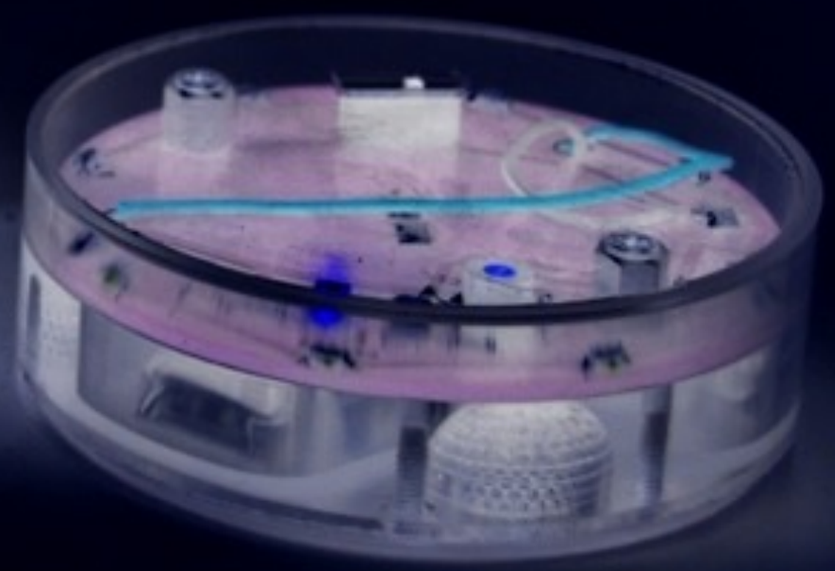
1954 - George Devol files a patent for the first programmable robot, and calls it "universal automation".

1961- *Unimate*, the first industrial robot, begins work on a General Motors assembly line.

"A robot is a reprogrammable, multifunctional manipulator designed to move material, parts, tools, or specialized devices through variable programmed motions for the performance of a variety of tasks."

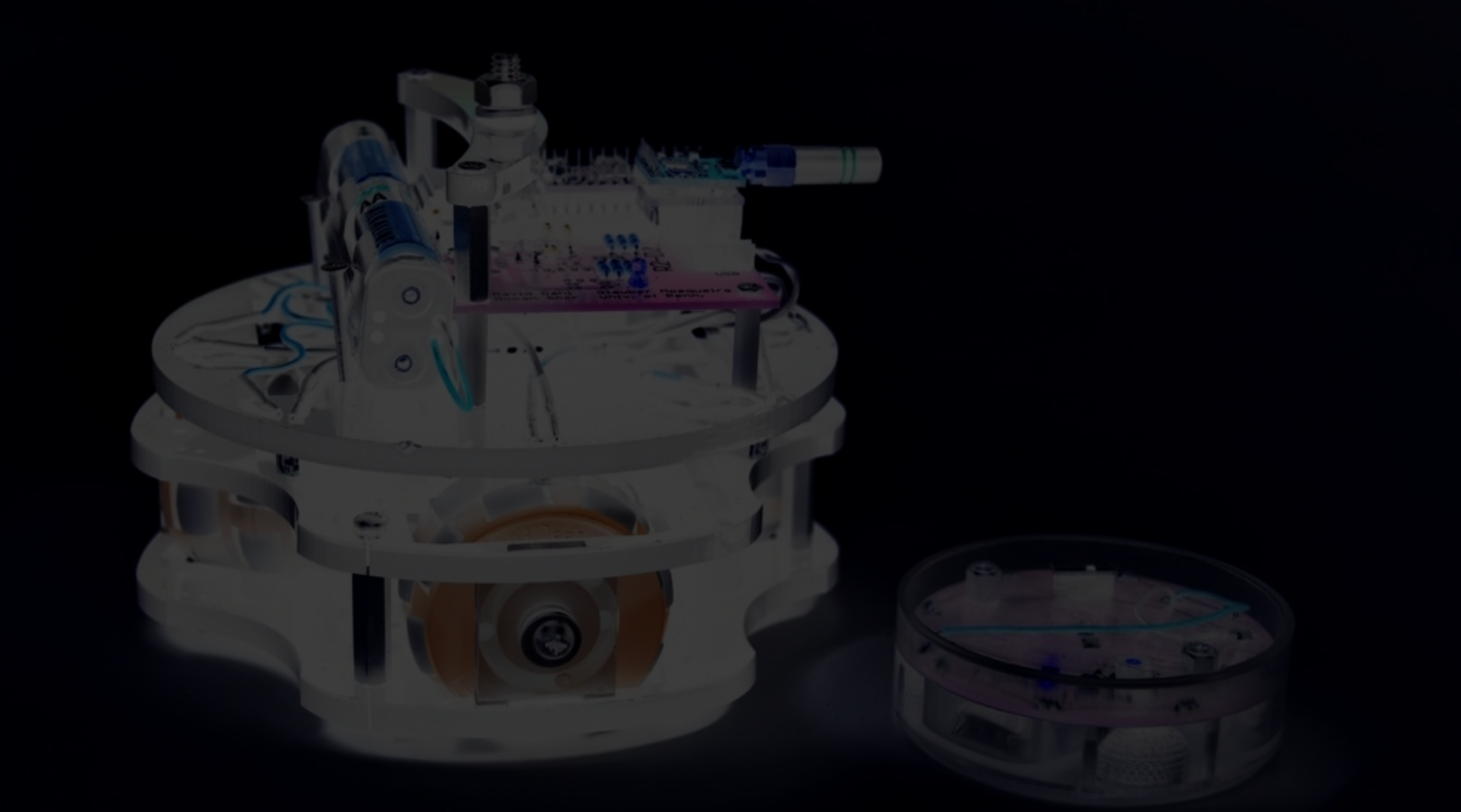
(The Robotics Institute of America)





Mechatronics is the synergistic combination of Mechanical engineering, Electrical engineering, Computer engineering, Control engineering, and Systems Design engineering in order to design and manufacture useful products.

-Wikipedia



Logistics

Locations

Towne 100 (Heilmeyer)
lecture room

Towne 205
door code: 4-2-1-9
18 stations
SolidWorks, programming

Towne 193 (GM)
card-swipe
19 stations
electronics, programming, SolidWorks, light fabrication, assembly

Towne 167
TA supervision required
laser cutting

Schedule

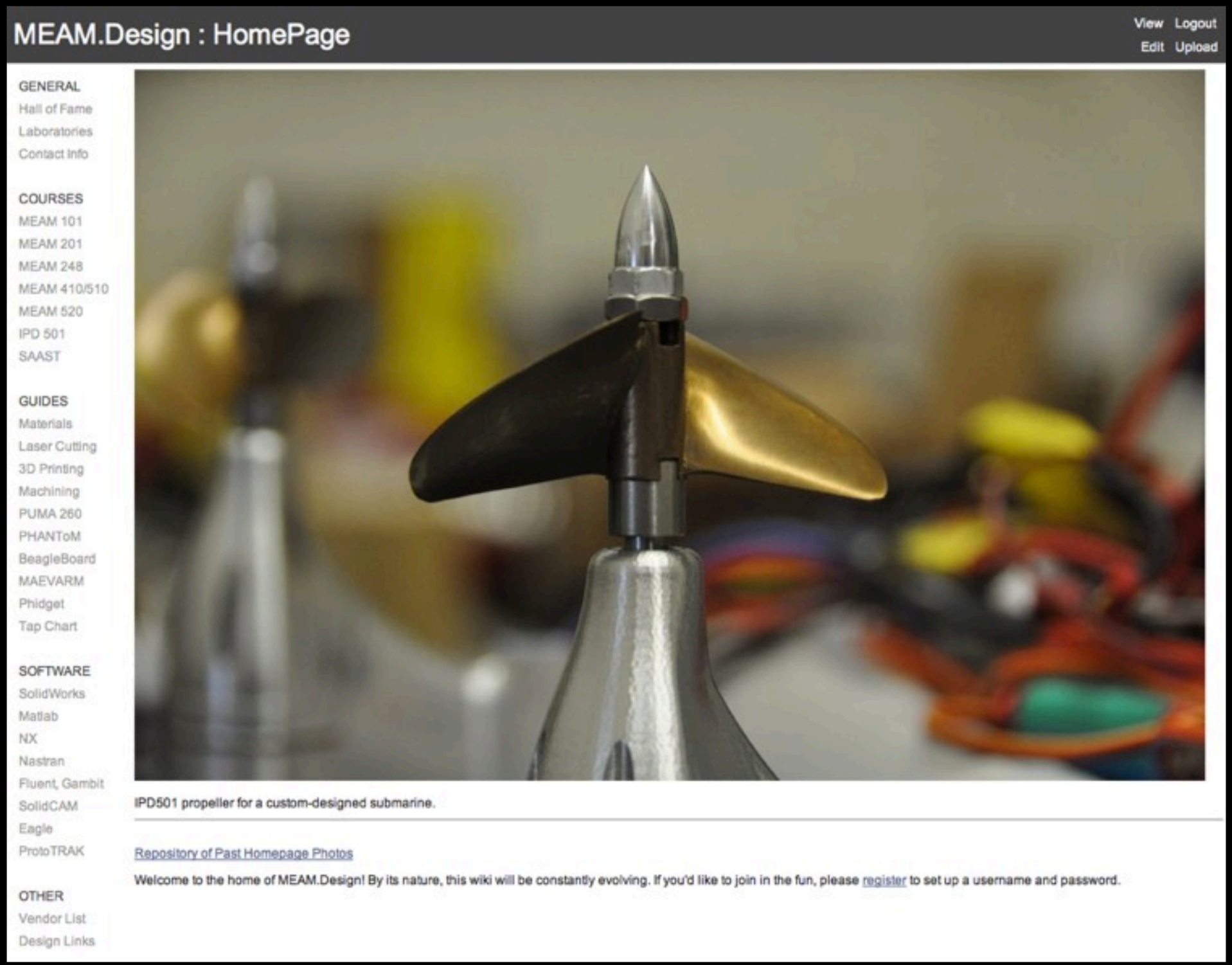
Monday program overview, SolidWorks I, electronics I
Tuesday teams, electronics II, SolidWorks II
Wednesday embedded computing, C programming, mX introduction
Thursday FIELD TRIP
Friday C programming II, mX details, project details

Monday electronics III
Tuesday
Wednesday
Thursday
Friday

Monday
Tuesday
Wednesday testing and interviews
Thursday COMPETITION
Friday public showcase, graduation luncheon

Online Resources

Course Wiki - http://medesign.seas.upenn.edu

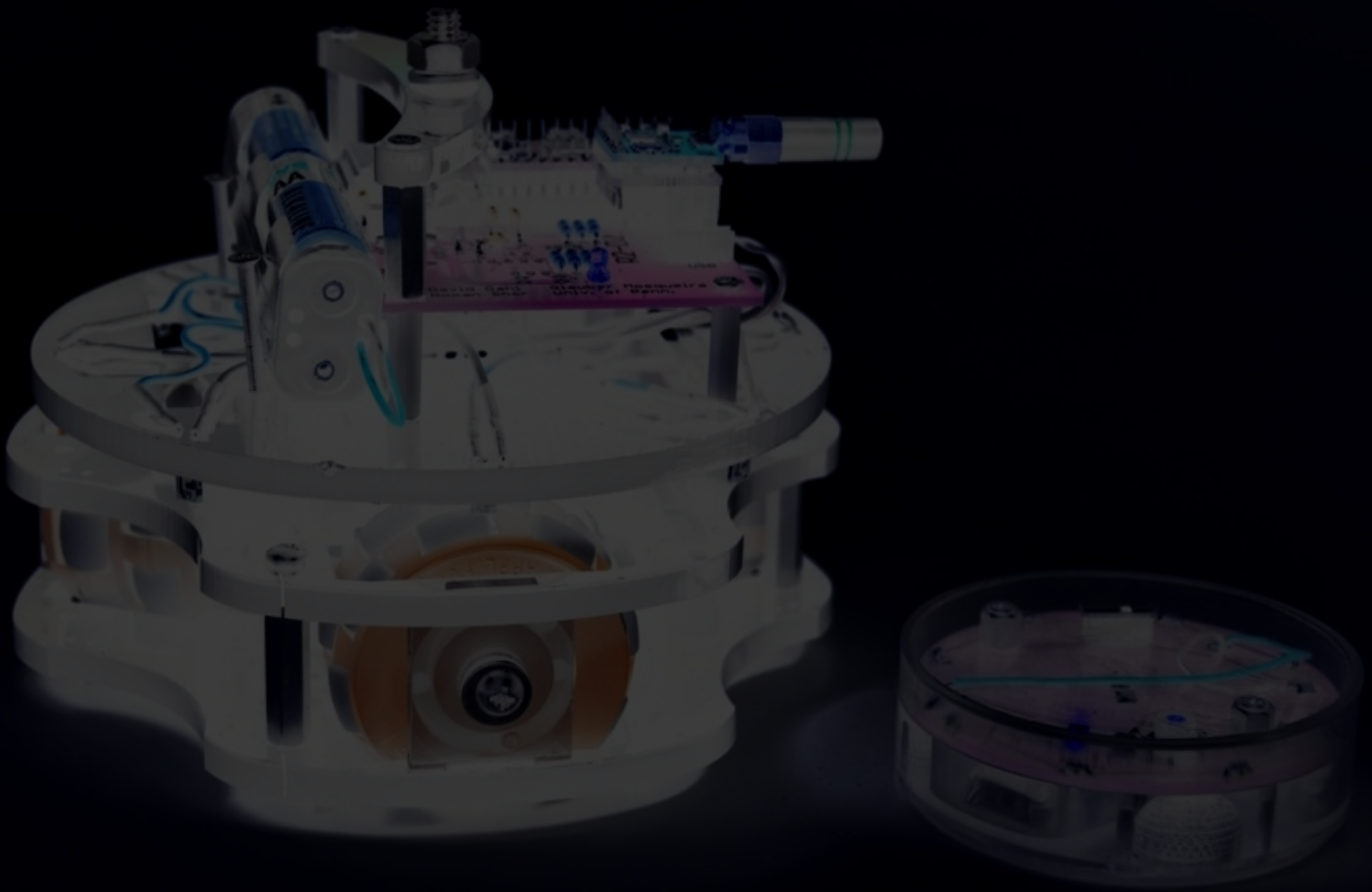


Lab kits

solderless breadboard
hookup wire kit
small screwdriver
diagonal cutters
wire strippers (20-30 AWG)
(5) alligator-clip wires
(5) mini-grabber wires
coaxial banana-alligator wire
mini-B USB cable
2 oz. roll of 25-gauge 63/37 solder

Components (& Grading)

6 individual assignments (50%)
2 team assignments (15%)
1 final team project (25%)
n quizzes (10%)



Expectations