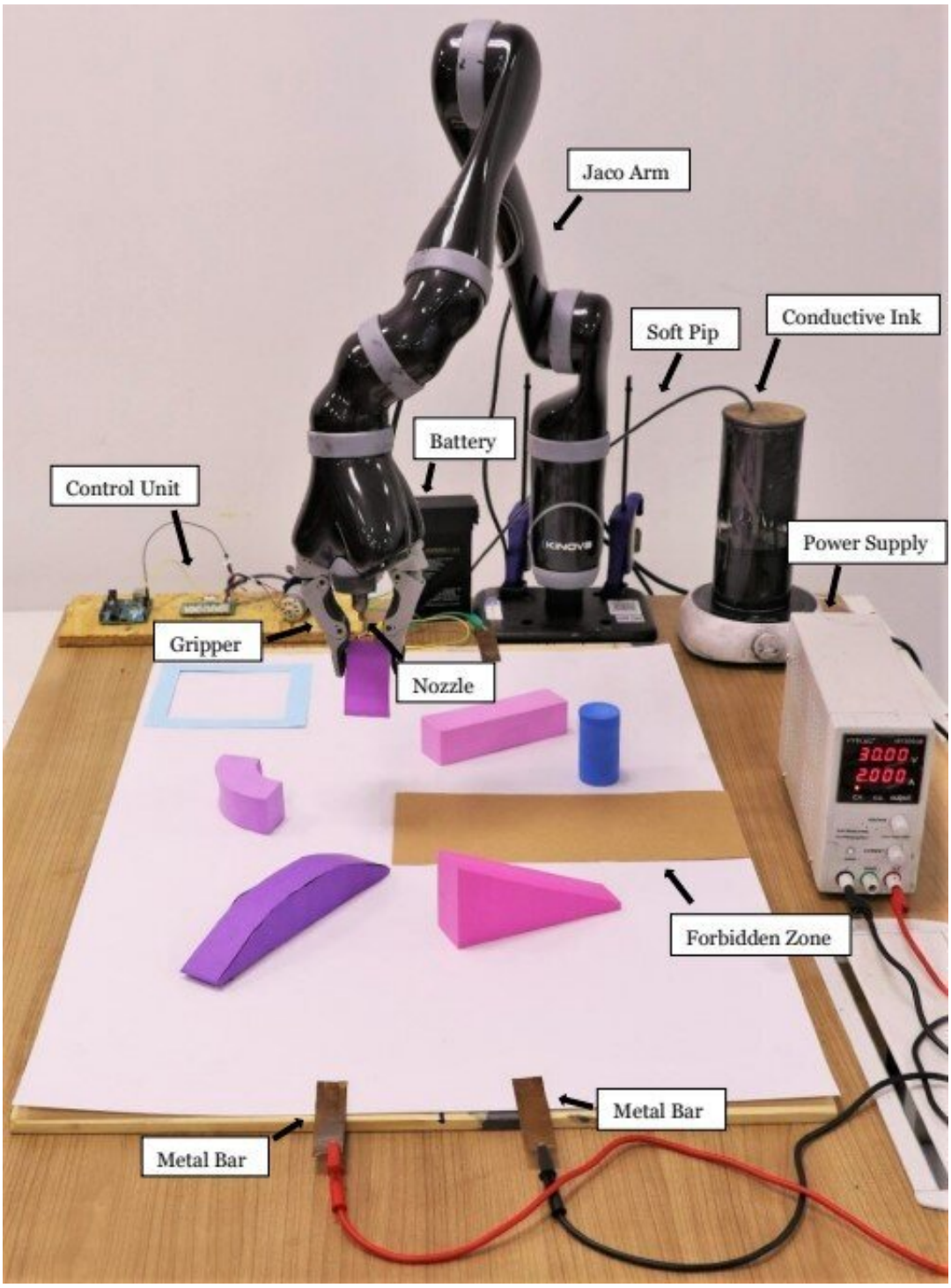
# Best of Last Week—Basal thaw, robots that draw their own circuits, using nasal spray to combat COVID-19

September 19 2022, by Bob Yirka




Experimental setup of the circuit drawing robot. The Kinova 6DOF Jaco Arm first performs pick-and-place actions at the pose suggested by the network. Then the arm moves to one of the metal bars at 5cm above the cardboard. The ROS controller continuously sends the waypoints of the circuit path calculated from the 3D path planning algorithm. An Arduino then receives the state of the arm

through ROS ad sets the on/off of the peristaltic pump to control the ink flow. The connection starts to show conductivity after the ink dries (30 minutes). Credit: Xianglong Tan, Zhikang Liu, Chen Yu, Andre Rosendo, Rearranging the environment to maximize energy with a robotic circuit drawing. arXiv:2111.08147v1 [cs.RO], https://arxiv.org/abs/2111.08147

It was an interesting week for Earth science and its history as a team at Stanford University explored whether we are missing a crucial component of sea-level rise. They suggest more attention needs to be given to basal thaw, where ice at the interface of the land meets with the deep ice sheet above it. Also, a team with members from Canada and Australia found what they believe to be one of the best-preserved dinosaurs ever—a full juvenile duck-billed Hadrosaur mummy discovered in a hillside in the U.K. And an international team found a 380-year-old fossilized heart that once belonged to a jawed fish. They suggest that its discovery may help to illuminate the evolutionary history of organs in general.

In technology news, a combined team from the University of North Carolina at Chapel Hill and the University of Rochester, developed a strategy to create more efficient narrow bandgap perovskite films for tandem solar cells as a possible way to increase efficiency. And a team at Los Alamos National Laboratories developed a new approach for comparing neural networks.The approach exposed how artificial intelligence works. Also, a team at the University of Brescia developed a deep-learning-augmented smart mirror to enhance fitness training, which watches how a person trains and then offers suggestions on how to improve their technique. And a team with members from the University of Illinois Urbana Champaign and Imperial College London developed a new robotic system that draws circuits with conductive ink. It uses the circuits to maximize the amount of energy it receives from a given

power source.

In other news, a team with member affiliations across the U.S. found evidence that the risk factor for developing Alzheimer's disease increases by 50 to 80% in older adults who have had COVID-19. Also, a team with members from Monash University, RMIT University, CSIRO, the Australian Synchrotron and Plymouth University presented evidence that the mysterious diamonds they found in a slice of a meteorite came from outer space—most likely an ancient dwarf planet that collided with a big asteroid. And finally, a team at Augusta University, working with one colleague from Edinburgh Napier University and another with Georgia State University found that twice-daily nasal irrigation can significantly reduce COVID-related illnesses and deaths.



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