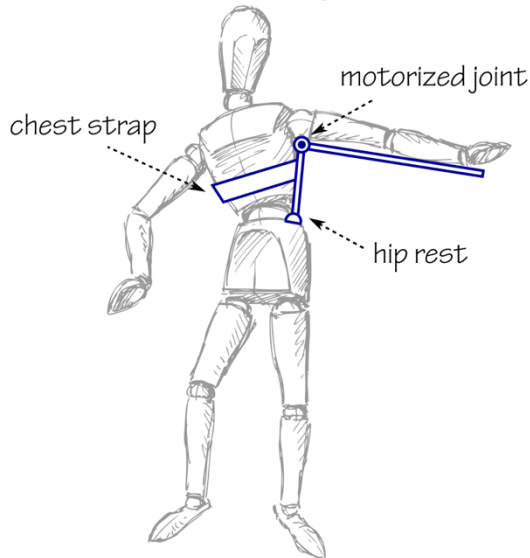
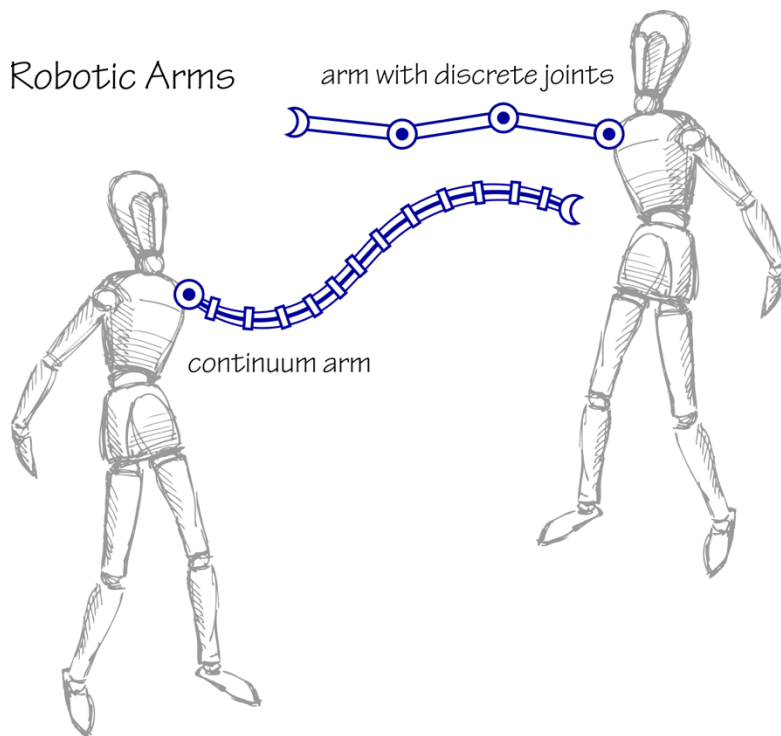


## Motorized Shoulder Joint



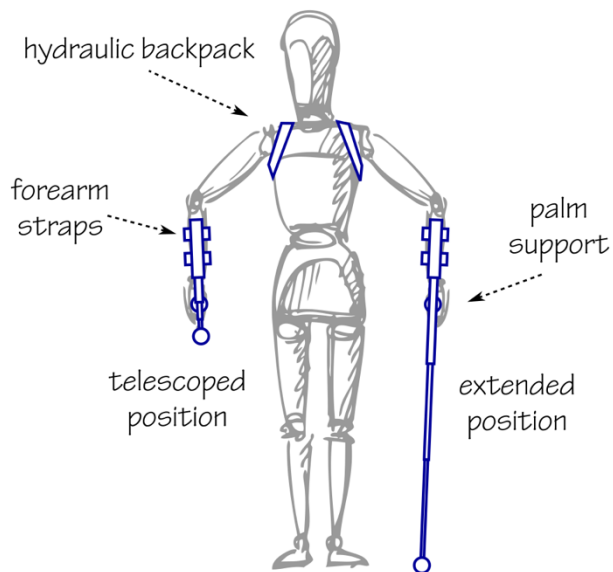
This is of particular interest to me as a person with limited active shoulder mobility but significant passive (assisted) range of motion. While inability to raise my arm over my head is rarely an insurmountable challenge in my day to day life, this does have significant effects on my movement ability as a dancer. Current robotics solutions do not generally explore this particular form of assisted motion.

## Robotic Arms



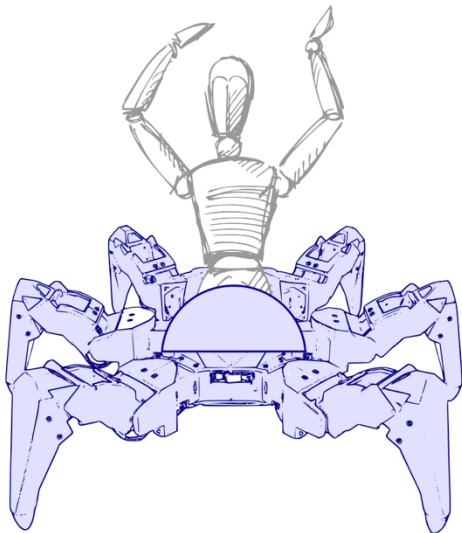
This could perhaps support a performer with one arm. Other robotic arms currently being developed are made immensely complex by being concerned about controlling individual fingers, for example. This, however, would abandon the desire for fine motor control in exchange for larger scale movement not possible in a "normal" human arm. I would be interested in exploring the movement possibilities with 2 elbows, 3, etc. With a relatively small number of joints, each could be self-actuated (have its own motor and have the ability to move independently). Another possibility would be to have a larger number of joints with a system of cables to control the parts of the tentacle-like arm together as one.

## Extendable/retractable crutches



I am interested in the ways that dancers who use crutches can move such that their arms can sometimes function as legs, allowing them to balance entirely on the crutches. However, holding crutches limits arm mobility. Crutches which could retract would allow for full arm movement when desired. Additionally, I would be excited to explore the movement possibilities of crutches which can change length. Perhaps the telescoping could be accomplished mechanically and only when not under load. A more complex and expensive solution, could be to use hydraulics in order to allow the crutches to extend under load.

## Hexapod Robot



This 6-legged robot could work in place of a wheelchair for a dancer without legs. While 2-legged robotic solutions are currently being developed for day-to-day use, these are very complex and expensive. Robotic hexapod kits are available inexpensively to robotics hobbyists, though these are not capable of carrying the weight of a human body. Scaling the weight capacity up would present a large technical challenge, although in many ways 6 legs are simpler than 2. Of course the movement potential of additional limbs is immense and would be very different than using a wheelchair or walking on 2 legs.