



Motivation

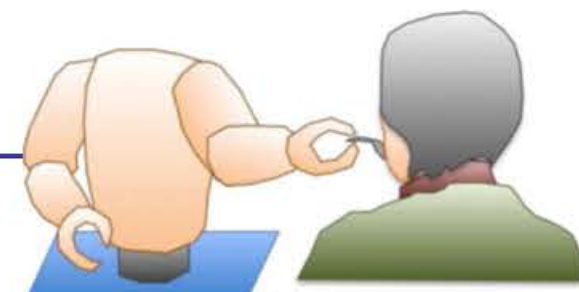


Traditional robots are composed of hard modules

- This makes them potentially dangerous and unsuitable for direct personal interaction

Design a soft robotic arm

- Intrinsically compliant
- Human-like degrees of freedom



Soft Materials



Poly-fill stuffing



Spectra fiber



Fishing Line



Elastic Bands



Kevlar/PVC glove



Braided Tubing

Acknowledgements



Chris Atkeson



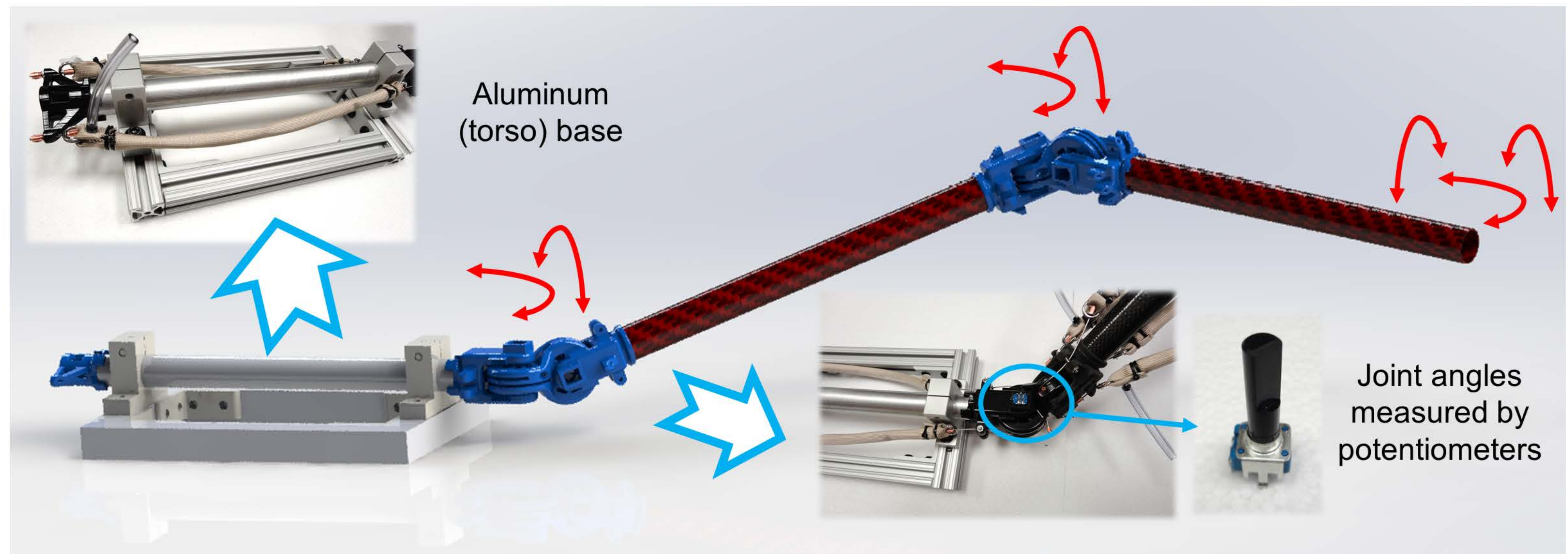
Yong-Lae Park



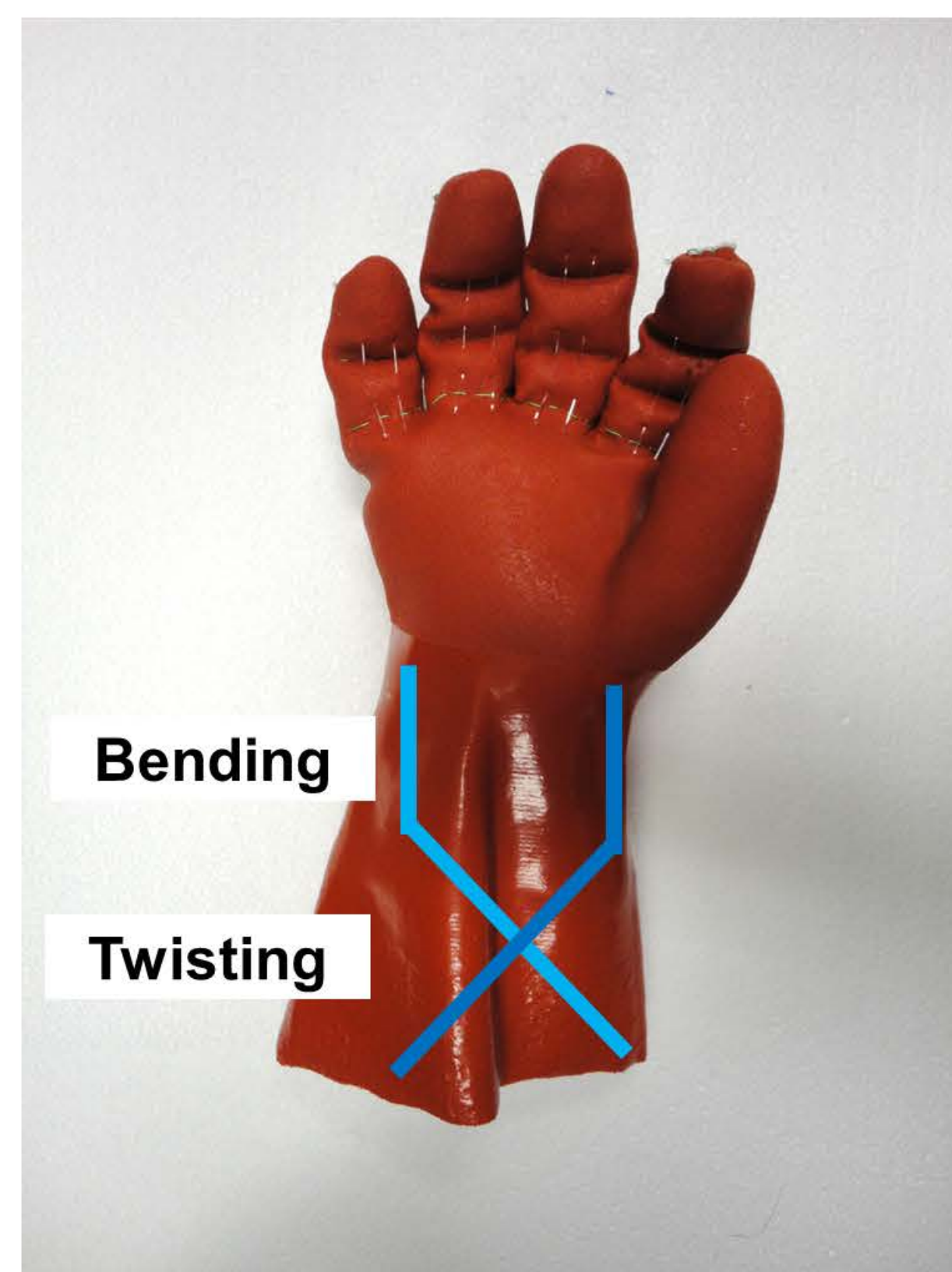
Preston Ohta

This arm was co-designed with Preston Ohta under the guidance of Prof. Chris Atkeson and Prof. Yong-Lae Park.

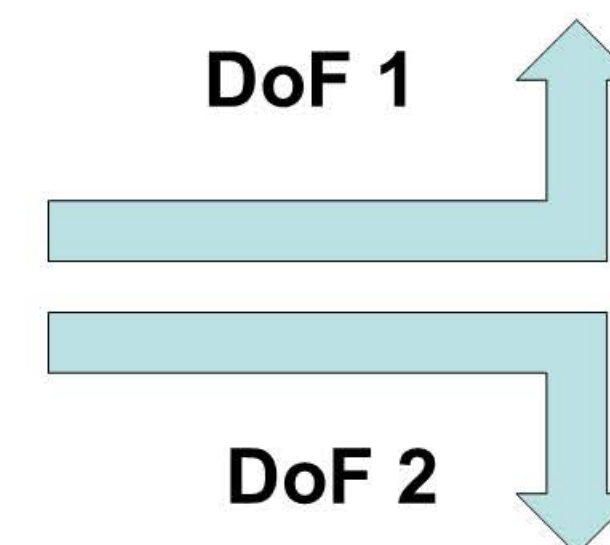
Design



Key Features



DoF 1



DoF 2



All cables are actuated by McKibben-type **pneumatic air muscles**. Pressure is regulated using binary valves.

Wrist differential consists of 6 cables. It allows for decoupled bending and twisting of the wrist.

Future Work

- ◇ Analyze gripping performance on a wide range of gripping geometries.
- ◇ Longer, thinner fingers with stiffer tips would be better suited to gripping smaller, finer objects.