

A new Generation of Light-weight Robot Arms and Multifingerd Hands

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Abstract

The keynote lecture describes recent design and development efforts in DLR's robotics lab towards a new generation of ultra-light weight robots with articulated hands (Fig. 1). The design of fully sensorized joints with complete state feedback and the underlying mechanisms are outlined. The second joint torque-controlled light-weight arm generation is available now [1], as well as the second generation of a highly integrated 4 finger-hand with 13 actuators and more than 100 sensors [2]. Thus we hope that important steps towards a new generation of service and personal robots have been achieved, with space robotics becoming a major driver due to the need for advanced "robonaut" technologies.

References

- [1] J. Butterfaß, M. Grebenstein, H. Liu, G. Hirzinger. DLR-Hand II: Next Generation of a Dextrous Robot Hand. IEEE International Conference on Robotics and Automation, Seoul, Korea, 2001.
- [2] G. Hirzinger, A. Albu-Schäffer, M. Hähnle, I. Schaefer, and N. Sporer. A New Generation of Torque Controlled Light-weight Robots. IEEE International Conference on Robotics and Automation, Seoul, Korea, 2001.

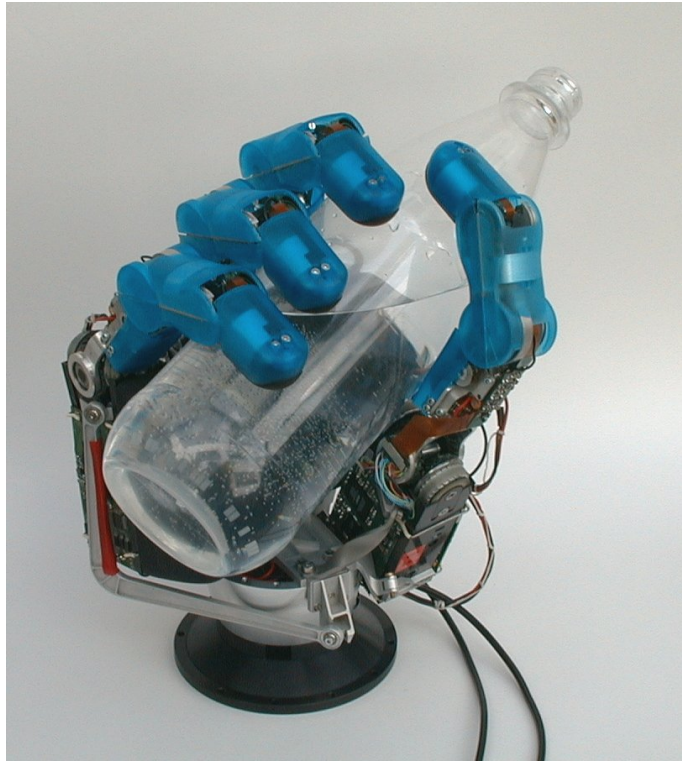


Figure 1: DLR Hand II and DLR Light-weight Robot II.