



Robot-Assisted Rehabilitation Training & Research
Simulated Virtual and Haptic Environments
Human-Robot Interaction Research

Barrett Upper-extremity Robotic Trainer
FORMERLY KNOWN AS "PROFICIO"

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Burt® is the world's first advanced and affordable end-effector robotic manipulator for upper-extremity rehabilitation training and robotics research which is based on the proven WAM technology developed by Barrett Technology. With transparent dynamics, low inertia, and mass, Burt® is designed to be a 3D haptic device of choice for those who desire high-fidelity force feedback throughout a human-sized work volume. Burt® supports researchers with new hardware and software modalities necessary for robotics research.



SPECIFICATIONS

Power Requirements	Single-phase 110/220V 50-60Hz
Reach	1.05 m
Workspace	0.96 m ³
Dynamic mass	9.5 kg
Total mass	80 kg
Max force	45 N *
Max velocity	1.5 m/s *

* Pose dependent and safety limited. Contact Barrett for more information.

➤ Applications

- Neurorehabilitation research
- Sensorimotor training
- 3D Haptically-enabled control
- Human-machine interaction
- Workspace/Force scaling
- Master-Slave and Teleoperation
- Virtual and Augmented Reality (VR) & (AR)
- Vocational therapy
- Teletherapy

➤ Hardware features

- 3-DOF robotic manipulator
- Backdrivable gearless transmissions
- Forearm cuff end-effector supports the human arm
- Easy handedness switching & subject setup
- Adjustable lifting-column height
- Safety System regulates force, torque, and velocity outputs for safe use
- Lockable caster wheels
- Bilateral (2-systems) ready
- Custom endpoints (*contact support*)

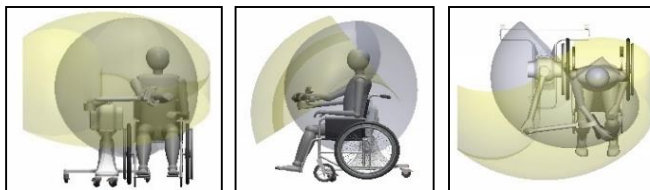


➤ Software Tools

- Medical software and engaging exergames
- *MonoDevelop* and *Unity* Integrated development environments
- Open source libraries:
 - **BurtSharp (C#) control library** for development of custom Burt® applications
 - **BurtSharp-Unity extension library** for development of virtual and haptic simulations
 - Well-documented **examples** make it easy to control Burt® and develop custom haptics and virtual fixtures
- Software and Firmware updates over the internet



Bilateral Force-Feedback



Workspace: Front, Side, and Top View.

Dark area: Human reach, Light area: Robot reach

*** The Burt® Research system is for research use only. This system is not a medical device ***