

1.1

GFF devices output force to the user and their mounting point is not located on the body on the contrary to cutaneous wearable devices, exoskeletons, additional limbs... Surface haptic devices are also not mounted on the body but instead of outputting force, they output vibrations, friction, or shape.

1.2

GFF: Falcon, Inca6D, MagicPen

Kinesthetic: Falcon, Inca6D, MagicPen, Animotus

Cutaneous: Zarate, Shapeshift

Classification is not always straightforward:

- Shapeshift could be considered to provide kinesthetic feedback since it moves the hand or cutaneous since the dense pin array activate tactile receptors in the skin.
- The Animotus device also provides information that is at the boundary between kinesthetic (changing shape) and cutaneous (skin indentation).

1.3

Richard, G., Pietrzak, T., Argelaguet, F., Lécuyer, A., & Casiez, G. (2020). Studying the Role of Haptic Feedback on Virtual Embodiment in a Drawing Task. Frontiers in Virtual Reality, 1, 28. [LINK](#)

This study explores whether vibrotactile, which is cutaneous, or force feedback, which is kinesthetic, have more impact on embodiment in virtual reality. Here, embodiment means feeling that the humanoid avatar present in the virtual environment is our own body. The experiment consisted in a drawing task (participants had to color a mandala). Subjective (10 questions) and objective (performance and completeness) were tested and results showed that embodiment was best with force feedback.