The invention claimed is :

1. A haptic device comprising:

a drum configured to rotate about an axis;

a cord wound around the drum;

a user-actuatable lever operatively coupled to the drum and configured to receive a user-actuation force;

a position sensor configured to determine a rotational position of the drum; and

an actuator operatively coupled to the cord and configured to apply a tension to the cord that further applies friction to brake the drum to cause the user-actuatable lever to provide a user-perceived resistance that opposes the user-actuation force, where the user-perceived resistance varies as a function of the rotational position of the drum and where the cord slips on the drum when the tension is less than a threshold and does not slip on the drum when the tension is greater than the threshold.

2. The haptic device of claim 1, where the user-perceived resistance is configured to change according to a resistance profile for a rotation range of the drum selected from a plurality of predetermined resistance profiles.

3. The haptic device of claim 2, where the resistance profile specifies that the user-perceived resistance changes linearly over a least a portion of the rotation range of the drum.

4. The haptic device of claim 2, where the resistance profile includes a hard stop at a designated position within a rotation range of the drum.

5. The haptic device of claim 1, further comprising:

a communication subsystem communicatively coupled to a computing device and configured to:

send the rotational position of the drum to the computing device, and

receive a -feedback signal from the computing device, where the actuator is controlled based on the signal to apply the tension to the cord to provide the user-perceived resistance, and where the user-perceived resistance is determined further based at least on a parameter of the computing device.

6. The haptic device of claim 1, where the user-actuation force is a first user-actuation force applied in a first actuation direction, where the cord is a first cord wound around the drum in a first direction, where the haptic device further comprises:

a second cord wound around the drum in a second direction that opposes the first direction, where a tension is applied to the second cord that further applies friction to the drum to cause the user-actuatable lever to provide a user-perceived resistance that opposes a second user-actuation force in a second actuation direction that opposes the first actuation

direction.

7. The haptic device of claim 1 , where the cord is a first cord, where the actuator is a first actuator, and where the haptic device further comprises:

a second cord wound around the drum;

a spring coupled to the second cord and configured to bias the user-actuatable lever;

a second actuator operatively coupled to the second cord and configured to apply a tension to the second cord that further applies friction to brake the drum to cause the user-actuatable lever to provide a user-perceived resistance that includes a spring force of the spring and opposes the user-actuation force.

8. The haptic device of claim 1, where the user-actuatable lever includes a trigger joint, and where the haptic device further comprises:

a finger ring operatively coupled to the trigger joint and configured to wrap around a user's finger and rotate about the trigger joint based on the user-actuation force.

9. The haptic device of claim 8, further comprising:

a trigger bias spring operatively coupled between the finger ring and the user-actuatable lever.

10. The haptic device of claim 8, where the user-actuatable lever includes a trigger switch configured to determine a position of the user's finger on the finger ring, and where the user-perceived resistance is determined based on at least the position of the user's finger on the finger ring.

11. The haptic device of claim 1, further comprising :

a vibrotactile actuator operatively coupled to the haptic device and configured to vibrate based on a signal received from a computing system.

12. The haptic device of claim 1, further comprising :

a voice coil actuator operatively coupled to the haptic device and configured to vibrate to convey a virtual texture based on a signal received from a computing system.

13. A haptic device comprising :

a drum configured to rotate about an axis;

a cord wound around the drum;

a user-actuable lever operatively coupled to the drum and configured to receive a user-actuation force;

a position sensor configured to determine a rotational position of the drum;

a communication subsystem communicatively coupled to a computing device and configured to :

send the rotational position of the drum to the computing device, and

receive, from the computing device, a signal that varies as a function of the rotational position of the drum; and

an actuator operatively coupled to the cord and configured to apply a tension to the cord that further applies friction to brake the drum to cause the user-actuatable lever to provide a user-perceived resistance that opposes the user-actuation force based on the signal, and where the cord slips on the drum when the tension is less than a threshold and does not slip on the drum when the tension is greater than the threshold.

14. The haptic device of claim 13, where the user-perceived resistance is configured to change according to a resistance profile for a rotation range of the drum selected from a plurality of predetermined resistance profiles.

15. The haptic device of claim 14, where the user-perceived resistance includes a hard stop at a designated position within a rotation range of the drum.

16. The haptic device of claim 13, where the user-perceived resistance is determined further based at least on a parameter of the computing device.

17. The haptic device of claim 13, where the user-actuation force is a first user-actuation force applied in a first actuation direction, where the cord is a first cord wound around the drum in a first direction, and where the haptic device further comprises :

a second cord wound around the drum in a second direction that opposes the first direction, and where a tension is applied to the second cord that further applies friction to the drum to cause the user-actuation lever to provide a user-perceived resistance that opposes a second user-actuation force in a second actuation direction that opposes the first actuation direction.

18. The haptic device of claim 13, where the cord is a first cord, where the actuator is a first actuator, and where the haptic device further comprises :

a second cord wound around the drum;

a spring coupled to the second cord and configured to bias the user-actuatable lever;

a second actuator operatively coupled to the second cord and configured to apply a tension to the second cord that further applies friction to brake the drum to cause the user-actuatable lever to provide a user-perceived resistance that includes a spring force of the spring and opposes the user-actuation force.

19. The haptic device of claim 13, further comprising :

a voice coil actuator operatively coupled to the haptic device and configured to vibrate to convey a virtual texture based on a signal received from a computing system.

20. A haptic device comprising :

a drum configured to rotate about an axis;

a first cord wound around the drum in a first direction;

a second cord wound around the drum in the first direction;

a spring operatively coupled to the second cord;

a user-actuatable lever operatively coupled to the drum and configured to receive a user-actuation force;

a position sensor configured to determine a rotational position of the drum;

a communication subsystem communicatively coupled to a computing device and configured to :

send the rotational position of the drum to the computing device,

receive, from the computing device, a first signal that varies as a function of the rotational position of the drum, and

receive, from the computing system, a second signal;

a first actuator operatively coupled to the first cord and configured to apply a tension to the cord that further applies friction to brake the drum to cause the user-actuatable lever to provide a first user-perceived resistance that opposes the user-actuation force based on the first signal; and

a second actuator operatively coupled to the second cord and configured to apply a tension to the second cord that further applies friction to the drum to cause the user-actuatable lever to provide a second user-perceived resistance that includes a spring force of the spring and opposes the user-actuation force based on the second signal.