CLAIMS

1. A method comprising:

providing a smart contact lens comprising an array of beamforming microphones, wherein the smart contact lens is worn by a user and the array of beamforming microphones receive sound from different directions;

determining a gaze direction of the user;

filter the sound received by the array of beamforming microphones based on the gaze direction of the user to determine filtered sound; and

output the filtered sound via a bone conduction hearing device.

2. The method of claim 1, wherein the gaze direction of the user is determined based on sound localization of the sound received by the array of beamforming microphones.

3. The method of claim 1, further comprising displaying a visual simulation synchronized to the filtered sound.

4. The method of claim 3, further comprising changing a playback speed of the filtered sound and the visual simulation.

5. The method of claim 3, wherein the visual simulation is displayed by the smart contact lens.

6. The method of claim 3, wherein the visual simulation is displayed on an external display.

7. The method of claim 1, further comprising displaying a visual augmentation synchronized to the filtered sound.

8. The method of claim 5, further comprising changing a playback speed of the filtered sound and the visual augmentation.

9. The method of claim 5, wherein the visual augmentation is displayed by the smart contact lens.

10. The method of claim 5, wherein the visual augmentation is displayed on an external display.

11. A non-transitory computer readable storage medium comprising computer executable instructions which when executed by a computer cause the computer to perform a method of filtering sounds, the method comprising:

providing a smart contact lens comprising an array of beamforming microphones, wherein the smart contact lens is worn by a user and the array of beamforming microphones receive sound from different directions;

determining a gaze direction of the user;

filter the sound received by the array of beamforming microphones based on the gaze direction of the user to determine filtered sound; and

output the filtered sound via a bone conduction hearing device.

12. The non-transitory computer readable storage medium of claim 11, wherein the gaze direction of the user is determined based on sound localization of the sound received by the array of beamforming microphones.

13. The non-transitory computer readable storage medium of claim 11, further comprising displaying a visual simulation or augmentation synchronized to the filtered sound, wherein the visual simulation or augmentation is displayed by at least one of the smart contact lens and an external display.

14. The non-transitory computer readable storage medium of claim 13, further comprising changing a playback speed of the filtered sound and the visual simulation.

15. A system comprising:

an array of beamforming microphones disposed on a contact lens;

a processor in electronic communication with the array of beamforming microphones and configured to determine a direction of a plurality of sounds received by the array of beamforming microphones, determine a focus on a first sound of the sounds based on the directions of sounds relative to an orientation of the array of beamforming microphones, and output a signal based on the focus;

an audio output device configured to receive the signal output by the processor and to output a filtered audio, the filtered audio preferentially treating the first sound received by the array of beamforming microphones based on the signal output by the processor; and

a mobile device including the processor and paired with the array of beamforming microphones.

16. The system of claim 15, wherein the mobile device is paired with the audio output device.

17. The system of claim 15, wherein the array of beamforming microphones is oriented substantially in a direction of a view afforded by the contact lens when worn by a user and toward a source the first sound.

18. The system of claim 15, wherein the mobile device comprises the audio output device.

19. The system of claim 15, wherein the mobile device including the processor is configured to detect a predetermined sound having a priority greater than the first sound,

wherein the processor is configured to preferentially treat the predetermined sound over the first sound,

wherein the system further comprises a memory accessible to the processor and storing a set of priorities for predetermined sounds, including the predetermined sound.