Information from the two ears normally is used to selectively attend to a "target" talker at a specific location (e.g., at one point in azimuth) while ignoring competing talkers at different locations. Under appropriate conditions, this ability provides a type of "spatial tuning" that is most effective when the listening conditions are complex and the interference between sound sources is dominated by "informational masking." Many listeners with hearing loss are unable to obtain the normal benefit for target speech recognition that is possible when competing speech sources are spatially separated, exhibiting broader and shallower patterns of spatial tuning. Various types of bilateral amplification can improve performance although for many listeners this strategy, which still depends on using binaural information to select among competing sound sources, does not provide a satisfactory solution. This deficit is thought to be a major contributor to the difficulties listeners with hearing loss experience in multiple-talker ("cocktail party") acoustic environments. In this talk, the potential benefits of a new approach to hearing aid design are described and the advantages and limitations of the approach are discussed. This new "visually-guided hearing aid" (VGHA), currently a laboratory prototype, combines a beamforming microphone array with eye gaze control implemented by an eye tracker and custom interface. The preliminary findings using this device - both in terms of spatial tuning achieved by the beamformer and dynamic source selection/tracking implemented by the eye-gaze control - will be considered and compared to similar abilities found using (amplified) natural binaural information.

This program is offered for 0.1 CEUs (Intermediate level; Basic Communication Processes area).

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