



upHear Spatial Audio Microphone Processing

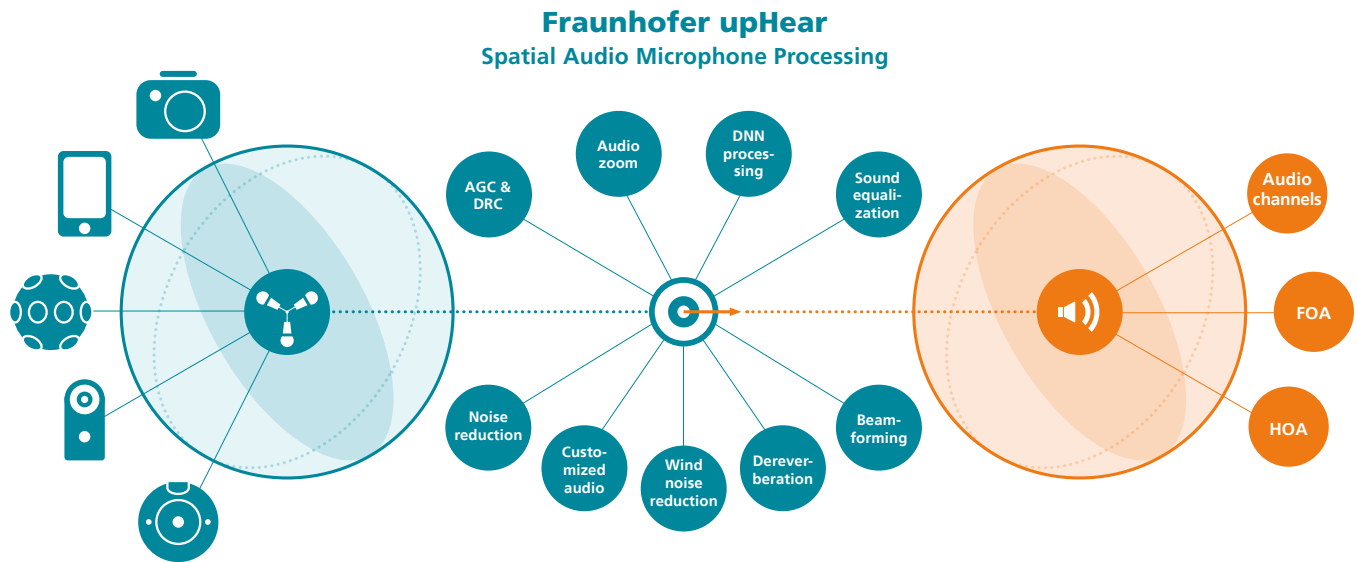
Spatial Sound Capturing and Speech Enhancement for Professional and Consumer Devices

Fraunhofer upHear Spatial Audio Microphone Processing (SAMP) provides advanced technologies for professional and consumer devices that can capture spatial sound, such as smart devices, mobile phones, action cameras, and video conferencing devices. Fraunhofer upHear SAMP enables the capturing of high-resolution immersive spatial sound with compact microphone setups as well

as the enhancement of the desired speech source in challenging acoustic scenarios. By applying advanced classical and AI-based microphone processing algorithms, it extracts desired audio signals while removing undesired signals such as interfering sources, background noise, reverberation, and wind noise.

Fraunhofer upHear SAMP offers exceptional quality by adding high-end speech and immersive audio capturing capabilities to almost any device with one or more microphones. This flexible solution can be applied and adapted to arbitrary applications

(including different microphone setups, output formats, use cases, and requirements on computational complexity) and reaches a distinct performance through device specific tuning by Fraunhofer engineers.



Optimized integration of functionalities

- High-resolution spatial sound capturing creates an immersive impression of the recorded spatial sound
- Noise Reduction allows to concentrate on the desired speech source without being distracted by background sounds or wind noise
- Dereverberation improves the intelligibility and listening comfort in reverberant rooms
- Beamforming attenuates undesired interfering sounds and improves the SNR of far-field voice
- Audio Zoom allows a real-time focus on desired sound sources (zooming in) or the creation of immersive spatial sound (zooming out)

Availability and references

- Available for licensing; the software library can be provided for desktop platforms (Windows, Mac, Linux), mobile apps (iOS, Android), and embedded systems (e. g., ARM Cortex)

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