

Press release: World's Fastest 3D Microphone Array Simulation Software

Based on technology originally developed for the UK Home Office, A3S gives developers the ability to dramatically reduce audio array simulation times, improve the fidelity of results, and increase performance using fewer components. Significantly decreasing simulation times during product development from eight hours to 30 seconds* (a reduction of 99.9 per cent), A3S calculates in near real-time the physical configuration of the audio array in order to achieve optimum performance.

For the first time manufacturers will be able to fully exploit the potential of audio arrays, and deliver microphone/speaker-based products which:

- Require fewer audio components and reduce device size – tests of an off-the-shelf product reduced the number of microphones by two-thirds, while improving audio performance.
- Minimise development costs – less product development time can be spent simulating and prototyping arrays. It also allows the modelling of more frequencies, resulting in a product with greater confidence in its performance, and potentially removing the need for costly redesigns.
- Are smarter – products can be optimised to cope with changing environments, as near real-time characterisation allows beamforming to be conducted on-the-fly to dynamically focus microphones and cancel out noise.
- Are less power hungry – less processing power required by fewer microphones.

Gerry Scott, Commercialisation Manager at Ploughshare Innovations, said:

A common development approach is to deploy multiple microphones and speakers in a product to achieve an acceptable level of performance. However, without full optimisation, they will still under-perform. The developers of A3S have proven that simulations can be conducted 1,000 times faster than current approaches, allowing developers to create high performing products with more confidence. Reducing the number of components also means that high-end audio products can be created with a smaller form factor and at less overall cost, giving manufacturers potentially significant cost savings. A high-end audio experience will become more widely available to us all.

Examples of what applications could use A3S to improve audio product performance include voice recognition, smartphones, automotive, immersive audio and gaming/home cinema.

- In tests, the simulation time of a 16 microphone array was reduced from

eight hours to
30 seconds. In addition, A3S simulated hundreds of frequencies – significantly more than the eight frequencies managed by the conventional method.

About Ploughshare Innovations (www.ploughshareinnovations.com)

Ploughshare Innovations is the technology transfer organisation for the UK Ministry of Defence (MOD). It turns 'swords into ploughshares' by enabling businesses to gain access to defence and security technology developed by leading government laboratories. Ploughshare ensures Government technology is put to good use and benefits the UK, society as a whole, and humanity by applying innovative technology to improve people's lives. Since its creation in 2005, the company has licensed 120 technologies and attracted £140 million of investment.

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