# Darin Fong Audio Out of Your Head Software

## Virtual Speaker Software for Headphone Listening

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**O**ne of the primary complaints from audiophiles who prefer room-based-system listening to headphones is the way headphones image. Instead of a soundfield portrayed in front of you with the instruments' dimensions in width, height, and depth placed precisely in space, a headphone places all the imaging information between your ears. While a good pair of 'phones can deliver excellent image specificity, detailed locational cues, and even depth and image height, it is certainly not the same experience.

Darin Fong is very aware of this issue and has developed a software application that attempts to remedy this imaging conundrum. His Out of Your Head application uses measurement and modeling to recreate the imaging and soundstaging of various loudspeaker systems in different rooms with headphones. How well does this app simulate the room-based listening experience? Let's find out.

**Technical Description**

The Out of Your Head application is available for both Windows and Mac OS. For Windows, it requires Windows 7 or newer and for Mac it needs OS X 10.8 or higher. In both platforms, the hardware and OS must be capable of 64-bit processing. Once installed, your computer sees the OOYH app as a virtual sound card—all audio output will be routed to the OOYH app, and the app lets you select where its output will go. On my Mac, as currently configured, I had three options—built-in output (the speaker in the computer), Mytek Brooklyn (the USB DAC connected to my Mac), and Sonic Stream (a virtual sound card from the makers of Amarra). When I incorporated additional USB DACs, OOYH recognized and immediately brought them into the "Output Channels" list.

Unlike 3-D simulations that use a particular algorithm to create a dimensional effect, OOYH is based on measurements of real-world environments, which are then converted into a software app that recreates the sound the listener would hear if he were sitting in the measured room listening to the speakers in that

room. Out of Your Head recreates the sound signature of the entire listening room including preamps, amps, speakers, and room acoustics. None of the 29-plus-one "gamer" presets are based on head transfer functions, but instead on each individual room and loudspeaker environment. Currently the 29 settings include recording studios, home theaters, mastering studios, dynamic, electrostatic, and horn loudspeakers, as well as one setting called "Magical speaker!"

Pricing for OOYH varies, depending on how many different speaker settings you want. The basic "starter" version is $149 and comes with one loudspeaker preset of your choice. Additional speaker settings are $15 to $25 each. For individuals on a tight budget, Fong has a "Gamer Edition" of OOYH priced at $24.95 that comes with no options for selecting speaker presets. This Gamer Version is a single 7.1 speaker preset, just like all the other 7.1 speaker presets but not based on a particular loudspeaker. According to Fong, "We created a preset which we felt delivers a great overall experience for music, movies, and games. Again, the Gamer Version is designed for non-audiophiles who just want great speaker virtualization with their headphones." The Gamer's license version can't be upgraded to a "full" version.

OOYH can handle any file or stream up to 48/32. With certain presets that required less processing power, I was able to use 96/24 files, but that is not a universal option. Fong told me, "We do not currently support any audio above 48kHz/32-bit. We have tested our engine at up to 192/24, but that option is not currently available."

During the review I successfully used iTunes, Hulu, Audirvana+, Audiotools, Roon, and YouTube with OOYH. I had less success with Amarra and Pure Music, but this was because the latest Mac version of iTunes 12.6.01 kept crashing when I booted it up with these two apps—soon with an update I expect they will also be usable.

Fong is understandably reticent to reveal proprietary technical details, but I did ask him about latency issues with video sources. Fong told me, "All the speaker presets are low latency and suitable for video and gaming. On the average system, the latency for any preset is about 30ms to 90ms. The processing engine latency is the same latency for all presets; however, some presets were captured in larger rooms with the speakers further away from the listening position. This can add a few milliseconds to the latency due to the inherent latency from the speakers to the listening position."

Although not available yet, Fong is currently working on iOS and Android versions of OOYH for use on portable devices. Those could very well be a game-changing apps, if and when they come to fruition.

## Setup and Ergonomics

To use OOYH you must download the "Trial" version first. This version allows you to sample all OOYH's speaker presets. The only limitation in the Trial version is that the presets will play for two minutes and then stop. To remove the two-minute time limit, you must purchase a license for that preset. There are a bunch of demonstration tracks and videos that I recommend

trying out first at https://fongaudio.com/demo/ that will give you a good idea of how effective the OOYH software can be with your system. Once you've downloaded the Trial version you can choose to purchase and designate which speaker setting you wish to include with your license.

The OOYH app has a control panel that allows you to change output devices and select speaker settings. For those who like to compare sonic viewpoints, there's a box you can check and uncheck to toggle between a selected speaker preset and bypass mode, which eliminates all of OOYH's processing. The control app also has a master volume-control slider as well as separate sliders for each channel, which allow for fine-tuning those balances.

If you have an MQA-compatible DAC, such as the Mytek Brooklyn, you will need to change the settings on Tidal, Roon, and other playback apps to reflect the fact that OOYH does not support MQA. Unfolding will have to be done by the Tidal, Roon, Audirvana+, or other MQA-aware desktop applications (as they become available), not by your MQA DAC.

## Sound

How well does OOYH succeed in dragging your headphone's sound from between your ears to "out there?" That depends on several factors, the most important one being which speaker preset you choose; some image with more precision than others. To my ears the "AIX Studio" had the most precise imaging characteristics. It was also one of the presets that had the least amount of room ambience. If you are a horn loudspeaker devotee I encourage you to try "Technicolor Studios" and "Volti Audio Vittora Speakers" settings, both of which do an admirable job of duplicating a horn loudspeaker's dynamic verve. Although I could walk you through general sonic descriptions of all 29 settings, since you can easily try them out yourself via the OOYH in Trial mode, I encourage you to do just that, since your tastes are bound to be different from mine.

I did develop preferences for particular loudspeaker presets. After my initial listening tests I found myself gravitating to the "Genelec Recording Studio," the "AIX Studio," and the "Technicolor Studios" presets. These were the speaker presets that imaged the best for me and had the least amount of room ambience in their setups. For maximum "room" give the "Egyptian Theater" a listen. Too much for me, but if you fancy that "Voice of the Theater" wall of sound, you may like it quite a bit. Some presets, including the "Quad ESL" and "Magi-

co Q7" were so sonically intriguing that I continue to use them with some regularity. I suspect that with a large enough sampling of users we would see that all the speaker presets have garnered their share of adherents. While a few are similar to each other, such as the "Magical speaker" and the "Magico Q7," most are different enough to be called singular, if not unique.

How close does OOYH come to the imaging that comes from a reference monitor? While OOYH's virtual soundstage does image, it does not do so with nearly the precision or specificity of my Audience 1+1 nearfield monitors. I would put OOYH more on par with my old Mirage OMD-5 loudspeakers, which are an upward-firing, semi-omnidirectional dispersion pattern design.

Because the OOYH control panel has a toggle so you can quickly switch its processing on and off, it's easy to compare OOYH effects with a native, unprocessed signal. One of the universal characteristics of the OOYH settings is that they all sound more distant than the unpro-

cessed signal. For many listeners this change will seem at first to be primarily harmonic rather than spatial. But if you give your ear/brain a chance to adapt—especially at first you will need to put in some listening time to get used to the transformation—you will notice the spatial shift and imaging changes.

The primary sonic issue I found with OOYH was that with some presets and a video source I noticed a delay in the sound compared with what was happening in the picture. As Darin Fong indicated, the presets done in larger rooms, like the "Egyptian Theater," had noticeable latency issues for me. The "Gamer License" preset had the least amount of delay and was my go-to preset for watching *Star Trek* via Hulu.

The OOYH's principal limitation is that it can't handle higher-resolution PCM, DSD, or MQA files natively. With these file types you will need to either downsample or transcode to make them usable by OOYH. Occasionally, I had issues with OOYH sound becoming distorted or dropping out. This occurred only after the app had been

running for at least an hour. In every case, closing and reopening the app cleared the problem.

### Competition

Many headphone amplifiers offer a head-related transfer or crossfeed function toggle that can create a more "three-dimensional" image for some listeners. OOYH is far more than an HRTF or crossfeed circuit. I've never heard a head-related transfer function circuit that changed the imaging as completely as the OOYH app. I don't consider even the most sophisticated crossfeed circuits, such as what you find on the SPL Phonitor II, to be in the same league of processing sophistication or effectiveness as the OOYH app. Although OOYH is not unique in generating HRTF cues, it differs from other systems in that these cues are derived from measuring speakers in a room, rather than from theoretical calculations.

The only software/hardware device I've experienced that does have an equally impressive and convincing three-dimensional out-of-head experience with headphones as the OOYH app is the Smyth Research Realiser A16 system ($1690). The Smyth system also samples a room and builds a profile of it that simulates listening to the loudspeakers in that room. I've had several demos of the Smyth system and each time I was wowed by its imaging accuracy, which was superior to what I've heard from the OOYH app. But the Smyth system requires that you do your own measurements using a speaker that you currently own (or have access to) and costs substantially more than the OOYH app. In comparison, the OOYH app is virtually plug-and-play compared to the Smyth's hands-on approach.

### Conclusion

Want to watch your computer sing and dance? Try using Darin Fong's Out of Your Head software! Well, OK, that's not true, but if you have a great pair of headphones that you should be listening to more than often you currently do, perhaps the addition of the OOYH app to your computer-playback rig could re-energize your music-via-headphone consumption. I've found that using OOYH with Hulu definitely made watching movies on my 26" monitor a more involving cinematic experience than using headphones without it.

While I haven't been so converted by OOYH's enchantments that I've made it the only way I listen to headphones, I have been using it consistently and regularly for part of my listening ever since I downloaded it to my desktop. If you spend a good part of your listening time attached to headphones, adding the Out of Your Head application to your sonic arsenal will enhance your pleasure, bigly. And given that you can try it out anytime, on almost any system via the demo page—and on your own system if you download the Trial version of the app—you don't have to take my word. Try it. Because, I guarantee that Darin Fong's OOYH app will get that headphone sound out of your head. **tas**