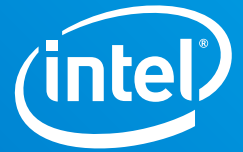


SOLUTION BRIEF

Using AI for clearer sound



Krisp* by 2Hz*

Cleans up Noise Pollution in Real-Time

Better Sound with Less Noise

Noise is a problem. Even in relatively quiet workspaces, the sounds of keys clacking, paper shuffling, and side-conversations are such constants that they seem to fade into a background hum. During video conferences, however, that background hum suddenly becomes a nagging, distracting irritant. For those who take their conference calls in less predictable environments, such as any public space, successfully handling an important call can be a struggle. Depending on the environment, it can become impossible. With remote conferences on the rise, noise pollution is a pressing issue for businesses and remote workers. 2Hz promises a Krisp connection, every time.

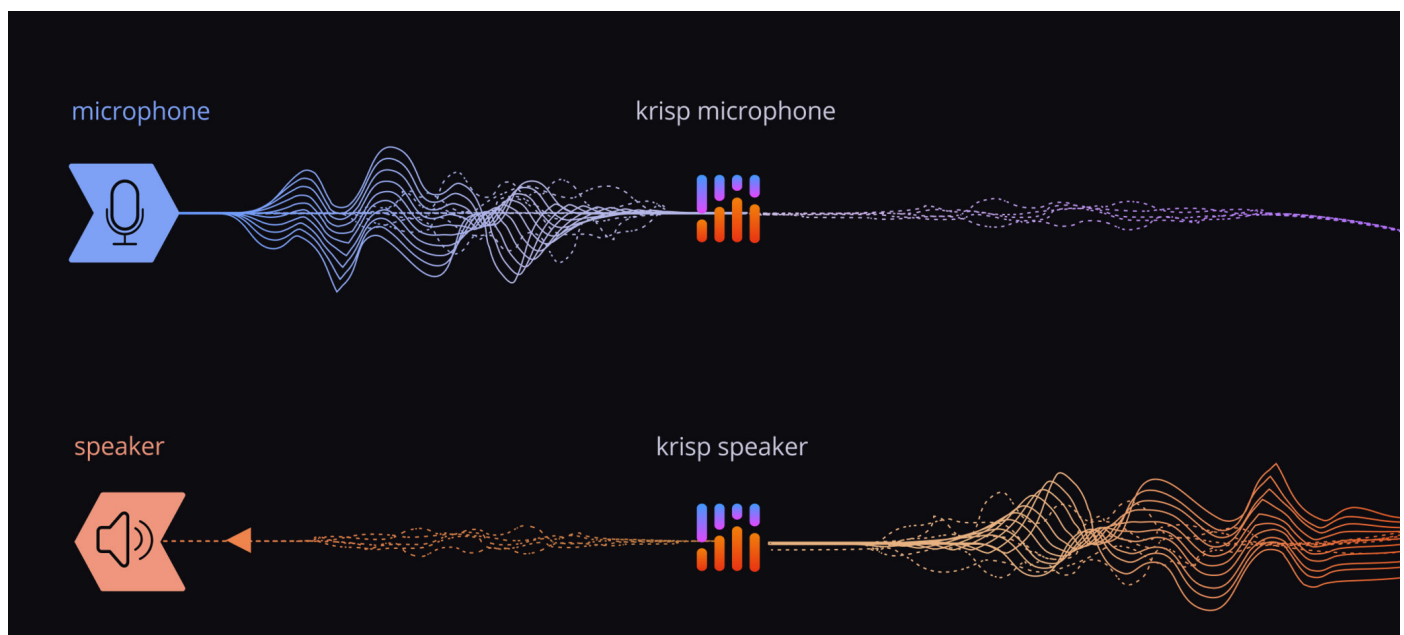


Figure 1 Krisp technology



Mathematical Thinking Finds a Solution Outside of the Box

Audio technology is nothing new, though it has jumped through a few technological leaps over the last few decades. Still, when 2Hz set out to create Krisp, they decided it was time to reinvent the wheel. Instead of relying on audio tech experts, they built a team of PhDs in mathematics and physics to tackle an old problem from the ground up.

“Using the GNA (Gaussian Network Accelerator) built into the 10th Gen Ice Lake CPUs was integral to creating our Deep Neural Network which was trained to remove background noise and leave only clean voice.”

Davit Baghdasaryan, CEO and Co-Founder 2Hz

The ubiquity of the problem called for a simple, downloadable solution that would be compatible with existing microphones and speakers, as well as all major conferencing software. To start, Krisp collected and processed tens of thousands of different noise and voice types. They used this cacophony to create a deep neural network capable of real-time noise cancellation beyond anything currently available. The Krisp app basically adds a virtual, intelligent sieve capable of isolating the sound of a caller's voice and removing all unnecessary, extraneous noises in real time.

Bidirectional and Mic-Independent

Krisp's intelligent audio filter sits between your physical microphone or speaker and your conferencing app of choice. This allows you to control your own experience even if the offending noise is coming from the other end of the line. If you happen to be in a noisy area, you can turn on the Krisp Microphone control to filter out extraneous noise as you're talking, without muting your own voice. The application will register and remove even sudden, unexpected noises like an ambulance driving by or a dog's bark. If, on the other hand, you're noticing a lot of distracting background noise coming through from the other caller, you can switch the Krisp Speaker control on and Krisp will filter out your caller's environmental noise. There is no need for multiple mics or expensive speakers, although noise-cancelling headphones add an extra level of environmental control. Everything happens on your device, with almost no latency, and no data is ever sent to a server or even stored at all.

The Future is Freedom: More Control, More Options

More companies are changing to reflect the way today's digital workers want to "show up" for work. A remote workforce gives companies a larger pool of potential employees in more locations. The flexibility of remote work allows employees to better balance work and home lives. And less commuting is better for everyone, including the environment. Advancements in conference call technology are altering the way companies handle communication, making it easier and more affordable to coordinate meetings and connect to remote workers. Apps like Krisp are helping to make it possible to work on our own terms.

Krisp is Already Making Waves

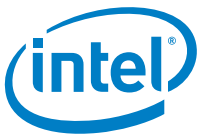
Currently available on existing CPUs for both Windows and Mac, Krisp promises to improve the experience even further by facilitating cleaner calls with intelligent noise control. Eventual enhancements include removing room echo, enriching voice quality, and the option to mute other voices. Paired with a quality pair of noise-cancelling headphones, a remote worker can create a virtual sound booth in a busy airport. This is all possible using a tuned piece of logic called GNA (Gaussian Neural Accelerator) that is built into Intel® 10th Gen Ice Lake CPUs.

Even before the official launch, the Krisp app had been downloaded over forty thousand times for use with six hundred apps, including gaming, podcast recording and, yes, conferencing. The technology is already being piloted by enterprise-scale and SMB contact centers to block background chatter and increase productivity. With a mobile app just around the bend, as well as a GNA optimized version, Krisp is poised to change our expectations for audio.

Learn More

For more information about Krisp background noise reduction technology go to krisp.ai.

To find out more about Intel GNA (Gaussian Accelerator Network) for low-power AI usages built into Intel® 10th Generation Ice Lake CPUs, go to intel.com/ai



Benchmark results were obtained prior to implementation of recent software patches and firmware updates intended to address exploits referred to as "Spectre" and "Meltdown". Implementation of these updates may make these results inapplicable to your device or system.

Intel does not control or audit the design or implementation of third party benchmark data or Web sites referenced in this document. Intel encourages all of its customers to visit the referenced Web sites or others where similar performance benchmark data are reported and confirm whether the referenced benchmark data are accurate and reflect performance of systems available for purchase.

This document and the information given are for the convenience of Intel's customer base and are provided "AS IS" WITH NO WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS. Receipt or possession of this document does not grant any license to any of the intellectual property described, displayed, or contained herein. Intel® products are not intended for use in medical, lifesaving, life-sustaining, critical control, or safety systems, or in nuclear facility applications.

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software or service activation. Performance varies depending on system configuration. No computer system can be absolutely secure. Check with your system manufacturer or retailer or learn more at intel.com.

Intel's compilers may or may not optimize to the same degree for non-Intel microprocessors for optimizations that are not unique to Intel microprocessors. These optimizations include SSE2, SSE3, and SSE3 instruction sets and other optimizations. Intel does not guarantee the availability, functionality, or effectiveness of any optimization on microprocessors not manufactured by Intel. Microprocessor-dependent optimizations in this product are intended for use with Intel microprocessors. Certain optimizations not specific to Intel microarchitecture are reserved for Intel microprocessors. Please refer to the applicable product User and Reference Guides for more information regarding the specific instruction sets covered by this notice.

Copyright © 2019 Intel Corporation. All rights reserved. Intel and the Intel logo are trademarks of Intel Corporation in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others. 1115/LTW/TDA/XX/PDF Please Recycle 333340-001US