To: Epstein Jeffrey[jeevacation@gmail.com]
From: Joi Ito
Sent: Fri 7/5/2013 10:11:36 PM
Subject: Fwd: noise canceling

Begin forwarded message:

> **From:** Joseph Paradiso <j⬛⬛⬛⬛⬛>
> **Subject: Re: noise canceling**
> **Date:** July 5, 2013 07:47:37 -0400
> **To:** Joi Ito <⬛⬛⬛⬛⬛>

Hi Joi. Active noise canceling tends to work best if you can apply the control at a discrete point. Headphones, for example, where you put the control right at the ear where you want to suppress the nose. Also, ACT mufflers exist - you can actuate in a small area where the noise is produced or transmit through. In aircraft, the most successful techniques I know of are where they apply the actuation at mounting points or bulkheads, to reduce local vibration there. It doesn't tend to work well if you're trying to control a larger space - the reflections, multipath, dispersions, and general complexity of real world get in the way. It's generally hard unless you can find a "chokepoint' through which the sound and vibration need to pass - there you can put your pickups and actuators to locally null it.

There are a bunch of companies playing in this space now - everybody knows Bose (their big research here for years has been on active suspensions for cars - an extension of noise canceling to lower frequencies, although with less than commercial success, although they've recently released an actively controlled seat for trucks that's promising). There are a ton of others working here now, but it tends to be mostly headphones - I recall a company called NCT who were major players, but the website I found doesn't look tremendously encouraging (http://www.nct-active.com/).

Hope this helps a bit, and happy 4'th! The fireworks were great up on the deck last night - Krishna and I brought my daughters.

-Joe-

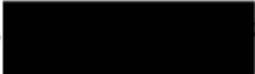On Jul 4, 2013, at 7:55 PM, Joi Ito wrote:

> What's the best technology for noise canceling, for instance a section of an airplane. Is there something that works well or a theory that might work?

- Joi

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Now Playing:
By:
From:
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Please use my alternative address, ████████████ o avoid email auto responder