



# Hamilton Institute

## Making Machines Listen

Paris Smaragdis

Thursday, May 17<sup>th</sup>, 2007

### *Abstract*

Enabling machines to perceive the world using various modalities is one of the holy grails of artificial intelligence. In this talk I will present some research on creating machines that do as such by listening. I will discuss some of the unique difficulties in this field and present a thread of research which spans a range of computational techniques relating to signal processing, machine learning and cryptography. This research will be introduced in the context of classic audio problems such as time/frequency analysis, music transcription, source separation, recognition in mixtures and more. I'll show how this work generalizes and finds applications to other domains, such as computer vision, and what it takes to move it from the whiteboard to the real-world.

### *Biography*

Paris Smaragdis is a research scientist at Mitsubishi Electric Research Laboratories. Prior to that he completed his graduate and postdoctoral studies at MIT where he conducted his research in computational perception. His research interests lie in the intersection of machine learning and signal processing, especially as they apply to problems of computational audition. Since joining MERL he has been active in both the academic and the corporate research world, introducing multiple novel algorithms and putting them to use in real-world products. His work was recently recognized by MIT's Technology Review which selected him as one of the top 35 young innovators of 2006. URL: <http://www.merl.com/people/paris/paris.html>

**Venue:** Seminar Room, Hamilton Institute, Rye Hall,  
NUI Maynooth

**Time:** 3.30 - 4.30pm (followed by tea/coffee)

Travel directions are available at [www.hamilton.ie](http://www.hamilton.ie)



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