

GCOE 特別講義



日程：2009年4月22日（水）13:00-17:50

場所：電気通信研究所2号館4階大会議室（予定）

講演者：Professor Charles Spence (Oxford University)

and Professor Jean Vroomen (Tilburg University)

テーマ：Lectures on multi-modal perception

概要：

13:00-14:30 - Lecture 1:

Driving by the seat of your pants!

A multisensory approach to capturing driver attention

Professor Charles Spence

Humans are inherently limited capacity creatures; that is, we are able to process only a restricted amount of sensory information at any given time. It should come as little surprise then that 'driver inattention' represents one of the leading causes of car accidents. What's more, these attentional limitations are currently being exacerbated by the increasing availability of complex in-vehicle technologies, such as navigation systems, cellular phones, etc. The development of new sensor technologies means that your car will soon know that you are about to crash even before you do. However, potential legal issues preclude the implementation of automated control (e.g., braking) systems in commercial vehicles. The problem therefore becomes one of determining how best to alert drivers to potential road dangers while minimizing the incidence of false alarms (which drivers find annoying). I will review traditional approaches to warning signals design, and then describe a number of recent laboratory- and simulator-based studies detailing a novel brain-based approach to the design of auditory, tactile, olfactory, and multisensory warnings signals. The aim of this research is to develop a new class of multisensory warning signals that can direct attention to the appropriate external location while simultaneously priming the appropriate behavioral response on the part of the driver. Such signals offer the potential for improving driver behavior in potentially dangerous situations and so reducing the incidence of road traffic accidents. Finally, I will discuss some of the potential limitations that need to be considered when one starts to think about utilizing the body surface to present tactile information displays.

14:40-16:10 - Lecture 2:

Intersensory timing

Professor Jean Vroomen

Observers can perceive synchrony between the various senses (e.g., vision, audition, touch) despite naturally occurring timing differences. A substantial amount of research has examined how the brain accomplishes this. I will discuss several issues about intersensory timing and discuss key factors that affect the point of subjective simultaneity and sensitivity to asynchronies. I will also discuss multisensory effects on temporal perception, like temporal ventriloquism.

16:20-17:50 - Lecture 3:

A multisensory approach to product design

Professor Charles Spence

The last few years has seen a growing realization amongst scientists that human perception is inherently multisensory. In particular, a rapidly growing body of research now highlights the existence of important connections between the human senses of sight, hearing, touch, smell, and taste. One consequence of the multisensory nature of our perceptual experience is that changing what a person sees can change what they hear, it can also change what they feel when they touch or use a product, and even what they experience when they eat a particular food. Similarly, research now suggests that changing what a product sounds like, even what it smells like, can also change how it will be perceived, evaluated, and ultimately used. In this talk, I will illustrate how the growing understanding of the rules governing multisensory perception (derived from the field of cognitive neuroscience) can be used to influence the design of a whole range of different products, including everything from mobile phones and vibrating seatbelts (warning signals) in cars, to electric toothbrushes and sonic headphones to improve the dining experience in restaurants. By the end, I hope to have convinced you that a better understanding of the human mind (and the rules used to perceive and to integrate multisensory cues) can lead to the better design of multisensory products, foodstuffs, interfaces, and environments.