The role of perceptual load in audiovisual speech integration: A behavioural and event-related potential study

It has been convincingly established that top-down effects, such as perceptual set (Tuomainen et al. 2005, Eskelund et al. 2013) and visual selective attention (e.g. Alsius & Navarra, 2011) affect integration of seen and heard speech. These results suggest that attention is a necessary condition for successful audio-visual speech integration. Less is known about the mechanisms how selective attention affects the integration process. One options is that perceptual load (Lavie & Tsal, 1995) modulates the employment of attentional resources.

We suggest a project in which the level of perceptual load is manipulated while participants are engaged in a (modified) visual flanker task, and the integration process is measured using the well-known McGurk paradigm. We assume that if perceptual load modulates the interaction process then participants will be less susceptible to the McGurk illusion in the high load condition compared to the low load condition. The potential underlying mechanism would involve a reduction in attentional resources to process the mouth movements (the distractor) which in turn will hamper the integration of visual and auditory speech information. We will collect both behavioural and event-related brain potential (ERP) data. The student would be involved in designing the details of the study (especially the ERPs) and will be mainly responsible for collecting and analysing the data. This project is supervised by Jyrki Tuomainen (SHaPS/UCL) and Victoria Knowland (City University London).