



Master Thesis – Automatic generation of beat gestures

What is it about? In co-speech gestures, hand movement is aligned to the rhythm of speech. This is especially clear in so-called beat gestures (for example in political speeches). Other gestures (iconics, metaphoric, pointing gestures) may be overlaid by such rhythmical movement. Ultimately, we would like to automatically generate beat gestures synchronized to speech, given a text a virtual character is about to speak.

Tasks: In a first step the relation between the speech (e.g. content, prosody) and manual movement (e.g. occurrence, direction, acceleration) of beat gestures is to be analyzed based on an existing corpus. Rules that may be used for gesture generation on the basis of speech information are to be extracted (e.g. based on manual annotations or using techniques of machine learning). In a second step a beat-gesture animation system is to be constructed for a virtual character. This system should allow for beat-animations that tightly synchronize with speech produced by a text-to-speech system and allow the overlay of other gestures with a rhythmical component.

Requirements:

- Expertise in machine learning and/or corpus annotation and empirical analysis methods
- Programming skills (Java or Python, optionally C#)

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