

## EE Department Seminars

(Acceptable as EE 579 and SCO 579 seminars)

December 18, 2009, Friday, 3 p.m.  
Yorgo I Stefanopulos Meeting Lounge (KB 217)

### Unsupervised Decomposition of Words for Speech Recognition and Retrieval

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Many tasks in speech and language technology require a statistical language model that covers a very large vocabulary. Such tasks include automatic speech recognition, audio indexing and retrieval and speech translation. A large vocabulary model is typically needed to predict the probability of occurrence of words and word sequences in different contexts. However, in morphologically complex languages, the high level of word inflection, composition and derivation increases the amount of different word forms so much that it becomes prohibitive to construct a sufficient vocabulary. Recently, effective methods have been developed to define the suitable sub-word units for building the models. To find out which methods are most effective in practice, we maintain an evaluation framework called Morpho Challenge where different morphemes can be compared in various state-of-the-art practical evaluation tasks.

**Dr. Mikko KURIMO** (D.Sc/PhD 1997) is currently a Chief Research Scientist at the Adaptive Informatics Research Centre (AIRC), TKK, where he leads the Speech Recognition and Multimodal Interfaces research groups. The current focus of the Speech group is in language independent and unsupervised models for continuous speech with morpheme-based language models for very large vocabulary. The main focus of the Multimodal Interfaces group is in Proactive Interfaces where various ways of implicit and explicit user feedback is used in novel ways for browsing and searching. The relevant pilot applications in the group range from unlimited vocabulary dictation systems for different languages to content-based indexing, retrieval and translation.

Mikko has long international research experience and active collaboration with several major speech recognition research sites, such as University of Edinburgh (CSTR), Cambridge, Colorado (CSLR), IDIAP, SRI and Nokia Research Center. He is currently participating in the research and coordination of several EC's FP7 projects: PASCAL, Pinview and EMIME, and is the main organizer of PASCAL and CLEF Morpho Challenge competitions.