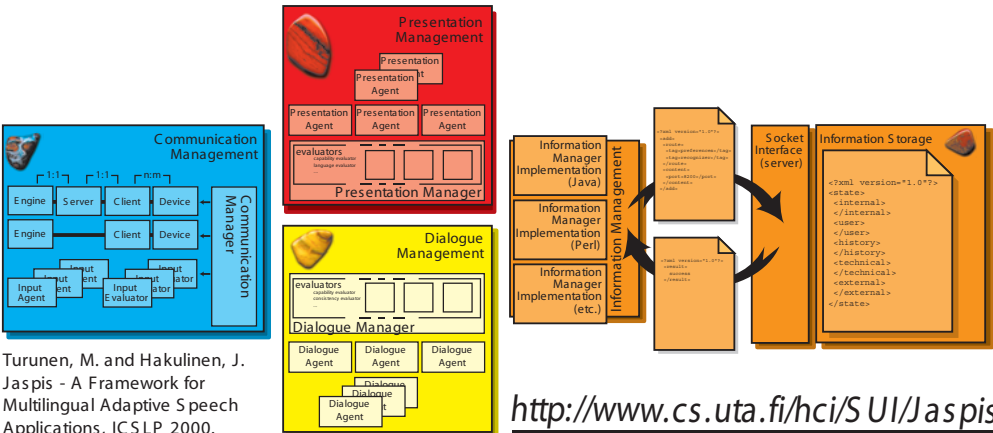


## Introduction

- The aim of this research is to build tools and methods for adaptive interaction management in speech user interfaces.
- We are constructing a framework to aid the development of adaptive speech applications in general, and multilingual speech applications in particular.
- In addition to the core architecture we are interested in error-handling methods and interaction with complex, structural elements.

## Jaspis A Framework for Multilingual Adaptive Speech Applications

- Shared information storage for all components
- Support for high-level interaction methods
- Distributed architecture



Turunen, M. and Hakulinen, J. Jaspis - A Framework for Multilingual Adaptive Speech Applications, ICSLP 2000.

<http://www.cs.uta.fi/hci/SUI/Jaspis/>

## Dialogue Management

- Agent based dialogue management
- Specialized agents for different situations
- Different dialogue management strategies (mixed-initiative, system-initiative)

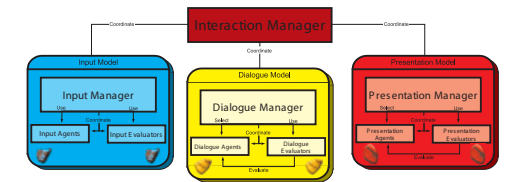
## Interaction Agents

- Input agents for advanced NLU
- Presentation agents for speech outputs
- Dynamic selection of most suitable agents
- Support for multilingual inputs and outputs

## Error Management


- Special error-handling agents
- Dialogue, input and output level agents
- Reusable and domain independent toolbox

## Interaction Model



## Applications


We have implemented several Jaspis-based speech applications to test interaction methods in practise:




**Postimies**  
A multilingual telephony-based e-mail application

<http://www.cs.uta.fi/hci/SUI/Postimies/>

**Busman**  
Local bus-timetable information



<http://www.cs.uta.fi/hci/SUI/Busimies/>



**Ovimies**  
Speech based ubiquitous computing environment

<http://www.cs.uta.fi/hci/ubi/Ovimies/>