Artificial Intelligence Methods Combined for an Intelligent Information Network

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Project overview

• Foundation:

• IASON (Stiftung Innovation Rheinland-Pfalz)

• Spatial Metro (EU)

Present:

• City Information Network (City of Koblenz)

• Campus News (University of Koblenz)
Once upon a time...
Application on the mobile phone

Personalized, localized information

Use case: ConferenceInfo

Use case: UniInfo: Cafeteria menu
IASON: Conference Info
AI methods in UniInfo

- Ontologies
  - Describe the world in terms of concepts
- Description Logic
  - Subsumption test $C \sqsubseteq D$
Profiles:
Noon menu: some offer(and meal noon)
Noon menu veg.: some offer(and meal noon vegetarian)

Reasoning: Service1 \(\equiv\) Profile

Services offered:
Annotation: (some offer(and meal noon))
Subject: Menu 1 Wednesday week 7
Text: Schnitzel (S) with french fries and salad

Annotation: (some offer(and meal noon vegetarian))
Subject: Menu 2 Wednesday week 7
Text: Potato salad with cottage cheese
Our experiences

• The application works really well

...but

• There were unexpected problems

• Our system requirements
  — Application installation
Resultant design choices

- New concept:
  - No application on device
- Server based reasoning
  - Subsumption
  - Machine Learning
  - Filtering
Results with new approach

• Increased reach
  — Requires only Bluetooth

• Uni Information System: Campus News
Campus News

- personalized, Uni news, Community

Implementation has already begun:

- News on the Campus directly onto the phone
- News on a ticker on large TV at central location
- Peer-to-peer or user-to-ticker communication (to be done)
Upcoming challenges

• Users should be able to send messages onto TV screens
• Problem: Spam or hateful content
• Idea: Apply AI filtering techniques
• Research is underway
Message filtering: challenges

• Not comparable to email filtering
• Very short messages
• No layout information, no metadata

• Methods evaluated:
  • Badword list, Bayesian filtering, Decision trees, K-Nearest Neighbor Algorithm
Thank you for attending.
Any questions?

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