

Campusnews

Artificial Intelligence Methods Combined for an Intelligent Information Network

Aml'07

Artificial Intelligence Methods for Ambient Intelligence

M. Maron, **K. Read**, M. Schulze

University of Koblenz-Landau

Artificial Intelligence Research Group

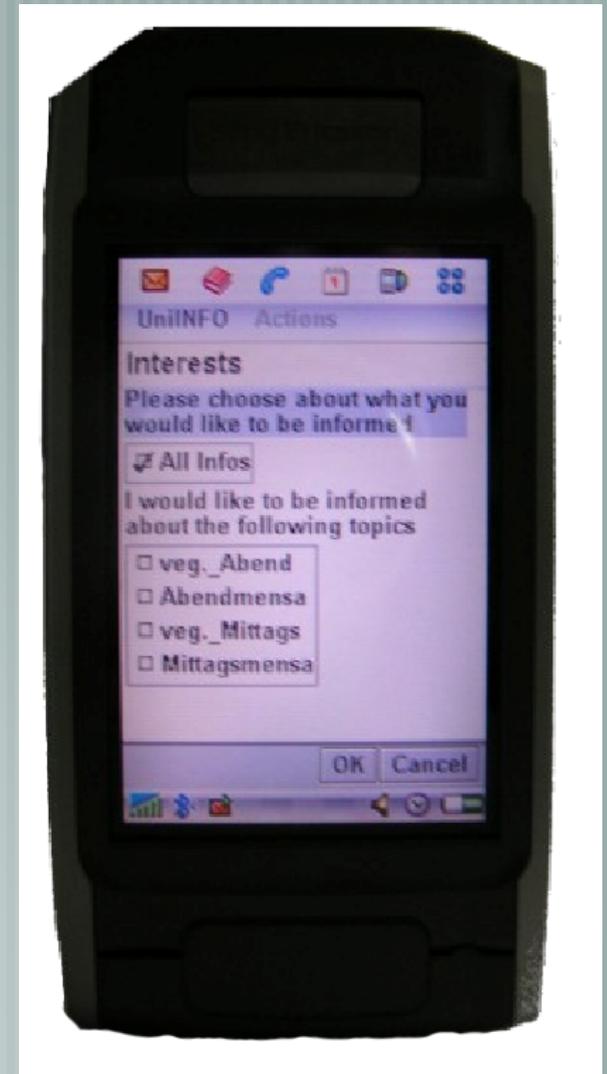
Project overview

- 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...

Project: IASON / Spatial Metro

- Application on the mobile phone
 - [Personalized, localized information
 - [Use case: ConferenceInfo
- Use case: UniInfo: Cafeteria menu



IASON: ConferenceInfo

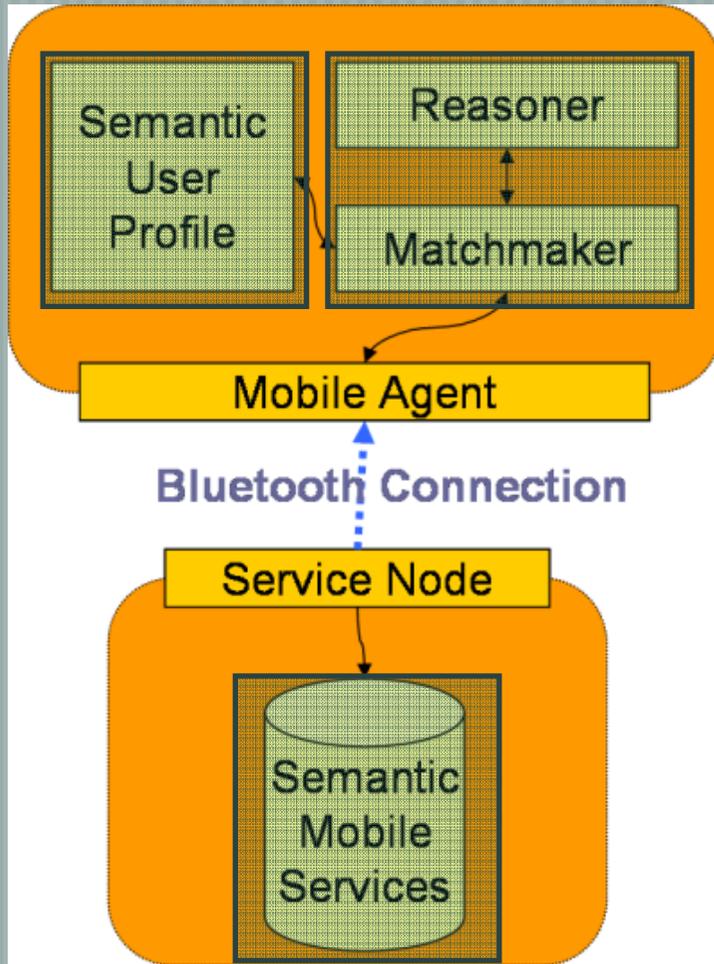
AI methods in UniInfo

- **Ontologies**
 - Describe the world in terms of concepts
- **Description Logic**
 - [Subsumption test $C \sqsubseteq D$

```
(IN-TBOX iason)
(DEFINE-PRIMITIVE-ROLE OFFER
:PARENTS SHAREINTEREST)
(DEFINE-PRIMITIVE-ROLE REQUEST
:PARENTS SHAREINTEREST)
```

```
(IMPLIES time attributes)
(IMPLIES afternoon time)
(IMPLIES noon time)
(IMPLIES evening time)
(IMPLIES cuisine attributes)
(IMPLIES attributes abstract)
(IMPLIES meal food)
(IMPLIES food solid)
(IMPLIES solid physical)
(IMPLIES vegetarian cuisine)
```

IASON system components



Profiles:

Noon menu: `some offer(and meal noon))`

Noon menu veg.: `some offer(and meal noon vegetarian))`

Reasoning: `Service1 ⊆ 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

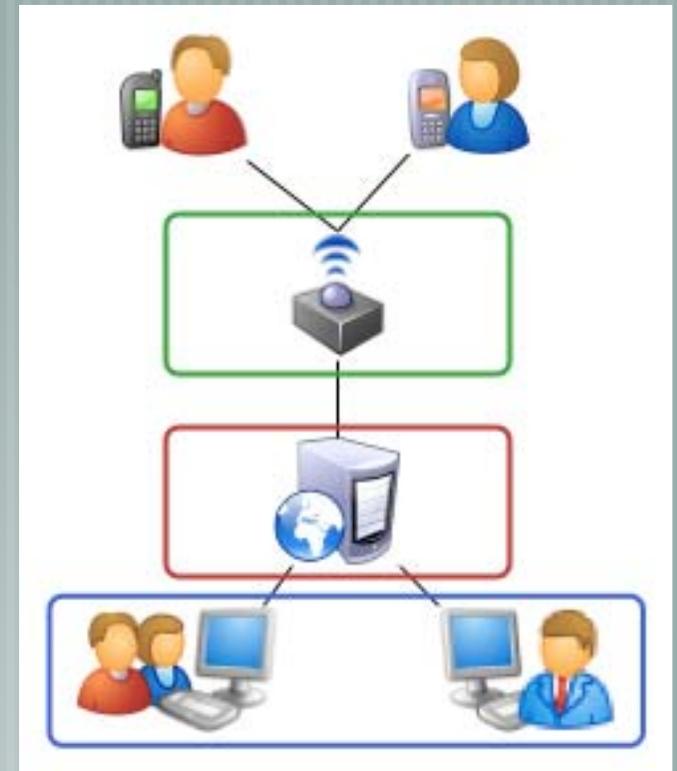
Text: Potato salad with cottage cheese

Our experiences

- The application works really well
 - [...but
 - There where unexpected problems
 - Our system requirements
 - Application installation

Resultant design choices

- New concept:
 - No application on device
- Server based reasoning
 - Subsumption
 - Machine Learning
 - Filtering



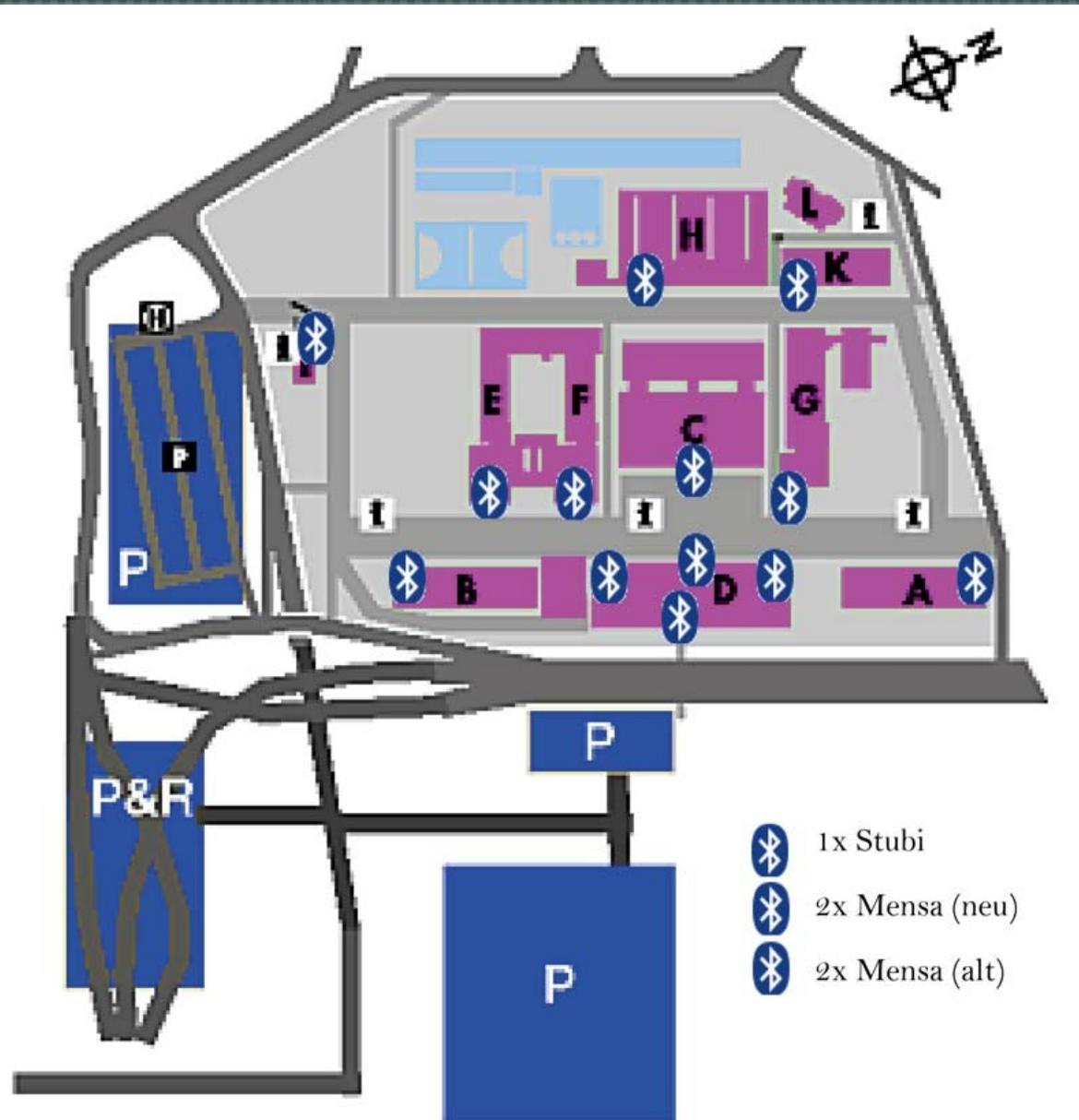
Results with new approach

- 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)

Campus News



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?

- Contact:
- Markus Maron
- maruhn@uni-koblenz.de
- <http://www.uni-koblenz.de/FB4/Institutes/IFI/AGKI>

