Web Services Specification and Verification
Discovery and Composition

- Vision of Web Services
  - Ubiquitous, off-the-shelf solutions
  - Specified in terms of interface behaviour
- Our research directions
  - Declarative conceptual models
  - Platforms and tools based on computational logic
  - Monitoring, specification and verification
  - Service composition, choreographies
  - Applied technology, e.g. health-care
Current and Future Research Directions

- **Smart engines** (discovery, contracting and composition of web services)
- Computational logic-based **semantics** for standards like WS-BPEL, BPMN, and RuleML
- Automatic **reasoning** on specifications
- Run-time **verification** of compliant behaviour
- A-priori verification of **interoperability** (choreographies)
- Formal proof of **properties**

Ongoing research:
Contracting in Service Discovery Engines

Automatic reasoning on specifications (policies)
  - Specifically on contracting
  - Reasoning about services and composition
Ongoing research: Web Services/Choreographies
Specification, Semantics, and Verification

Development of computational logic-based conceptual models, platforms and tools

Applications: health care

- Service-oriented applications in health care
- Knowledge-based systems (logic-/rule-based)

Aims/Services:
- Managing patient care
- Assisting the doctors (monitoring, diagnosis)
- Supporting health care
  - Quality assessment and assurance
  - Clinical decision
  - Workflow (computerized medical guidelines)
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