Faceted Search

De-facto standard for e-commerce
- Query formulation for naive users
- A facet = query constructor
  - Name
  - Set of values
- Facets in action
  - Choose a value
  - Restrict search result

Find US Presidents whose Children graduated from Harvard or Stanford

Semantic Faceted Search

- RDF and OWL 2 data model
  - Graph data
  - Complex data statements
- OWL 2 ontologies
  - Hierarchies
  - Complex axioms

Access to Semantic Data Repositories

Semantic Technologies
- Gain importance in various domains
- OWL 2 Ontologies are used for
  - capturing industrial infor models ISA, ICE
  - modeling medical vocabularies
  - capturing structure of energy plants
- RDF data is used
  - as universal data exchange format

Challenge: End user access semantic data

Research Contributions

Solid foundation for Semantic F-Search
- Formal conceptual understanding of faceted search over
  - OWL 2 data and ontologies
- Proposed the notion of facet-graphs to project on them
  - (complex) data and ontological axioms

Scalable algorithms
- Generate and update faceted interface
- Evaluate faceted queries over semantic data
  - Exploits bottom up query evaluation

Collaboration with EDF

Analytics
- Specialised handling of datatypes: dates, numbers
- Support for aggregation in queries

Answer visualisation
- Answers are interconnected
- Snippets do not reveal answer structure
- EDF developed graph based visualisation of RDF data

Multi-users
- Simultaneous access by several users

Information overflow
- Too many answers and too many facets
- Autocompleteing of facets based on keywords
- Smart indexes to scale facet / answer computation

Project Goals:
- Address analytics, multy-users, visualisations, overflow
- Extend backend with new scalable algorithms
- Perform user study

SemFacet System

Integration of
- Keyword search to initiate search process
- Faceted search over RDF & OWL 2

Main features
- Automatic interface generation
- In memory
- Online and offline reasoning
- Efficient on millions of triples
- Backend: RDFOW, Pagoda, Hermit, Sesame

Flexible configuration
- Interchangeable triple stores
- Configurable answers (snippets)
- Support of Or and And facets