I4

Immersive, Interactive, Individualized Information

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Research Goal

The goal of I4 is to immerse people in interactive, customized multimedia information experiences and to provide organic, intuitive tools for maintaining the underlying content system.

A person will be immersed in interactive "stories" filled with multimedia elements and a wealth of customized background, and the information presentation will reform and change into different 'experiences' depending upon the viewer

Research Approach

Research is being directed into the following crucial sub-class of I4:
- (Semi-)Automated Content Analysis and Storage
- Dynamic Ontologies
- Information Presentation Models and Templates
- Organic Authoring Interface
- Capability for Modality Conversion
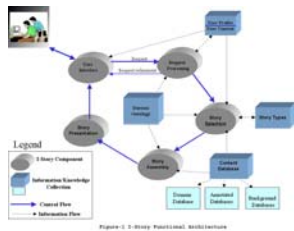- User Profiling for Customization


Uniqueness & Related Work

Current research into new forms of information narratives is time-consuming to produce, and only leverage the most basic and limited of news information. They cannot generalize to other genres of information, feature static narrative structures, and offer minimal customization and interactivity. Current work on information presentation and data issues tends to be isolated and limited in its scope. They lack an integrated model such as I4 that would leverage and fully realize research breakthroughs in these areas into an integrated system.

Traditional content systems return a list of results, as opposed to integrating multiple pieces of content into one information presentation.

Role in IMSC

- Providing new capabilities for enabling technology in realization of the IMSC vision and responding to requirements from the education, entertainment, and communication vision projects
- Providing new requirements for multimedia content representation and structuring, interactive news story structuring, user customization of information, integration/fusion of database information, immersive audio, haptics, and video, and speech recognition and natural language query processing.

Accomplishments

- Initial stage for customization

- Integration of semantic Information Retrieval based on Ontology

- Use of topic-based ontology

- Refinement of authoring tools to manage content and underlying ontology
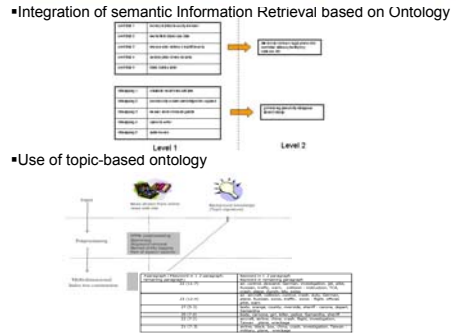
5-Year Plan

- *Automated ontology augmentation (Years 2-3)*
- *Video region analysis, identification and tracking (Years 2-3)*
- *Supplementary content agent (Year 3)*
- *User settings (Year 3)*
- *Modality conversion (Years 3-4)*
- *Automated extraction of sub-sections of content (Years 3-5)*
- *GUI creation and editing of information presentation models and package (Years 3-5)*
- *Use of advanced/rich presentation models (Years 4-5)*

research areas

ucs | si | im | mc | mie | arp

user-centered sciences | sensory interfaces | information management | media communications | media immersive environments systems architecture | application research projects