

DiVASTM

Renate Fruchter and Zhen Yin

If knowledge capture, sharing, and reuse fail, what are the consequences in the worst-case scenario? A well-known example is the Hyatt Regency hotel collapse. In the building project life cycle, the shop drawing detailing and review process is at the interface between the design domain and construction domain. Key stakeholders at this stage are the structural engineers and detailers who communicate with each other through markups and annotation that are typically brief and abstract. This leads to an intensive flow of RFIs. Our objective is to improve the communication among engineers and detailers, and reduce or even eliminate the large number of RFIs they generate. Our hypotheses are: (1) A primary source of information behind important project decisions is embedded within the discourse, gestures, and informal sketches. (2) The gesture-discourse-sketch can act as a precise integrated *macro-micro*-index to a rich, contextual, multi-modal, unstructured digital knowledge archive.

This project addresses the following research questions: (1) How to capture knowledge and experience with high fidelity, and least overhead to the user? (2) How to retrieve and understand relevant knowledge from an unstructured, multi-media archive? This research proposes the DiVASTM (**D**igital **V**ideo **A**udio **S**ketch) prototype and methodology to address these issues through three steps: knowledge capture, data analysis, and knowledge retrieval.