ISCRAM 2018

Rochester Institute of Technology
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POSTER: Informing decision makers: facilitating communication and trust for decision makers during crises

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"Visualizing Crisis"

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INTRODUCTION TO THE POSTER

This poster describes the basis for a three-year project on facilitating communication during crises by integrating dynamic data matching with provenance information, which is being funded by the Office of Navel Research. The project is lead by Heriot-Watt University with co-investigators at Newcastle and Coventry Universities. The project focusses on helping decision makers access data from multiple heterogeneous sources and then assess the quality of the returned data by considering the approximations made during the matching process as well as provenance information associated with it. The project builds on and integrates

substantial existing work by the investigators in the fields of data matching and integration, and in provenance. The poster outlines our early work developing the theory of how these orthogonal aspects should be integrated to best support the decision making in analysing what data they wish to use in the decision-making process.

POSTER SUBJECT

There are a number of reasons why automated data sharing during crisis management is difficult. We are developing a tool that will address two key ones. The first aspect is that data in different organisations (or even within an organisation) is mismatched in that different terminology, structure, specificity and data formats are used, meaning that automated comprehension of data from other organisations is problematic. The second aspect is that it is hard to assess the trustworthiness of data from other organisations. We have developed a data-matching solution to the first of these problems and a provenance-based approach to the second. We discuss how these approaches can best be integrated so that decision makers can quickly and automatically be presented with data to match, or approximately match, their data needs, together with the right information for them to understand the quality and meaning of this data, and introduce the CEM-DIT (Communication for Emergency Management through Data Integration and Trust) system. Potential data is ranked according to its quality and relevance from both a matching and provenance point of view, with only highly ranked responses being returned to the decision maker.

POSTER PRESENTER
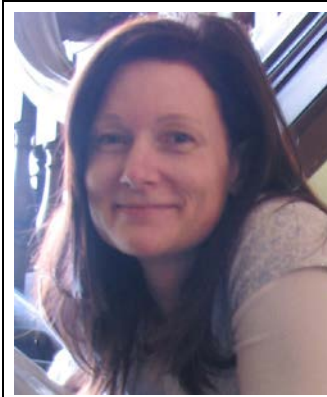
Fiona McNeill, f.mcneill@hw.ac.uk, Heriot-Watt University
Fiona has been involved in the fields of data interpretation and matching for many years, and has a particular focus on the application of this work to crisis management. She has presented papers at previous ISCRAM conferences on this work, as have her students in this field. This poster introduces a new dimension to this work, with the integration of work on provenance with colleagues Paolo Missier at Newcastle University and Jeremy Bryans at Coventry University. She has also co-chaired the ISCRAM Doctoral Colloquium since 2015.