

Finding needles in a digital haystack

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Two teams led by researchers at The University of Western Ontario have won the second-annual [Digging into Data Challenge](#) and will use the power of computers to analyse complex information related to mummies and human rights abuses.

Funded by eight organizations from four countries, the international Digging into Data Challenge promotes innovative humanities and social science research using large-scale data analysis.

Western anthropology professor Andrew Nelson and Lu Xiao of the Faculty of Information & Media Studies represent two of the 14 successful projects announced in Canada, United States, United Kingdom and the Netherlands.

While digging in the dirt is a typical activity for an anthropologist like Nelson, his international team also uses high-resolution imaging to dig into data related to ancient Egyptian mummies.

These efforts will provide mummy and medical researchers with a large-scale comparative database of medical images of mummified human remains that will shed light on ancient health, the history of disease and medicine, regional changes in mortuary rituals and the interaction between identity and methods of mummification.

The project, which received \$165,483, represents an important shift from the traditional case-study model and will drive the field toward large-scale comparative understandings of patterns of health and disease and funerary practices in the ancient world.

"Despite a long history of study, mummy research has primarily focused on case-by-case examinations of individual mummies, making it difficult to identify patterns of interest within and between regions, time periods, ages, sexes and social classes," Nelson says.

Xiao's team is developing an automated reader for text archives of human rights abuses that will help reconstruct stories from fragments scattered across collections of newspapers and government documents. By detecting patterns in words, it will help identify victims and perpetrators of historic disappearances and systemic violence in Guatemala, abuse against women and children in Burma and violence in Chechnya.

The initiative received \$235,000 and will also help provide human rights advocates with new tools and witnesses for trials.

This project is necessary because no current tools scale to the problem of reading as opposed to searching large archives of unstructured text.

"I am in charge of visualizing the results of text-mining to reveal genealogical connections across large numbers of documents."

The 14 successful projects are supported by nearly \$5 million (U.S) from the eight funding organizations, including the Social Sciences and Humanities Research Council of Canada.