

Recovering the Past through Computation - New Techniques for Cultural Heritage Informatics –

Steven Griffin
National Science Council, USA
sgriffin@nsf.gov

Computation has provided new means for researchers and scholars in the humanities, fine arts and social sciences to successfully address questions long considered to be too difficult to approach using conventional methods. The subject of this presentation will be to discuss emerging state-of-the-art scientific methodologies applied to discovery, recovery, restoration, representation, analysis and ultimately new understanding of a broad range of cultural heritage artifacts. Much of the important remnants critical to more fully understanding the ancient and modern world has been neglected, deteriorated, destroyed, and scattered to different parts of the world. Artifacts include script on a variety of media, manuscripts and documents, images, objects, and historic sites.. Computation is central to understanding mechanisms of change over extended periods of time, destructive processes and practices and at the same time can provide means for recovering much of what was lost. The tasks involve, in part, processing massive amounts of raw data from a wide range of instruments and combining this with historic records to produce new information. At this point scholarly work, creative approaches, imaginative thinking and international interdisciplinary collaboration can be used to create knowledge and understanding, bringing to light new segments of the human record.

讓歷史重現的計算法： 文化遺產資訊學的新技術

計算法為人文學科、藝術和社會科學領域的研究人員與學者提供了一種新的方法，讓他們得以成功處理那些長久以來被認為用傳統方式切入將會太過困難的問題。本簡報將討論最先進的新興科學研究方法，以及其在發現、復原、重建、表現與分析上的應用，最終目的就是要對更廣泛的文物有更深入的了解。許多重要文物是我們能否充分了解古代與現代世界的關鍵，但它們卻遭到忽略而終至毀壞，或是散落在世界不同角落。這些文物包括載於各種媒體上的文字、手稿、文件、圖像、物件以及歷史遺跡。不同時期的接續有其變化機制，包括破壞性的過程與做法，而計算法是我們對於這些變化機制瞭解的核心，同時也提供了一個將遺失部分大幅重建的方法。這種計算法通常使用範圍廣泛的多種工具大量處理原始資料，並將結果與史料相互參照，以產生新的資訊。現在無論是學術工作、創新方法、富有想像力的思考模式還是全球跨學科的合作，都可以用來增進我們對文化遺產的瞭解與知識，照亮人類過去刻劃的軌跡。