

11-2010

# Gigapans and the Social Sciences

Karl M. Kindt III  
*Webster University*

Follow this and additional works at: <http://repository.cmu.edu/gigapixel>

---

## Published In

Proceedings of the Fine International Conference on Gigapixel Imaging for Science.

This Conference Proceeding is brought to you for free and open access by the Conferences and Events at Research Showcase @ CMU. It has been accepted for inclusion in Fine International Conference on Gigapixel Imaging for Science by an authorized administrator of Research Showcase @ CMU. For more information, please contact [research-showcase@andrew.cmu.edu](mailto:research-showcase@andrew.cmu.edu).

# Gigapans and the Social Sciences

Karl M. Kindt III

Webster University, Southwestern Illinois College and Lewis, Rice & Fingersh  
[kkindt@lewisrice.com](mailto:kkindt@lewisrice.com)

## ABSTRACT

Forensic scientists, social scientists, educators, attorneys and real estate agents have been provided with a remarkable tool for analysis and marketing with the advent of gigapan imagery. The key to use of this new imaging technology is imagination. IMAGINE how the technology can be used to deepen the understanding of moments in time. Although a gigapan image might take 20 minutes to create if a large area is being imaged, that 20 minutes reveals a place in time like no other human technology and preserves for future generations of educators and social scientists an aspect of reality never before captured.

## Keywords

Photography, forensic, sociologists, political scientists, art analysis, attorneys, educators, real estate

## INTRODUCTION

This paper focuses on the use of Gigapixel imagery in the social sciences which are defined here as any science that deals with the social/societal aspects of human community including the following disciplines: sociology, political science, criminology/forensic science, cultural sciences dealing with cultural artifacts such as artistic manifestations of the human community, economics including real estate marketing and the science of marketing products.

## FORENSICS

Sherlock Holmes used his gigapan-like observational methods to zoom in upon a crime scene to analyze every single detail to find those salient clues that were otherwise overlooked by those who viewed the scene but did not observe. Observation involves seeing with an eye that takes in every detail. A classic example of this is found in Doyle's story about the Norwood Builder. In that story, someone uses a wax impression of a finger print and puts his own blood on the wax then presses it against a door frame to try to frame someone of his own murder. But this is done AFTER Sherlock has already inspected the door frame very carefully with his gigapan-like observational method so Sherlock knows it was placed there after his client was arrested. Fortunately the **forensic photographer** today, if aware of gigapan technology, captures the crime scene for us in all its glorious and sometimes gory zoomable details so that the detectives may later go over the scene once again to find any salient clues initially overlooked. An interesting gigapan that I use as an example for forensic photographers is at a URL cited below. If you examine the snapshots of this gigapan that I have taken, you will see the kind of clues that might be overlooked at the time of a crime scene inspection but that later may be discovered because this technology has captured all the detail for later analysis and observation when time is not so pressing. This is especially important when there are historic sites being investigated and layers of detail need to be preserved before the dig proceeds. A gigapan image of a "dig" can be made before proceeding with a deeper layer and this preserves the arrangement of details and then these same layers can be examined more critically. See: <http://www.gigapan.org/gigapans/25249/> . Another example of a crime scene gigapan posted is at: <http://gigapan.org/gigapans/48115/> . And the forensic scientist who is observing an area in person must move about carefully over each square inch of the scene but using a camera zoomed in on each square inch and then stitched together for later observation preserves the scientists knee caps from a normally painstaking exercise. Also notice the following image of a forensic study of a stained glass windows to determine the

authenticity as to whether it is a Tiffany product and the ability to zoom in upon the fine brush strokes and glass etchings while observing these in the context of the whole work: <http://www.gigapan.org/gigapans/60474/>.

### POLITICALSCIENCE

The **political scientist** may employ gigapan imagery of a political event to study where individual politicians are seated in relationship to one another such as at the famous Obama inauguration gigapan image. In the Inauguration gigapan we can study the various groupings of persons in terms of race and ethnicity and compare those attending this particular inauguration to perhaps the next crowd that attends the next inauguration of the next President. Such a detailed study of the 'political' audience invited to be close to the event can reveal data for political analysis. For instance if you go to the URL for this gigapan you will see snapshots I have made of such groupings. See: <http://gigapan.org/viewGigapan.php?id=15374> and the snapshots that are examples of such analysis.

The same image, of the Obama Inauguration or any gigapan of a crowd, could be used by those sociologists seeking to examine the type of clothing worn and this for the fashion industry. So a clothing company might contact a gigapanologist to make an image like this one of a crowd to study the types of coats and hats worn, the kind of scarfs and shoes. An example of such a crowd gigapan with lots of fashionable clothing is at: <http://www.gigapan.org/gigapans/30928/>. Notice the various kinds of bathing suits being worn in this gigapan. If I were a sociologist studying fashion, this would be the type of gigapan that would be quite useful to use or create. Sociologist Joanne Finkelstein ( [http://www.gre.ac.uk/schools/humanities/school\\_staff/prof-joanne-finkelstein](http://www.gre.ac.uk/schools/humanities/school_staff/prof-joanne-finkelstein) ) who studies the meaning behind fashion and fashion as a social force, could make good use of gigapans made of street crowds in New York City compared to those in San Francisco or Cleveland or Atlanta.

### ECONOMICS, THE LAW AND MARKETING, URBANOLOGISTS

The **real estate attorney** may now rely upon gigapan images to present to a client a whole neighborhood in which a property to be purchased is positioned, helping a client make a decision as to possible future value of real estate based on the condition of the area. A good example of this is found at: <http://gigapan.org/gigapans/5286/>. A careful analysis of this gigapan reveals the run-down condition of adjacent properties with an eye-ful of detail that might otherwise go unnoticed by the street level inspection normally undertaken. Another example of a useful real estate inspection image is at: <http://www.gigapan.org/gigapans/39955/>

A **litigator** may present to a jury the details of a patented part in all its fine zoomable detail showing tiny parts in relationship to the whole to demonstrate the infringement under question. A good example of such an image posted for our review is at: <http://www.gigapan.org/gigapans/46372/>. "This is a micro-gigapan of a small segment of the CCD (charge coupled device) image sensor from a Canon PowerShot G1."

An **educator** can use a gigapan image in the study of nature. For instance, the image of a woodland area that students might walk through, after a gigapan is made, could involve them in looking for various types of fauna and insects. After the exploration they would come back to the classroom and zoom in on the same area to see what they might have missed. See: <http://gigapan.org/gigapans/34357/> and the snapshots taken of this woodland area.

**Urban planners** can use images to study the types of structures in a given community, the state of repair/disrepair and could use gigapans to determine the best route of a metro line or of a bridge approach. Here is a gigapan I created of the northside of the City of St. Louis where a bridge is under construction. This gigapan could well have been utilized by the

Urban planners to locate the best approaches and which buildings would need to be removed: <http://www.gigapan.org/gigapans/53074/> . Another example regarding harbor traffic and the need to ‘see’ what that boat/ship traffic looks like at any given time can be seen at: <http://www.gigapan.org/gigapans/33392/> . Those studying how to handle shipping traffic in a harbor would benefit by studying a series of gigapans taken at various times during the day and on different days of the week over a period of time.

Urban planning and real estate developers in Second Life may well make use of gigapan imagery to sell and develop virtual properties. Second Life is a virtual world in which millions of individuals by virtual real estate and ‘live’ there with their ‘avatar’ selves. Real money is being used to purchase virtual properties. Sociologists studying this phenomenon of the World Wide Web culture will find the use of gigapan images mirroring virtual neighborhoods an increasingly strange but prolific practice. See: [http://www.mortgagenewsdaily.com/5162007\\_Second\\_Life\\_Real\\_Estate.asp](http://www.mortgagenewsdaily.com/5162007_Second_Life_Real_Estate.asp) .

### CONCLUSION

Social scientists and educators, attorneys and real estate brokers, forensic experts studying cultural artifacts have been provided with a remarkable tool for analysis and marketing with the advent of gigapan imagery. The key to use of this new imaging technology is imagination. IMAGINE how the technology can be used to deepen the understanding of moments in time or of a tiny detail in the context of the whole. Although a gigapan image might take 20 minutes to create if a large area is being imaged, that 20 minutes reveals a place in time like no other human technology and preserves for future generations of educators and social scientists an aspect of reality never before captured. We may now look back through an image not only of some of the things that existed in a place at a given segment of time, but at EVERYTHING that was in that place and happening. Hence historians will increasingly use the gigapans of today to study the specifics of a place and event in time and enrich the future understandings of the human race.