

RESEARCH BRIEFS



Dr. Beth Plummer

Disputed Marriages during the Reformation

Dr. Beth Plummer's research into the early Reformation of the 1500s informs us about disputed marriage, clarifying the personal side of history. She got involved with disputed marriage when she uncovered a sermon in a German archive. The sermon tells of a couple whose marriage was suspect because they failed to live up to the standards of the day. The young woman, who had given birth to the couple's child, consistently claimed that before consummating their relationship the couple had exchanged wedding vows in a tavern. Such an event was a secret marriage, a practice discouraged by civic officials that was still legally binding in many parts of Germany and had been popular custom since the early Middle Ages. The young man just as steadfastly denied that they had married, secretly or otherwise, and said that the relationship was a casual sexual encounter, even hinting that the woman was a prostitute. Ministerial officials who were responsible for determining the validity of marriage were unable to resolve this matter.

Dr. Plummer found that this case was not unusual in sixteenth-century

court records. Sermons frequently called for state, church, and community leaders to eliminate secret marriage to maintain "Christian discipline and order" in the early Protestant states. At the heart of the issue was the lack of clear distinction between secret marriage and seduction, and the absence of a single, enforceable, public procedure for marrying.

Professor Plummer's research may discover the development of an important shift in attitudes towards sexual behavior and the enforcement of defined norms of proper "marriage" between church and state. Her study includes the creation of a social norm of marriage, controlled by state rather than church officials, and the subsequent criminalization, initiated during the Reformation, of irregular sexual unions.



"The Money Changer and his Wife" by Quentin Massys (Belgium, 1465-1530)

This summer with the help of an Academic Affairs Summer Faculty Scholarship, Dr. Plummer, assistant professor of history, will continue her research at German archives in Bavaria, Baden-Württemberg, and Saxony. These regions provide enough diversity in religious confession and a mix of types of state and church authority to compare how secret marriages were adjudicated.

The fragile 500-year-old documents she will read will include the minutes of city council meetings and records of correspondence, criminal court testimony and decisions on punishment, and civic and church ordinances. They will reveal the life stories of people long dead, whose conflicts and personal tragedies remain remarkably riveting. The court transcripts are particularly interesting because they provide the voices of people rarely evident in other kinds of records, describing their most intimate lives as they came into conflict with their sexual partners and state and church officials.



Economic Change in China

Dr. Scott Droege, Assistant Professor of Management in the Gordon Ford College of Business, has been exploring many of the changes China has undergone since 1978, drawing comparisons and contrasts with contemporary global events. Political, social, and economic changes have all affected how business and government is conducted in China, a country that is home to one-fifth of the world's population and a recently admitted member of the World Trade Organization.

Many of today's business owners in China, and even some of its government officials, are young enough that they may not fully appreciate the drastic differences between China's policies and institutions before the nation cracked open its doors to global competition in 1978. This has required Droege to dig below the surface, seeking out those who recall the days when China's economy was controlled

largely by the Chinese Communist Party rather than by the "invisible hand of the market." Droege also unearthed data from China's past for comparison to current events and built the case that, at times, gradual change may be more effective than massive overhaul, especially in the realm of public policy.

Despite contemporary examples of rapid, large-scale change such as Eastern Europe's "big bang" approach in shifting from state-controlled to market-controlled commerce and the current effort in Iraq to establish democracy, China initiated gradual transition over the past quarter-century to accomplish similar goals but in vastly different ways. The late Chinese Communist Party leader, Deng Xiaoping, often described this as "feeling for stones while crossing the river."

Dr. Droege's research has the potential for distribution to those having influence over public policy decisions in the U.S. and abroad. This

would provide direction for those desiring to transform long-standing, embedded institutions that, over time, have lost their efficiency and effectiveness, while also providing direction to lead change efforts with a minimum of turmoil.

One purpose of Western Kentucky University is identification and solution of key social and economic problems. And although this research takes a broad perspective, its results may ultimately filter down in ways that affect the day-to-day lives of Western's students, alumni, and other constituents. By providing direction for those in the public arena who confront situations in which there is a need for change, but who are fearful of unintended consequences, this ongoing research may provide a path toward solutions that do not require extreme and sometimes desperate measures, but instead, help public policy officials navigate more carefully their efforts aimed toward institutional change.

Security Surveillance Improvements

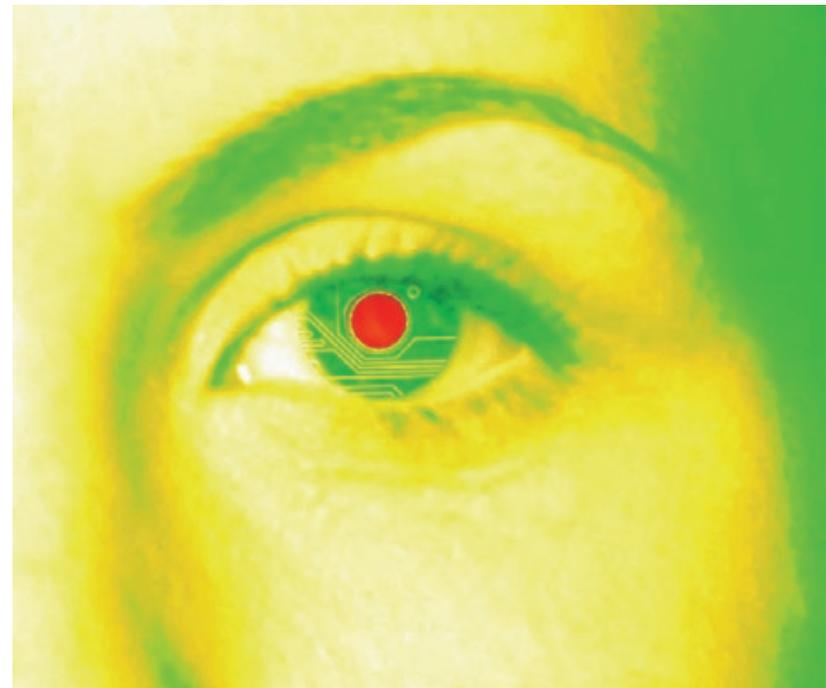
National security is becoming increasingly important since the 9/11 terrorist attacks when the nation resolutely determined to aggressively deter further attacks on American territories and its citizens by creating a department of homeland security. Western is active in this initiative through the \$80,000 research grant awarded by the Department of Homeland Security to Dr. Rob Byrd of the WKU Department of Computer Science. The grant will fund an initiative for developing a video camera face recognition system. While face recognition has been of interest for decades, the primary success has been with the recognition of a single individual in a still photo posing in the stereotypical "mug shot" positions. Unfortunately, the terrorists have not yet been willing to pose for snapshots offering a front profile.

In recent years, as color digital video cameras have become household commodities, authorities are seeking ways to locate individuals who may be engaging in illegal activities. A flat, or two-dimensional (2D), image has generally been considered inadequate to contain enough information to positively identify someone given the small size of the actual face portion of the image; so three-dimensional (3D) models have been used at a 95 percent success rate. The problem with using 3D recognition is that it takes so long to construct the image that even fast computers cannot effectively display face recognition from continuous video.

Dr Byrd's research will focus on improving 2D methods to complement new laser range-finding 3D face construction methods the University of Kentucky is developing.



Dr. Rob Byrd



Byrd will develop techniques that detect and track faces in a network of continuous video camera footage and then pass the face information to time-of-flight range sensing cameras that will be steered onto the face to obtain more detailed information about the individual.

The general process to identify a face starts by normalizing the image to any light intensity differences. Then, a program searches through the entire image, one picture element (pixel) at a time, looking for those that may be the color of skin.

To eliminate non-face areas that are the color of skin, all edges are drawn and anything that is not the approximate shape and size of a face is discarded. Once a face has been detected, the face size is scaled to some standard width before special features are extracted from the face area. Rather than the features that humans would normally

use to recognize a face, such as hair style, eye color, mustache, or spectacles, the computer looks at features such as average skin color, distance between the center of the eyes, or any other set of numerical methods that may differentiate one face from another. The extracted features are converted to a vector of numbers and compared with vectors from other faces in a face database. If the vector matches within a predetermined threshold, a match is found. Otherwise, the detected face is considered a reject, that is, it is discarded as a non-target face and the next image is processed.

Complications, such as many faces in a single image, hands or scarves over the face, never getting a frontal view of the face, and needing to track the face through multiple frames are what make 2D face recognition a challenge. But fusing both 2D and 3D into the same sensor network is a novel approach that will improve the effectiveness of human surveillance and make our nation more secure.