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Lecture Topic: Electronic Signature Authentication and Memorabilia Registry

Is it real? Well, we all know that the signature authentication is a difficult problem.

Most of my research has been in machine vision (computer image processing, rather than human expert) to determine the authenticity of signatures. Also, my field has been in legal documents and business processes (contracts, agreements, authorizations, etc.) rather than in autographed memorabilia. However, the goals are the same: did the correct person sign the item, at claimed time and location, with proper intent?

In addition, in order for an item to be truly real, the complete **provenance** of the item must be recorded, preserved and proven. The important issue is preserving the chain-of-custody: from generation to ownership and documenting the transfer process.

Last year, I started to develop a system to solve these issues: **Bio-Pen Authenticated Autographed Memorabilia (BAAM)** system. Unlike conventional signature comparison systems that use digitized images, DynaSig's Bio-Pen (Patent #7,433,499) utilizes the dynamic characteristics of the user's writing behavior to verify the signer. So it can authenticate the signer at the time of signing, in real-time, and the permanent electronic record of all associated events (unique Item ID, unique Bio-Pen ID, actual biometric signing data, video/photo automatically taken during signing, etc.) can be time-stamped by a trusted server and then all records are encoded (or "bound" in electronic sense) so that they become "tamper evident" (sort of like plastic sleeve, hologram sticker and electronic COA all combined).

The advantage of BAAM is that any subsequent significant events can be continually added to the provenance without breaking any of the previous seals. For example, if each band member signed the item at different times, locations and circumstances, all those events will be recorded and added to already existing record without breaching the security of the previous event recordings. Another advantage is that even if a person signs 500 items at "one sitting", like Tiger Woods might do, every single item will have its own unique time-stamp as well as other supporting documents (such as automatically taken picture of Tiger signing that particular 256/500 item). So instead of one COA that covers the whole "lot" of autographed items, the BAAM electronic COA will be as unique as every signed item, and all these record keeping is done automatically in the background while the signer is signing using the Bio-Pen. One

“human witnessed” affidavit for the whole signing event is replaced by the Bio-Pen witness for every individual signature.

While BAAM system may be suitable for sports franchises, such as NBA teams, for their super stars during sit-down signing sessions, it maybe too expensive and cumbersome for ordinary collectors and dealers.

In order to provide a complete tool for all collectors and for all autographed memorabilia (in fact, for all unique collectible items), I am in the process of developing the **Memorabilia Registry** (MemReg) – a full patent application has been submitted to protect this idea.

MemReg will be much more than just a list or uploaded pictures. You might think of it as “Carfax for Memorabilia” or “Provenance for Collector’s Items”. Every registered item will be assigned a lifetime ID number that will identify the item throughout its cycle (similar to a Vehicle Identification Number), including any modifications, change of ownership, etc. It will be a depository of all item information and you will be able to claim the ownership, manage all items and selectively show (or not show) your item information. Each item will be entered into a very sophisticated database where it can be categorized in multiple dimensions, and then a simple to use (but complex back-end) search algorithm (“Google” style) is being implemented so that items can be found easily. The Registry’s depository and search services will be free for all collectors.

I am currently working with Star-Collector.net and some other avid collectors to test some of our features, and we have already transferred and merged all Star Collectors’ celebrity information and addresses into MemReg’s database so that the collectors can quickly find the information. Our Item management and provenance building features will be available for Beta testing by May 2010. We are planning very large capacity servers to be able to handle millions of registered items.

While the initial benefits are for the collectors, it will become valuable tools for the Sellers as well – so that it will be beneficial for both dealers and auction houses. I believe this will move toward reducing fake autographs by having all legitimate items registered with time history and all supporting documentation with claimed ownership (augmented with all COAs – both traditional and electronic) and be able to be reviewed by the proper people; while the fake ones will appear out of no-where without any supporting provenance (or history that does not make sense). A person purchasing the legitimate items from a reputable owner will be able to transfer the whole provenance of the items intact, and then be able to continue to build on it, thereby preserving the chain-of-custody and the potential of increasing the item value over time.