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**Seminar Series**

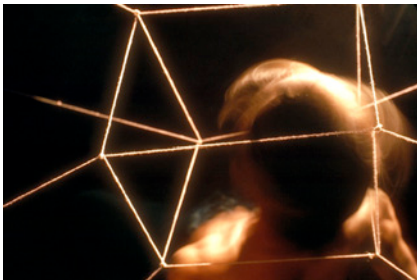
# Perceived Motion Blur and Sharpness in Liquid Crystal TV

**Scott Daly**

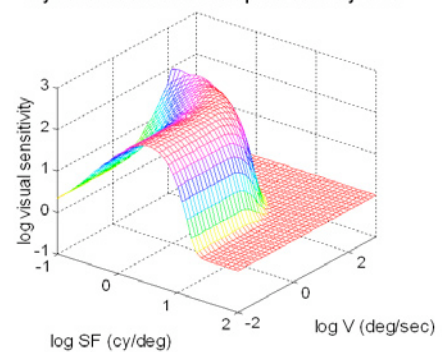
*Research Fellow*

*Sharp Laboratories of America, Camas, WA*

**4pm, Wed, April 19,  
2006**



Eye Movement Model Spatiovelocity CSF



**Auditorium of the Center for  
Imaging Science**

Liquid Crystal Displays (LCDs) have been known since their inception for having a slow temporal response which led to motion blur. Improving Liquid Crystal response time and the use of digital overdrive techniques led to a substantial reduction in motion blur, enabling the LCTV (Liquid Crystal Television). Some residual blur was visible in panned textures and scrolling text. Considering HVS smooth pursuit eye tracking combined with the LCTV architecture has identified the remaining sources of blur. New techniques such as backlight flashing, black data insertion, and frame rate conversion promise to reduce motion blur to that of CRT. However, CRT is not necessarily the ultimate benchmark, as it suffers from other motion artifacts, especially with slow velocities. This talk will describe key spatiotemporal properties of the visual system relevant to motion blur, and various approaches used in LCTV technology for improving overall moving picture sharpness.

**[www.cis.rit.edu/seminar](http://www.cis.rit.edu/seminar)**

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**Speaker Bio**

Scott Daly has degrees in electrical engineering and bioengineering from North Carolina State University and University of Utah, respectively. The bioengineering thesis was in retinal neurophysiology, specifically the temporal information processing of cone photoreceptors. He has worked for RCA in the 70's doing proto-digital video, for Photo Electronic Corporation in West Palm Beach in the early 80's with early high-resolution laser scanning systems and WYSIWYG simulators, and for Eastman Kodak in the 80's and 90's in the arenas of image compression, image fidelity models, and data image embedding. He shares a technical Emmy with several Kodak co-workers for a video transceiver used in the Tianamen Square news coverage of 1989. He has also taught courses on Applied Perception at Siggraph in 2000 and 2001 in New Orleans and Los Angeles. Currently a research fellow and leader of the Center for Displayed Appearance at Sharp Laboratories of America, he is now applying visual models towards improving digital video and displays. He has 20 patents ranging from tonescale to steganography and is currently a member of IEEE, SPIE, and SID.