



# McGill Computational Science and Engineering Seminar



Friday October 18 at 14:30 in Burnside Hall 934

## Improving Video Quality With a Limited Number of Photons and Bits

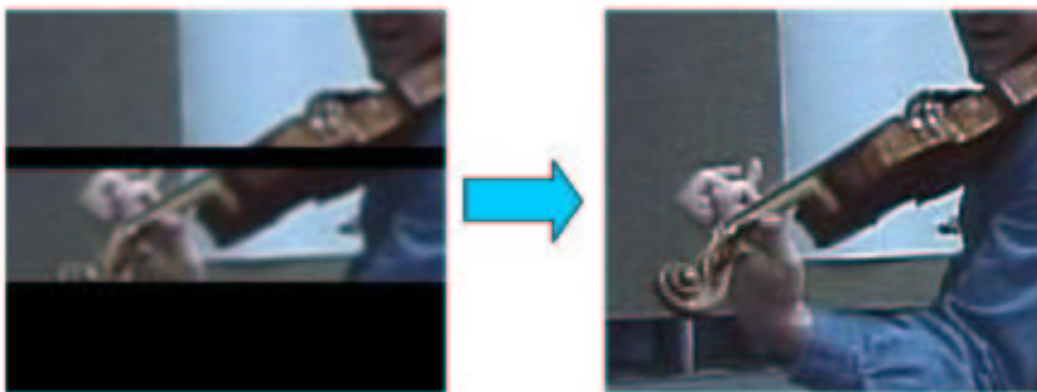
Jeremy R. Cooperstock

Centre for Intelligent Machines, Department of Computer and Electrical Engineering, McGill University

As we look toward the technology of next generation videoconferencing systems, delivering exceptional video quality with almost imperceptible delay, we must confront the dual limitations of imaging sensor capabilities and bandwidth restrictions imposed by the network. While we can expect continued improvements in CCD sensitivity and fiber optic transceivers, top-end applications always seem to demand more quality and bandwidth than the technology can deliver.

Today, compression algorithms such as MPEG are often employed in videoconferencing, thereby reducing the necessary transmission bandwidth while retaining a quality close to that of the camera's output. However, compression is typically lossy, sensitive to data loss, and incurs a non-trivial cost in terms of added latency, thereby limiting its use to applications that are forgiving of these issues.

This presentation will describe our research efforts to acquire video frames at higher resolution and frequency than is ordinarily available from the camera, and to develop computationally efficient encoding strategies that allow for the transmission of such high quality video while retaining robustness to data loss.



Coffee and desserts are served after the seminar.