CNT 6885 Video Communication

Credits: 3 credits

Text book, title, author, and year: N/A

1. **Reference materials:** The H.264 Advanced Video Compression Standard by Iain E.G. Richardson
2. VC-1 and H.264 Video Compression Standards for Broadband Video Services by Jae-Beom Lee and Hari Kalva

A selection of research papers will be provided

Specific course information

- **Catalog description:** Video usage is continuing to increase and is expected to represent over 90% of all IP traffic by 2013. New video compression and communications technologies are being developed to meet the new challenges posed by the wide use of video services. Designing and delivering video services is a challenging problem that requires research and understanding of the fundamental video communications technologies. This course is designed to provide a comprehensive learning and experience in the area of digital video communications. You will study problems such as: how to design services such as Netflix and Video on Demand, What protocols are appropriate for video delivery? How to optimize video for target users: mobiles, tablets, and PCs, how to compare and analyze the performance of AVC/H264 vs. Google's WebM video.
- **Prerequisites:** COP 3530 - Data Struct/Algorithm Analysis

Specific goals for the course: This course is intended to provide a background and experience in the area of video communications relevant to the industry needs today as well as the challenges and future developments in the field.

Brief list of topics to be covered:

1. Introduction to digital video compression
2. Video compression – MPEG-2 and H.264
3. Video transport – MP4 and MPEG-2 ts
4. Networked video delivery
5. RTP (Realtime Transport Protocol)
6. Session management using RTSP and SDP
7. Dynamic and adaptive streaming over HTTP
8. Scalable Video Coding (SVC)
9. Video adaptation and transcoding