

Interface Components for Monitoring Security Video

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Problem

- Large numbers of surveillance cameras tax human attention
- Support security personnel in:
 - monitoring real-time video feeds
 - analyzing recorded video

UI Support Tools

- Activity summary in form of storyboards and timelines
- Activity cues through highlights, time-lapsed images, and overlays
- Activity familiarization using multi-stream video player

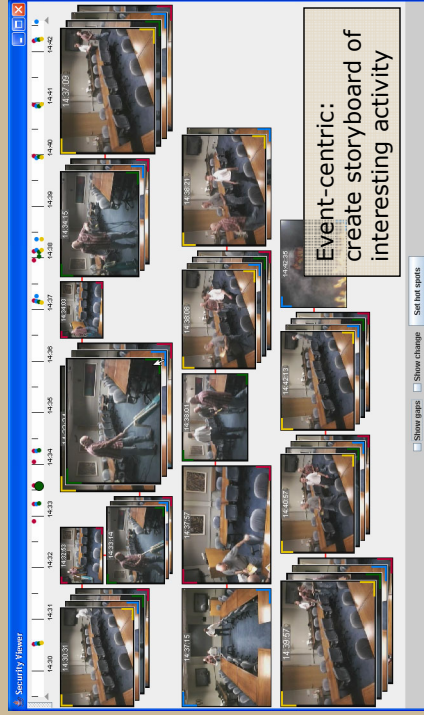
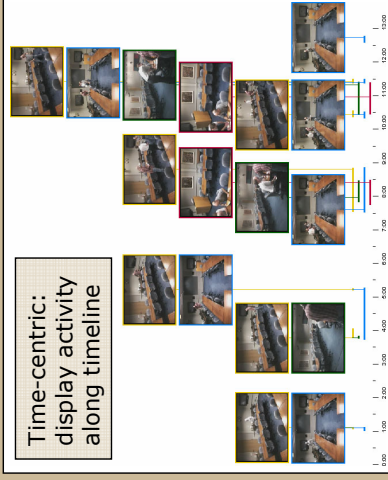
Presenting Activity Summary

Challenge

- Summary of activity over time and across multiple cameras

Approach

- Determine periods of interesting activity
- Combine an activity from related cameras
- Assign importance to periods of activity
- Present **event-centric** view as storyboards and **time-centric** view as timelines



Visualizing Localized Activity

Challenge

- Highlight salient aspects in localized activity

Approach

- Create compact representation of localized activity as static images
- Highlight **area of activity** over a short period of time
- Overlay **track of moving object**
- **Alpha-blend** pixels of **foreground** activity with background



Examining Multiple Real-Time or Recorded Video Feeds

Challenge

- Familiarize the user with the relevant aspects of an activity

Approach

- Video player that enable users to monitor real-time or recorded videos
- Video displays at different resolutions and frame rates
- Map indicating camera locations
- Multi-scale timeline for navigating video feeds
- Two playback modes: automatic walkthroughs and activity-based camera selection

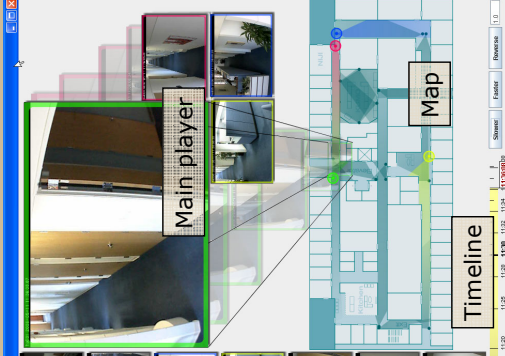
Traditional camera bank shows peripheral view and offers camera selection



Main player area displays video views sized by importance

Video views are animated into position from the map

Zoomable map shows camera positions and camera field-of-view



Multi-scale **timeline** controls position of video playback for all displays