Audio & Multimedia Research

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Audio and Multimedia Research at ICSI
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Three main themes:
Audio and Multimedia Research at ICSI

Three main themes:

• Social media retrieval (focus on audio)
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• Privacy
Audio and Multimedia Research at ICSI

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• Social media retrieval (focus on audio)
• Privacy
• Crowdsourcing
Multimedia in the Internet is Growing
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- Youku (Chinese YouTube) claims 80k video uploads per day
- Facebook claims 415k video uploads per day!
Why do we care?
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- Consumer–Produced Multimedia allows empirical studies at never–before seen scale in various research disciplines as well as industrial endeavours.
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Problem 1
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- Videos need to be searchable beyond keyword tags. Ideally we want to be able to search for any existing mental concept.
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• How do we make large-scale concept search possible?
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Example: Audio Concept Retrieval

Cameron learns to catch (http://www.youtube.com/watch?v=o6QXcP3Xvus)
Posters at Open House
Posters at Open House

Benjamin Elizalde:
Posters at Open House

Benjamin Elizalde:
Hello Audio, Bye Tags
Posters at Open House

Benjamin Elizalde:
Hello Audio, Bye Tags

Kalle Palomaeki:
Posters at Open House

Benjamin Elizalde: Hello Audio, Bye Tags

Kalle Palomaeki: Overlapped Audio Processing
Problem 2

• There are many, many videos to process....
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- How to parallelize audio analysis algorithms efficiently.
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Demo: Parallel Audio Algorithms
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Katya Gonina: Finding the Sweet Spot: Big Data and Energy
Problem 3
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- Time and location links events on social media together but only a small fraction of media is geo-tagged.
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• How do we detect the location of a specific video (if not given)?
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Demo: Multimodal Location Estimation
Jaeyoung Choi: Video2GPS: A Demo of Multimodal Location Estimation on Flickr Videos
Problem 4
Problem 4

• Machine learning is never 100% accurate but concept detection or location estimation is not trivial for humans either.
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• How can we crowdsource skilled tasks?
Demo: Crowdsourcing for Skilled Tasks
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Luke Gottlieb: Pushing the Limits of Mechanical Turk: Qualifying the Crowd for Video Geo-Location
Problem 5
• Multimedia retrieval has become powerful and can also be used for evil purposes.
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• What does it mean for my privacy when I post on social media? What are good practices to follow? How do we teach that to our teenagers?
Privacy Implications of Social Media Retrieval
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- Teaching project together with BFOIT and UC Berkeley
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http://teachingprivacy.icsi.berkeley.edu (coming soon)
Thank You!

Questions?