Lessons Learned From Research on Multimedia Summarization

Guillaume Touya – COGIT team IGN France
“Cartographic generalization is the equivalent of *text summary* as it:

• reduces the level of detail,

• highlights the important features given a user need,

• Preserves the main characteristics of the initial data”

[Ruas 2002]
Is the similarity extendible to the automation of these processes?
Text summarization

Extraction or Abstraction

summary
Music summarization

“Smells Like Teen Spirit” by Nirvana [Peeters 2004]
Video summarization

Key Frames
Text summarization

Music summarization

Video summarization

Multimedia summarization
Similarities and differences with generalization
Selection is a key process. [Touya 2010]

SCIENCE IN REVIEW

Chemistry Is Employed in a Search for New Methods to Conquer Mental Illness

By ROBERT K. PLUMS

Dr. Raymond R. Backler and Dr. Arthur M. Backler cited evidence that the blood chemistry of victims of schizophrenia is different from that of normal people. Perhaps multiple biological factors are responsible for this chemical change, they suggested.

Mental disease is a "developmental process" and long duration of a disease may result in "permanent alteration of anatomy and physiology," they said. They urged that details of new drugs which affect the brain should be concentrated on complex studies of the mechanism of action of the drugs. The variety of substances capable of producing profound mental effects is a new armory of weapons for use in investigating biological mechanisms underlying mental disease, they said.

The sources of behavioral disturbance are many and they may come from external as well as internal force, the four reported. This concept has already proven practical, for instance, when it enabled psychiatrists to predict that the administration of ACTH and cortisone could produce psychosis.

"It led some years ago to the development of a blood test which 60 per cent accurate in the identification of schizophrenic patients," they said. "It permitted us on Physiologic grounds to deny that the pschoses were lesser and greater degrees of the same disease process, and, in fact, to affirm that they represented opposite and even mutually exclusive directions of physiologic disturbances," they said.

Chemicals now available should be used not only to bring relief to the mentally sick but also to uncover the biological mechanisms of the disease processes themselves. "Only then will the medical era mature and bring to fruition man's long hoped for salvation from the ravages of mental disease," they reported.

The new studies of brain chemistry have provided practical therapeutic results and tremendous encouragement to those who must care for mental patients. "One evidence that neurochemicals in the intercommunicating areas of the brain is accumulating fast came last week in an announcement from Washington."

This was the establishment by the National Institute of Mental Health of a clearing house of information on psychopharmacology, literature in the field will be classified and coded so that staff members can answer a wide variety of technical and scientific questions. People working in the field are invited to send three copies of papers or other material—even informal letters describing work they may have in progress—to the Technical Information Unit of the center in Silver Spring, Md. [Luhn 1958]
Context is fundamental for decision making

“Bob got a new Stetson. He loves the hat.”
“walk to the refuge south of Lake Grattaleu”

{Walk,.motionVerb+median} to {the refuge,.commonNoun} {south,. Directional} of,.indirection} {Lake Grattaleu,.toponymCandidat} ,ESNE},.Vto}

[Savino & Touya 2015]
Typification and exaggeration operations
Information reduction is guided by legibility/eye perception
What can we learn from automatic summarization?
1. The notions of importance and redundancy

“yet in automated cartography, there are no models that enable contextualising content to be selected based on the choice of salient information”

[Mackaness & Gould 2014]
2. A massive use of machine learning

[Burghardt & Neun 2006]
3. Major focus on evaluation
3. Major focus on evaluation

[Lin 2004]
4. Benchmarks to encourage comparisons
4. Benchmarks to encourage comparisons

Organization of a workshop on benchmarks?
What about visual search research?

What about graph bundling/visualization research?

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Thanks!