Visualizing Aggregate Image Edits

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# Analyzing Image Data: Cropped Photos

VS

- Interested in aesthetic preferences of photograph composition

- Collect cropped photos from many users (via Mechanical Turk)

- Aggregate various crops for patterns across image features and croppers' traits

VS

Problem

- How can we visualize large sets of cropped images to enable analysis for aesthetic preferences?

  - Comparisons become difficult for many images (50-100)...difficult to isolate patterns

  - Must aggregate/filter many images into a single, more meaningful image

  - Need support for querying in image domain

  - Interactivity ideal for exploratory data analysis

Related Work

Figure 2: Close-up of "people-view" on the PDH table.
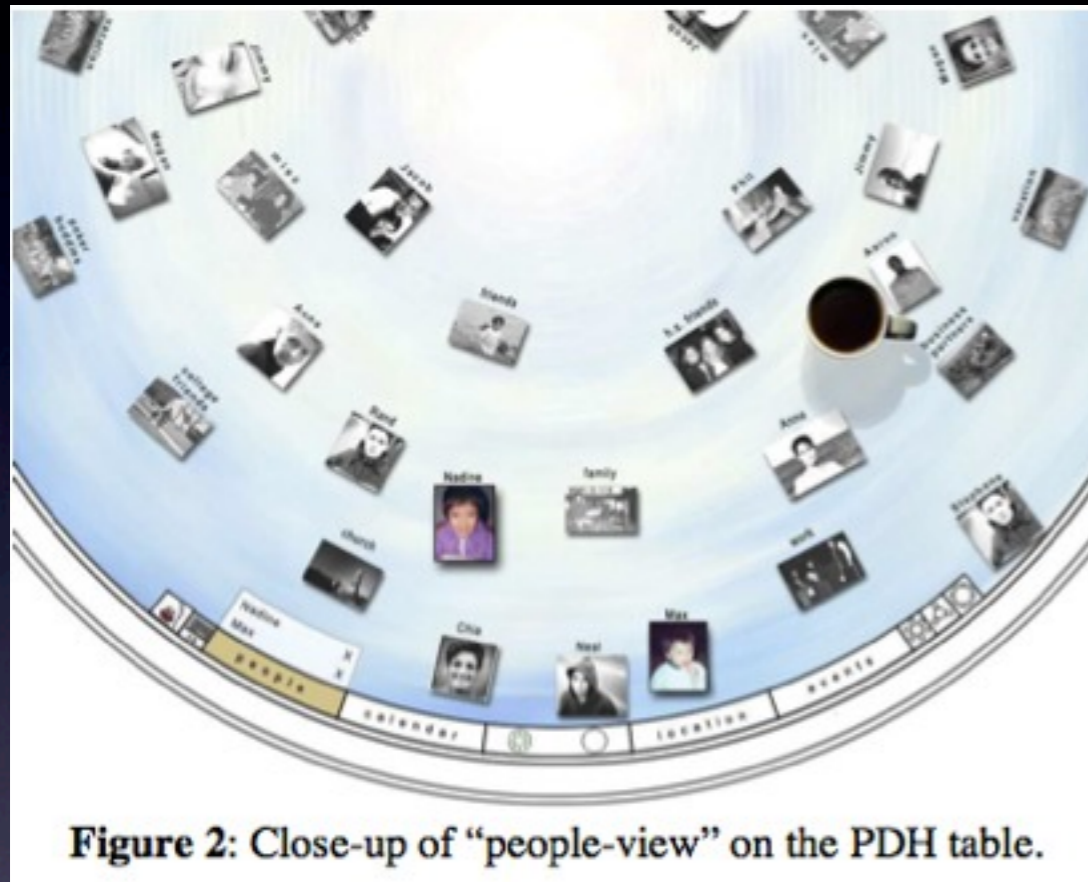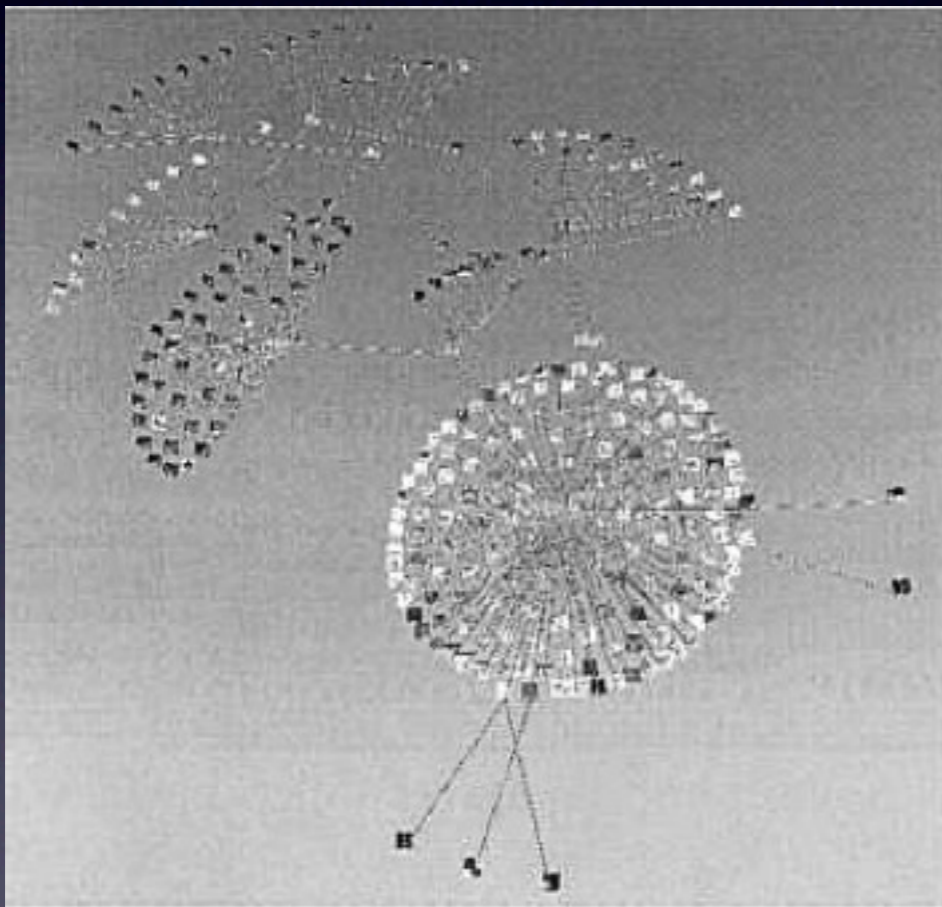

- Existing image viewers focus on displaying many independent photographs (layout, configuration)

- Visualization & User-Modeling for Browsing Personal Photo Libraries [Moghaddam, IJCV 2004]
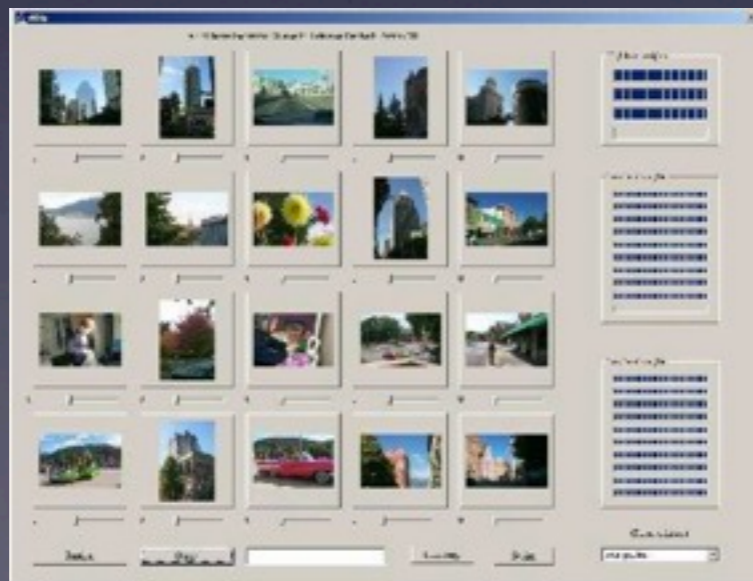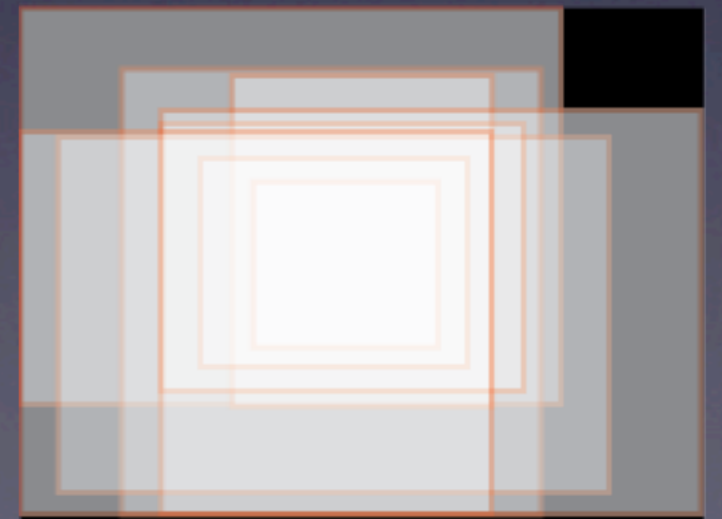
Related Work

- Content-Based Image Visualization [Chen, IEEE 2000]

Challenges

- Meaningful aggregation of all crops

  - Pixel-Voting: Every pixel within the cropped photo gets a vote (+1), and the rest loses a vote (-1); Sum votes for all crops
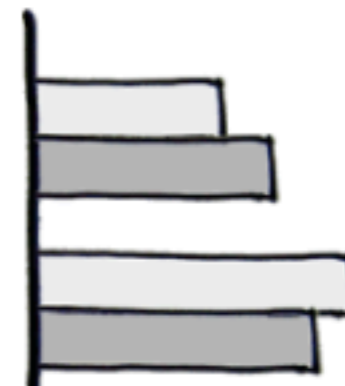
Challenges

- Interactive queries in image and table domains

  - User selects rectangular region in original image to view crops that include that region

  - How to display filtered crops?

    - toggle density map over original image, or

    - transparent overlay with threshold slider

Small Multiples

- Also display statistical charts for related table data
  - Original Photo: Category, cropped versions
  - Cropped Photo: Corner locations relative to original, Cropper
  - Cropper: age, gender, photography and art experience
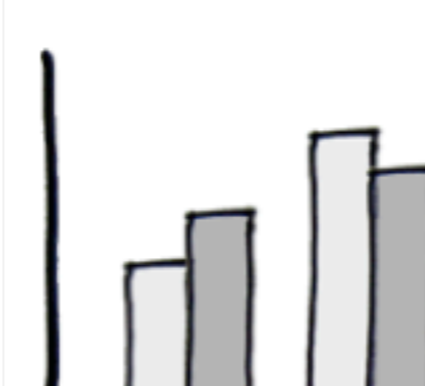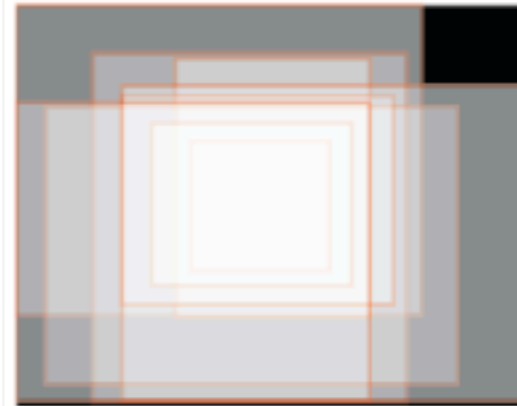
CPhoto_Id	OPhoto_Id	ULx	ULy	Width	Height	Cropper_Id	Age	Sex	PhotoExp	ArtExp

Milestones

- Framework for loading images and data

- Data query engine and interface

- Interface for brushing and linking via images

References

- C. Chen, G. Gagaudakis, and P. Rosin, "Content-Based Image Visualization," *Proceedings of the: IEEE International Conference on Information Visualization*, pp. 13-15, 2000.

- B. Moghaddam, Q. TIan, N. Lesh, C. Shen, and T. Huang, "Visualization & User-Modeling for Browsing Personal Photo Libraries," *International Journal of Computer Vision, 56 (1/2)*, pp. 109-130, 2004.