Generating Photo Manipulation Tutorials F. Grabler et al. SIGGRAPH 2009

- Capture UI state and app state
  - Prune changes that don’t make a difference
- Use existing vision-based recognition/labeling techniques to classify parts of images
  - E.g., faces, landscapes
  - Use heuristics to generate related text
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- Tutorial Generation
  - One step per major image processing op
    - Aggregate related and repeated actions (e.g., parn tweaking)
  - Annotate screenshots with arrows and highlights corresponding to user actions
    - Crop to include only "relevant" portions
  - Generate text descriptions
    - Template-based "fill in the blanks" approach
  - Lay out screenshots and text in grid
    - Use text (on left)-screenshot (on right) pairs
      - Use before-after screenshot pairs to show consequences
      - Use screenshots of multiple actions when necessary
    - Stack pairs in columns, laid out left-to-right
    - Include before-after screenshot pair at left for entire task
- Berthouoz et al., ACM Trans. on Graphics 2011 generalizes to create macros

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- Follow-on work: Adobe Tutorial Builder for Photoshop
  - http://labs.adobe.com/technologies/tutorialbuilder/
Excel 2013 (, 2016,...) “Flash Fill”

- Infers iterations over cells based on one or a small number of examples