

More Automatic Techniques




Beyond Presentation




- Automatic Interface Generation?
- Approaches

Automatic Generation with External Information



- Two kinds of information
- e.g. UIDE (User Interface Design Environment)

UIDE: Model-based Approach



- Application model

- 3 levels

Application Model



- Application objects & actions
- Interface actions
- Interface object + interaction technique
 - Like Myers' "interactor model"

Interface Generation



- Create links (mappings) between

Application Actions



- action
- parameter(s)
- constraint(s) on parameter(s)

- pre-conditions
- post-conditions

Interface Actions



Interface Generation



- Hook up

Presentation Layout, Again



- Automated Layout is often poorly done
- UIDE support for dialog box layout

Basic Layout Approach



- Use heuristics to generate candidates
- Evaluation metrics to score them
- Designer selects one

Evaluation Metric



- Weighted average of several factors
 - Balance
 - Symmetry
 - Overall size
 - Aspect ratio
 - Percent unused white space

Balance



- Balance items of similar "weight"
- Approximate
 - Grid-based: resolution \Rightarrow accuracy

Other Metrics



- Symmetry
- Overall size
- Aspect ratio
- Percent unused white space

Designer's Interface



- Ranked alternatives displayed
- Click to get evaluation details

Layout Generation



- Organization manager

- Presentation manager

Layout Algorithm



- Bottom up
- For each group, pool kids, solve pairs

Misc. Details



- "remainder area"
- Confirm group (ok + cancel) always last
- Special heuristics for label+content pairs

Degrees of Freedom



- Choice of
 - ordering of entry into child pool
 - objects to remove from pool
 - layout strategy
 - spacing and border parameters
- Designer preferences

Object selection strategies



Layout Strategies



- Column and row heuristics
- Specialized overflow solutions

Default Pairwise Layout



- Simple layout problem: 2 rectangles
- Consider 3 properties: