Whisper, Don't Scream: Characterizing Subtle Grids

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A good grid is maximally informative and minimally obstructive

- Support, frame or emphasise data
- Should be subtle
- Hard to do well

Whisper, Don't Scream: Design

Designers know how to make grids both subtle and effective

Too obtrusive

Appropriately subtle

Images from “After the Storm,” by Bushell & Baker

Whisper, Don't Scream: Perception

Perceptual research suggests that feature tuning and variable attention enable subtlety

We can pull into foreground or relegate to background

Images from “After the Storm,” by Bushell & Baker

Whisper, Don't Scream: Problem

- Balance is very sensitive to content, display and viewing conditions
- Balance is hard to maintain in interactive visualization

- How can we put design into practice in dynamic, interactive situations where relying on a human designer is impractical?
- Can we quantify aspects of design principles so we can algorithmically manipulate them?
We started by looking for the “best” grid

1. There may be no single best, but seems to be a range
2. The “fence” effect

- Do people agree on boundary conditions?
- What about interaction with image content?

AHA!

Look for the boundaries of useable grids

“Not bad” Grids

Manipulate transparency (alpha)

L* backgrounds

60 69 78 87 96

There is a fence and it happens earlier than full “black”

- Correlates with background and complexity
- You can whisper rather than scream in many practical cases:
  - ~ 0.1 alpha for images that are not too dense
  - 0.2 alpha is good for all

Whisper, Don't Scream: Results

Whisper, Don't Scream: Next?

- Different image contexts
  - Maps
  - All sorts of charts
- Colour
- Task-based measurement
- Metrics for analysing image complexity
Whisper, Don't Scream: Next?

- Contour lines
- Grids
- Labels

Consider more reference structures

cursors

Thank you

- Questions?