**Glyphs**

Ivan Zhao

**Paper 1: Visualizing Multi-Dimensional Clusters, Trends, and Outliers using Star Coordinates**

Kandogan, 2001

- emphasis on this paper is not about glyphs, but on multidimensional space
- a good paper to start thinking about glyphs

Star Coordinates key idea: packing N coordinates into a 2D space

---

**Paper 2: Glyphs for Software Visualization**

Chuan, Eick, 2001

- domain: Software Engineering
- why glyphs? to preserve the "objectiveness"
- good paper, recommended to read

Star Coordinates, Footprints glyphs

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"

---

**Star Coordinates key idea:**

- packing N coordinates into a 2D space
  - 2D space
    - D1
    - D2
    - D3
    - D4
    - D5
    - D6
    - D7
    - D8
    - 0
    - d1=10
    - d2=15
    - d3=50
    - d4=33
    - ...
    - d8=12

Star Coordinates key idea:

- packing N coordinates into a 2D space

---

**Paper 1: Visualizing Multi-Dimensional Clusters, Trends, and Outliers using Star Coordinates**

Kandogan, 2001

- emphasis on this paper is not about glyphs, but on multidimensional space
- a good paper to start thinking about glyphs

Star Coordinates key idea: packing N coordinates into a 2D space

---

**Star Coordinates, Footprints glyphs**

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"

---

**Star Coordinates, Stick glyphs**

- each glyph carries its own dimensions
- glyph/glyph comparison, not just Glyph/coordinate

---

**Star Coordinates, Stick glyphs**

- each glyph carries its own dimensions
- glyph/glyph comparison, not just Glyph/coordinate

---

**Star Coordinates key idea:**

- packing N coordinates into a 2D space

---

**Trends, and Outliers using Star Coordinates**

- a point in the space is not unique
- a good paper, recommended to read

---

**Star Coordinates adjustments**

- a point in the space is not unique
- a good paper, recommended to read

---

**Paper 2: Glyphs for Software Visualization**

Chuan, Eick, 2001

- domain: Software Engineering
- why glyphs? to preserve the "objectiveness"
- good paper, recommended to read

Star Coordinates, Footprints glyphs

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"

---

**Star Coordinates key idea:**

- packing N coordinates into a 2D space

---

**Star Coordinates, Footprints glyphs**

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"

---

**Star Coordinates, Stick glyphs**

- each glyph carries its own dimensions
- glyph/glyph comparison, not just Glyph/coordinate

---

**Star Coordinates, Stick glyphs**

- each glyph carries its own dimensions
- glyph/glyph comparison, not just Glyph/coordinate

---

**Star Coordinates, Footprints glyphs**

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"

---

**Star Coordinates, Footprints glyphs**

- footprints (trace): how dimensions are correlated
- simple and minimalist design
- adjustable
to preserve the "objectiveness"
Paper 2: Glyphs for Software Visualization
Chuan, Eick, 2001

Comments
- infoBUG
  - accuracy design and color usage
  - maybe too many dimensions
- time-wheel
  - whole page up!
- 3D-wheel
  - accuracy issues in 3D perception
- didn't use glyph location

Paper 3: The Training and Transfer of Real-World Perceptual Expertise
Tanaka et al, 2005

Test
"Do they belong to the same family/species?"
- Old images
- New images/old species
- New species
  - other species of owls or wading birds

Result
ANOVA
better discrimination ability

Comment
perceptual exposure is not enough
we need detailed perceptual experience
how does this link back to glyphs?
not just look at them, but think with them
interactivity is the key?