SIGGRAPH 2010

The People Behind the Pixels
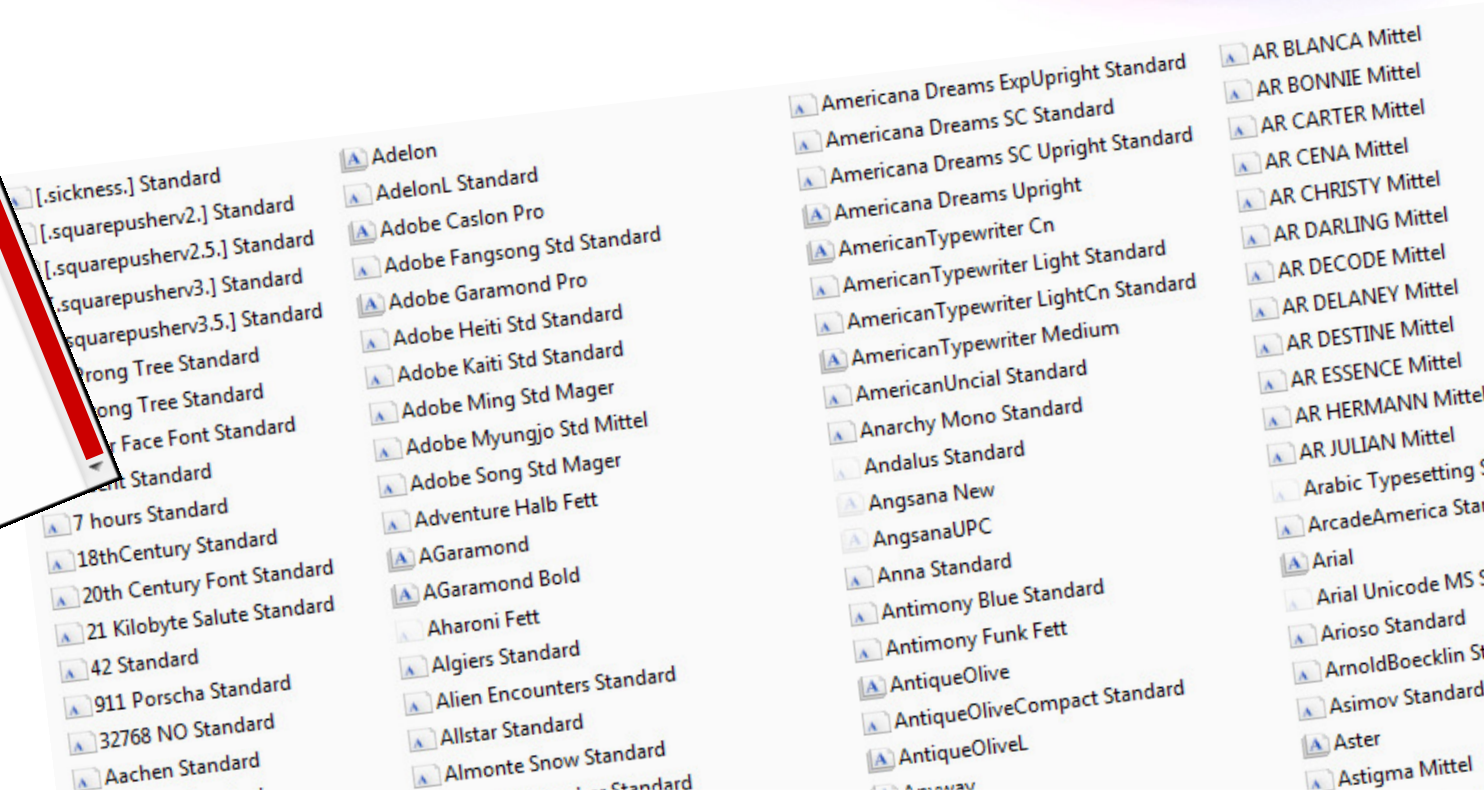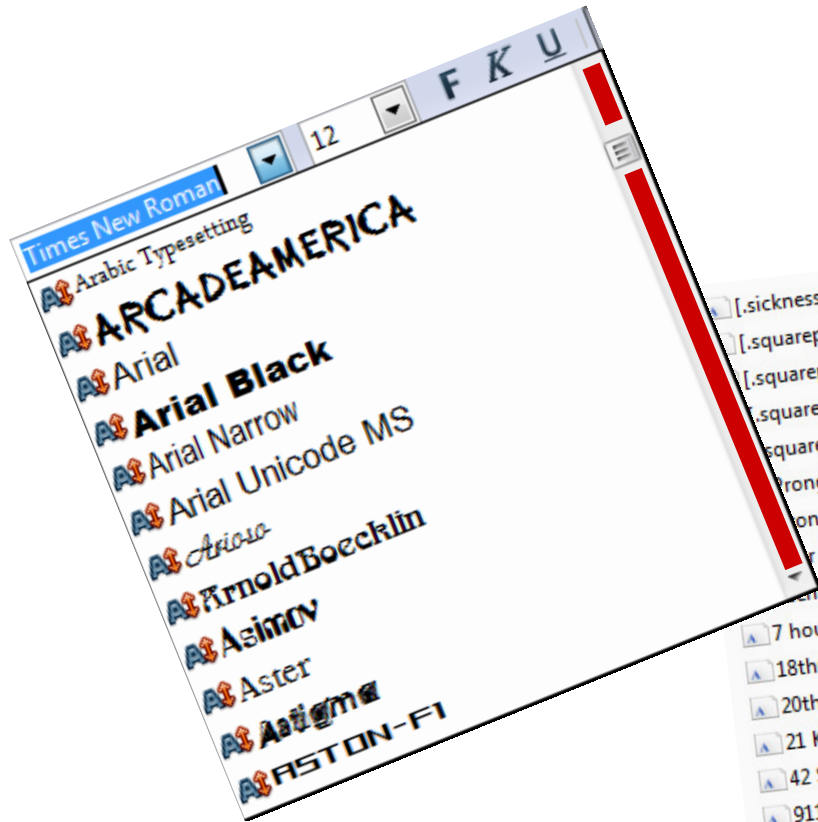
SIGGRAPH2010
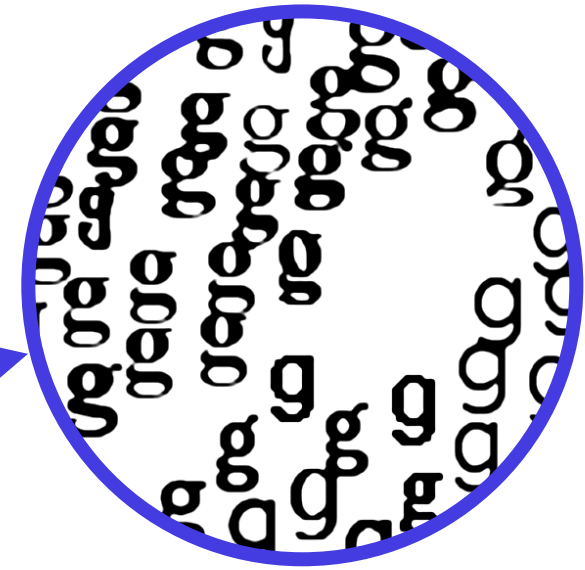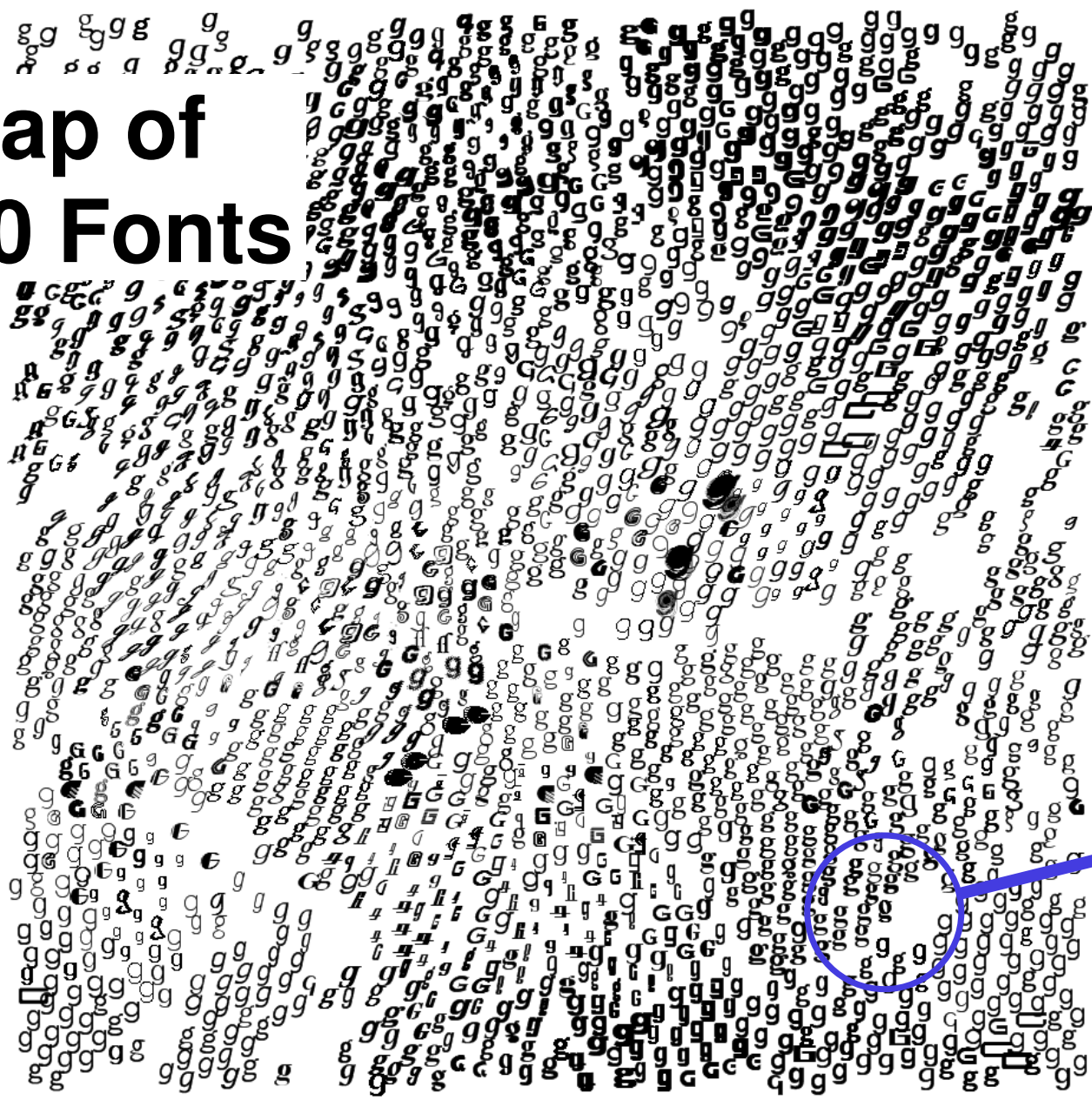
The Universe of Fonts, Charted by Machine

Jörn Loviscach

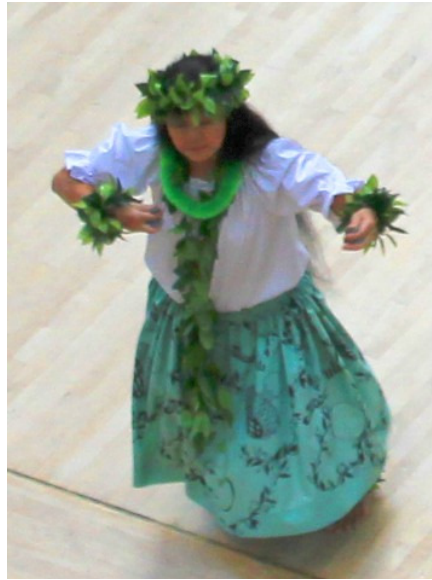*University of Applied Sciences, Bielefeld, Germany*

Drowning in Fonts ...

A Map of 2000 Fonts

Multimedia Information Retrieval

Images:
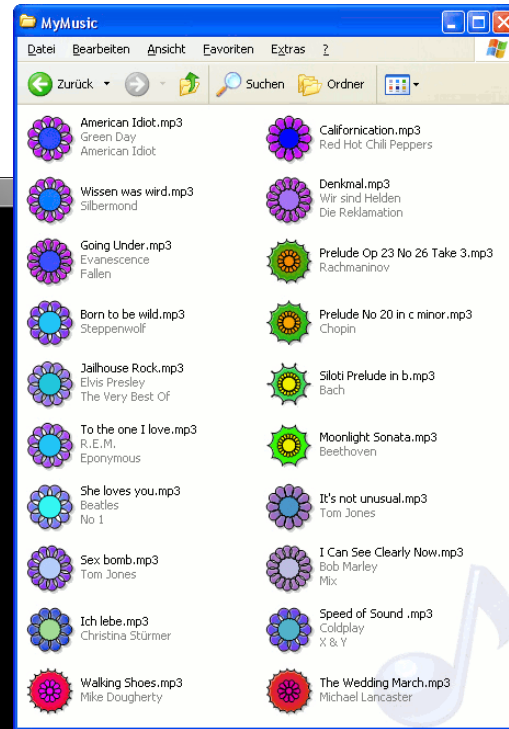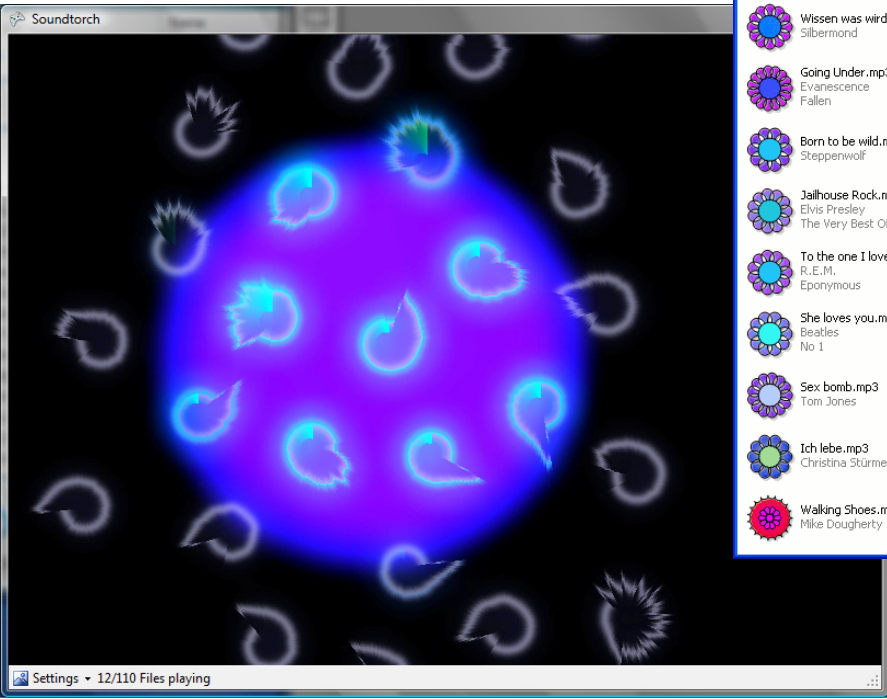Find all photos
of Big Ben

Video:
Find all
Hula dancing

Multimedia Information Retrieval
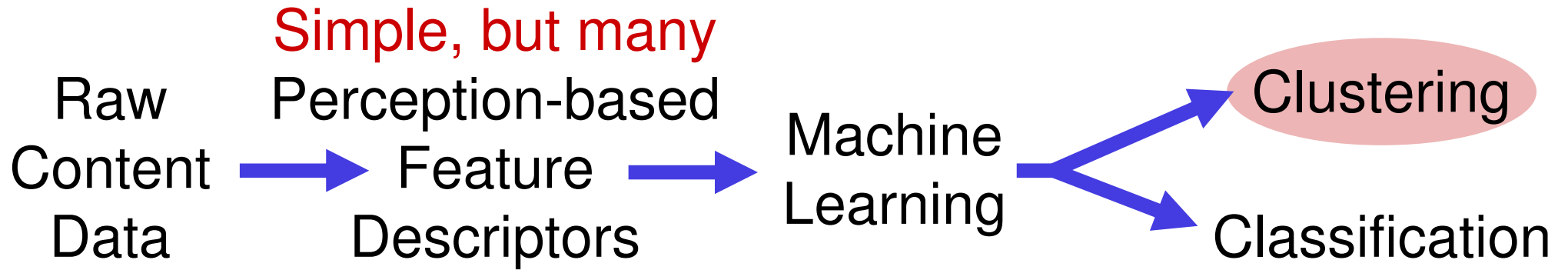
SoundTorch

Music Icons

Music:
Cluster by genre/timbre

Overall sound, no subtle understanding needed (nor viable?)

Carry this over to fonts!

Inspiration from Music Information Retrieval

Raw Content Data → Simple, but many Perception-based Feature Descriptors → Machine Learning → Clustering / Classification

Related Work Concerning Fonts

- Font management and printout software

- Databases utilizing manual classification:
  Type Navigator, Typedia

- Automated font analysis
  (e.g., by Roger D. Hersch et al.)

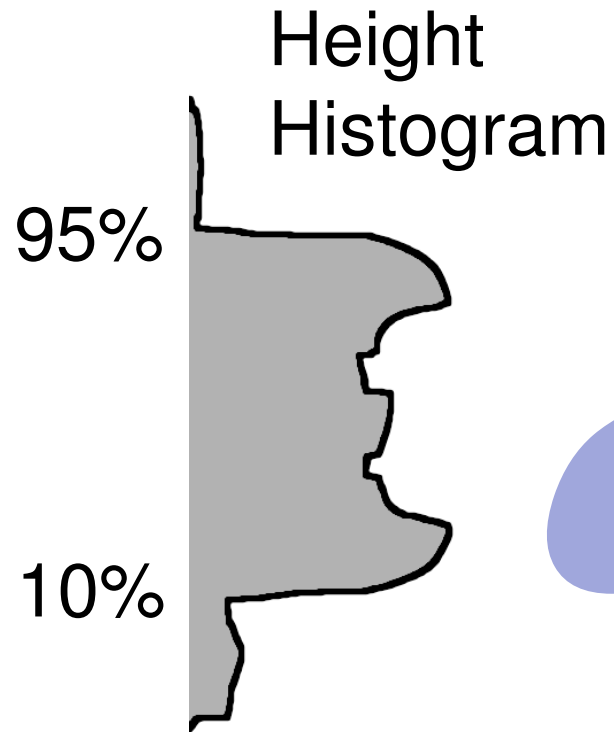- Optical font recognition:
  FyFont, WhatTheFont

Some Low-Level
Font Feature Descriptors

- Apparent Height

- Weight

- Roundness

- Slant

- Curvature

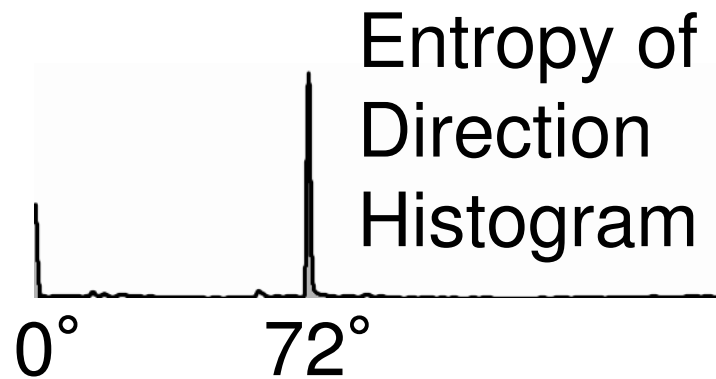- Diagonalness

Some Low-Level Font Feature Descriptors

- Apparent Height
- Weight
- Roundness
- Slant
- Curvature
- Diagonalness

Height Histogram

95%

10%

Some Low-Level
Font Feature Descriptors

- Apparent Height

- Weight

- Roundness

- Slant

- Curvature

- Diagonalness

Area / Circumference^2

Some Low-Level
Font Feature Descriptors

- Apparent Height

- Weight

- Roundness
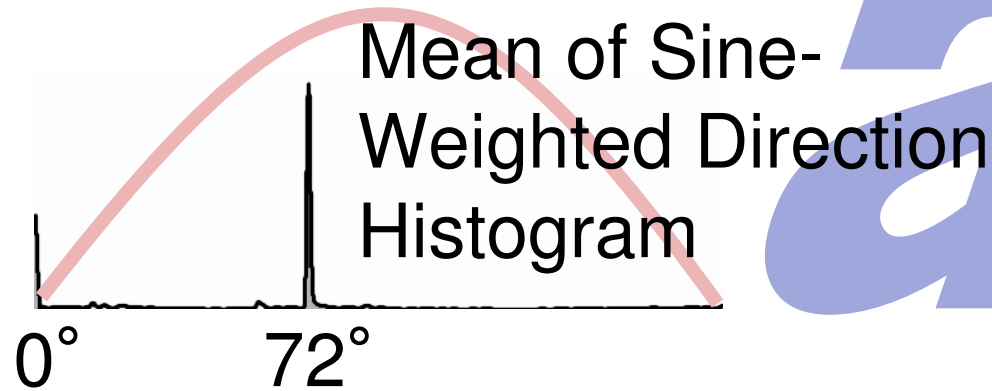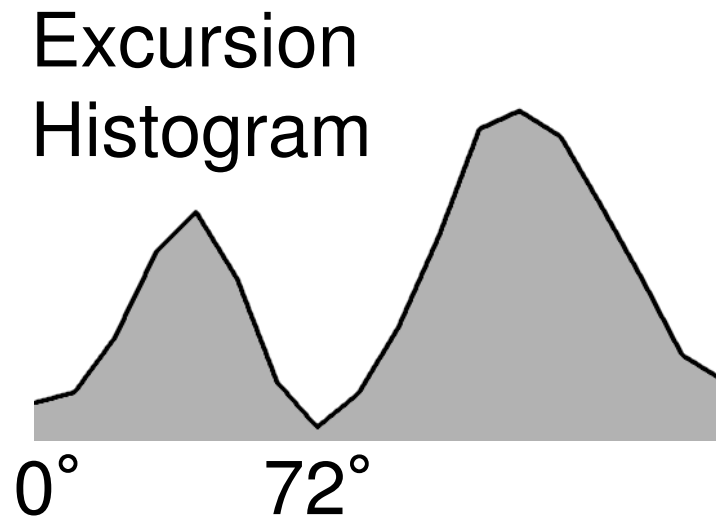
- Slant

- Curvature

- Diagonalness

Entropy of Direction Histogram

0°   72°

Some Low-Level Font Feature Descriptors

- Apparent Height

- Weight

- Roundness

- Slant

- Curvature

- Diagonalness

Mean of Sine-Weighted Direction Histogram

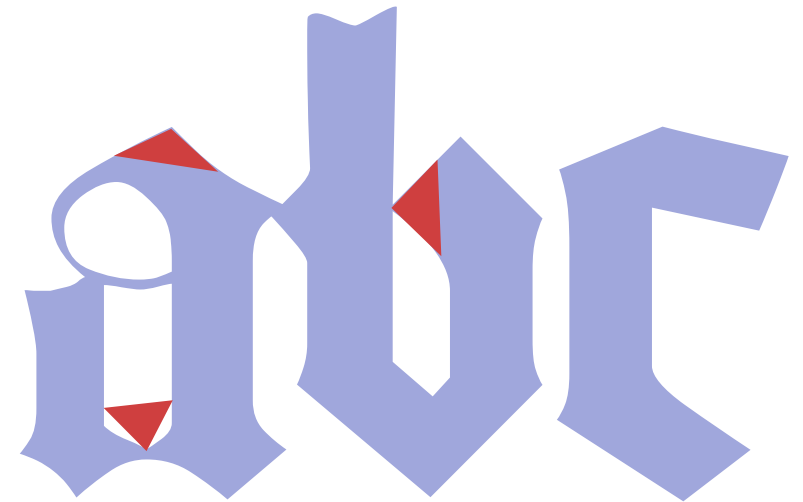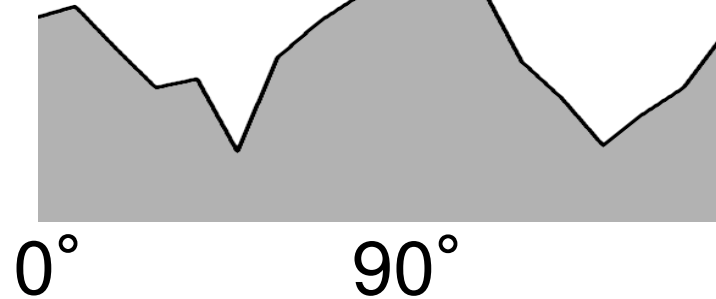0°   72°

Some Low-Level Font Feature Descriptors
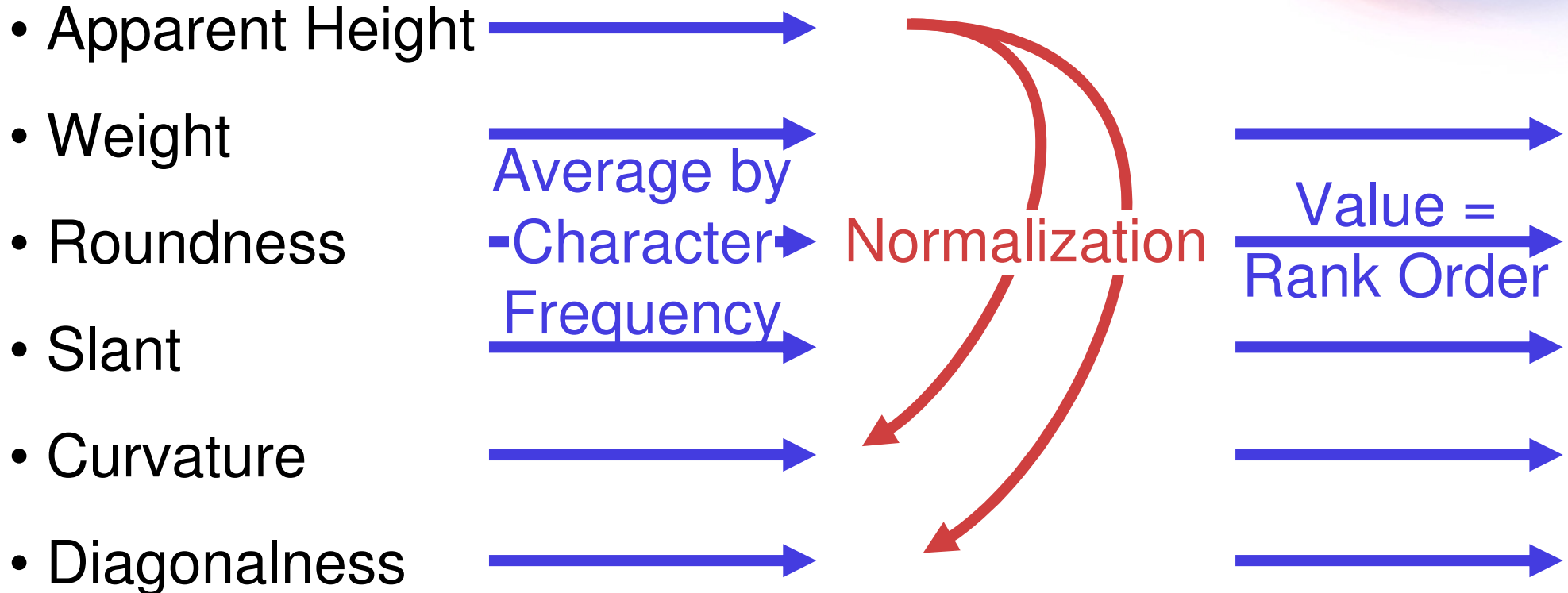
- Apparent Height

- Weight

- Roundness

- Slant

- Curvature

- Diagonalness

Excursion Histogram

0°   72°

Some Low-Level Font Feature Descriptors

- Apparent Height

- Weight

- Roundness

- Slant

- Curvature

- Diagonalness

Excursion
Histogram

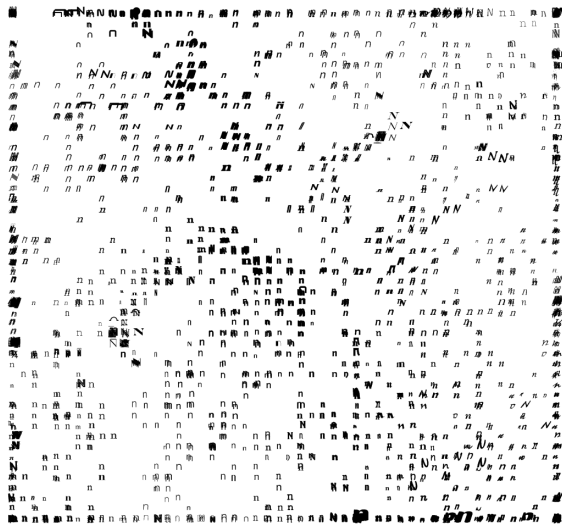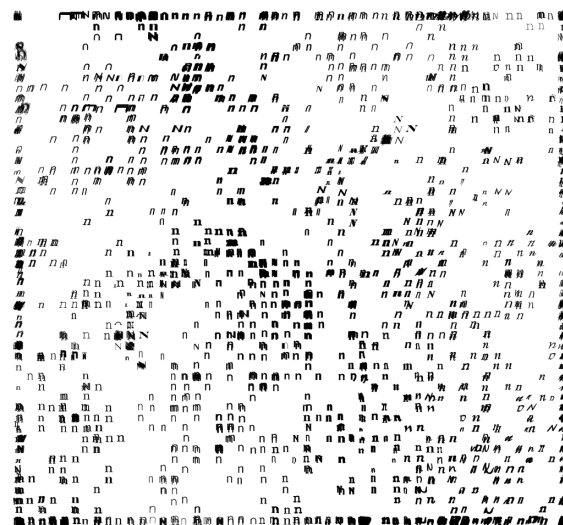0°   90°

Some Low-Level Font Feature Descriptors

- Apparent Height
- Weight
- Roundness
- Slant
- Curvature
- Diagonalness

Average by Character Frequency
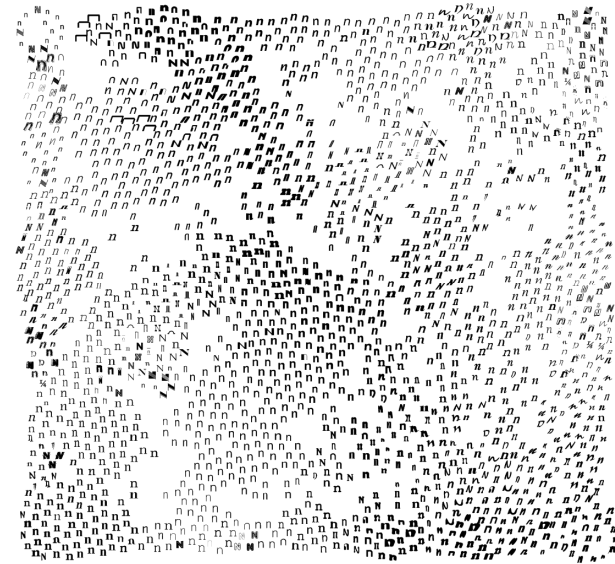
Normalization

Value = Rank Order
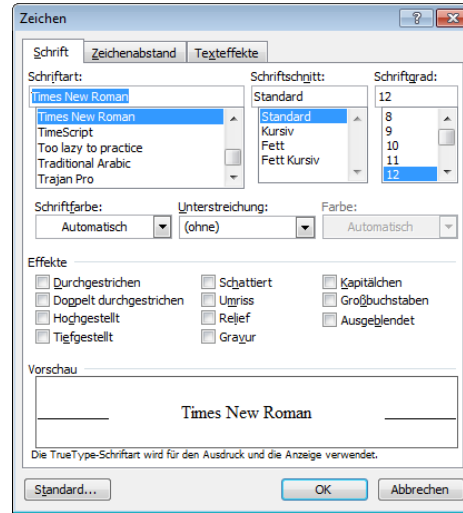
Automated Charting

Self-Organizing
Map

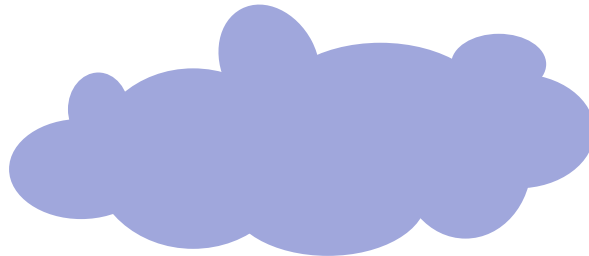Normalize
font size

Push
piles apart

Outlook

- Replace font dialog/menu

- Train neural net to find pleasing font pairs

- Feed with fonts crawled from the Web

Headline

Body Text

Thank you!

www.j3L7h.de