Nutritional Understanding Tool

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Problem

• How to help people make healthy choices about what to eat?

• Previous visualizations and tools:
  • examine nutritional information on a nutrient by nutrient basis

• How to give high level understanding of food as a whole?
Proposed Solution

- **Nutritional Understanding Tool (NUT)**
  - a tool for understanding *nutrients in combination and in context of the whole food*

- Domain: nutritional information

- Users: everyday consumers
  - . . . leaning towards *food nerds*

  - 47 dimensions
  - 7906 foods
Project Type

• Has morphed since my proposal

• Part *design study* + part *analysis*
  • Using rapid prototyping and simple analysis to inform final design
Proposed Solution

- Proposed (but will change):
  - Linked views: List view, overview, detail view
Proposed Solution

• List View
  • Searchable list of foods
    • Arranged by food group
    • Selection updates other views

• Detail View
  • Detailed information of selected food
Proposed Solution: Overview

• Basic components:
  • Segments encode nutrients
  • Foods encoded with lines/pixels
  • Within segments, foods are stacked from least to most
  • Color of food encodes food group

• Interaction
  • Brushing between segments
  • Selection linked between views
  • Additional selection for comparison
Proposed Solution: Overview

- Challenges
  - Too much information to show all at once
  - And it’s not all interesting anyways . . .

- Possible solutions
  - Filtering of foods
  - Reduction/filtering of dimensions
  - Addition of nutrient view for details

- Analysis will inform final design
Scenarios

• “Not all vegetables are created equal”

Understand the *nutrient profile* of a food
Scenarios

- Food replacement

Compare profiles of *two foods*
Implementation

• So far:
  • using Processing for analysis, prototyping

• Eventually:
  • Processing.js to create the final user interface, with web deployment
Progress: Analysis Challenges

• Tried some different high-dimensional visualization and dimension reduction tools. . .
  • Ggobi, Xmdv tool, Dimstiller
  • *Wasting too much* time learning tools and changing data formats

• Solution:
  • Rapid prototyping with Processing for my own analysis
Progress: Prototyping & Analysis

• Prototyping completed so far:
  • implementation of pixel-based prototype overview
  • In progress of implementing basic brushing and tooltips

• Focus of current analysis:
  • Which nutrients are actually interesting?
  • How to deal with missing values and 0s?
  • How could the data be reduced?
    • Which dimensions can I filter or collapse?
    • How should I reduce the number of foods shown?
Progress: Prototyping & Analysis
My Next Steps

• Keep prototyping:
  • Refine and develop different overviews based on decisions from analysis

• Steps toward final implementation:
  • Within the next week: Implement simple list and detail views
Questions?