# **Perception for Design**

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# What makes a visualization effective?



## **Graphical Perception** [CHI'10, InfoVis'10...] Empirical studies of visual encoding effectiveness



Cognitive Color Models [CHI '12, EuroVis '13 Best Paper]

Novel measures informing color palette optimization.



### Data Voyager [In Preparation]

Steerable design galleries of visualization recommendations

#### **Data Voyager: Movies**

Bookmarks (0) ObnU C C' Redo

# What can we do with visualizations in the wild?







↓ Type: Pie ↓	
Data Table	
AIDS	70.0%
Parkinson'	6.0%
Prostate	5.2%
Alzheimer's	5.1%
Diabetes	5.1%
Hepatitis C	4.0%





#### Input Image (upload)



#### Data Table (export)

Label	% of Total
Cash	32.7%
Bonds	22.4%
Stocks	22.3%
Gold	10.8%
Platinum	6.1%
Silver	5.7%

#### Font

Lucida Grande 🛟

#### Color

ManyEyes Red 🛟





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Cash Stocks Platinum









Bonds Gold Silver Cash Stocks Platinum







Input Image (upload)



#### Data Table (export)

Label	Value
Kristy	170
Sandra	168
Amanda	167
Jayne	161
Kay	161
Devinder	160
Samantha	160
Maria	159
Hayley	158
Clare	158
Lisa	158
Kate	156
Cara	155
Caroline	155
Sarah	155
Joanne	155
Carol	151
Suzanne	151
Melissa	149

#### Font

Lucida Grande 💲

#### Color

Economist \$





## **Research Challenges**

Design-oriented **models of perception**, constructed via human-subjects experiments.

Algorithms and optimization procedures for **automated visualization design**.

**Generative modeling** of visualizations.

**Index visualizations** for search, redesign, and study of visual communication patterns.

# **Perception for Design**

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