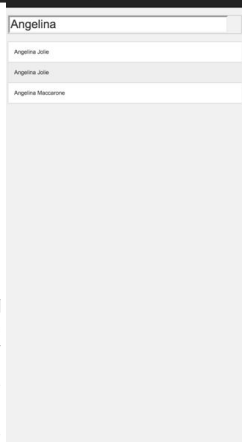


Show 10 entries

Search:

Name	Director	Rate	Boxoffice(\$)	Runtime(min)	Release Date	Genre	Country	Language
'71	Yann Demange	7.2	0	99	29-08-2014	Action Drama Thriller	United Kingdom	English
11-Sep	Youssef Chahine/Amos Gitai/Alejandro Gonzalez Iritia/Shel Imamura	7	0	134	18-07-2003	Drama	United Kingdom France Egypt	English Spanish French
12 Years a Slave	Steve McQueen	8.1	924000	134	30-08-	Biography	United Kingdom	English



## Actor Angelina Jolie's network

Move on any node to view name and relationship of it  
Drag nodes to explore  
Double click movie posters to get more info  
Double click actor/director to jump to his/her personal page and view his/her network.



# MoVis

## Movie Recommendation and Visualization

CPSC 547 Information Visualization Project Presentation

Ye Chen & Yujie Yang

2015/12/15

# Outline

- Introduction
- Why - Tasks
- What - Data
- How
- Demo
- Conclusion
- Limitations/comments
- Appendix

# Introduction

- Do you like to watch movies?
- But how do you find a movie?

# Introduction

- Some good websites to find a good movie to watch
  - iMDB
  - Criticker
  - .....
- No live website uses visualization tool to show movie data
- No live website provides overview of cooperation of actors and directors

# Introduction - related works

- Some websites show movies in lists

Rank & Title	IMDb Rating	Your Rating
1. The Shawshank Redemption (1994)	★ 9.2	☆ +
2. The Godfather (1972)	★ 9.2	☆ +
3. The Godfather: Part II (1974)	★ 9.0	☆ +
4. The Dark Knight (2008)	★ 8.9	☆ +
5. 12 Angry Men (1957)	★ 8.9	☆ +
6. Schindler's List (1993)	★ 8.9	☆ +

Fig. 1 iMDB top rated movies page(from <http://www.imdb.com/chart/top>)

**Let's Make Money (2008)** *Documentary*  
Most of us don't know, where their money is. How ever, one thing is for certain. It's not in the bank, to which we entrusted it. The bank and our money is already a part of the cycle of the global money market. (imdb)

**CRLOS SAURA**  
**Cría cuervos...**  
Carlos Saura wrote and directed this powerful psychological drama in which family crises which reflect the embattled soul of a nation are seen through the eyes of an unusually perceptive child... (All Movie Guide)

**Police Academy (1984)** *Comedy, Crime*  
A group of good-hearted but incompetent misfits enter the police academy, but the instructors there are not going to put up with their pranks. (imdb)

Fig. 2 Criticker recommendation page(from <http://www.criticker.com/>)

# Introduction - related works

- FilmFinder has no live demo
- Musicoverly is a live website related to what we do

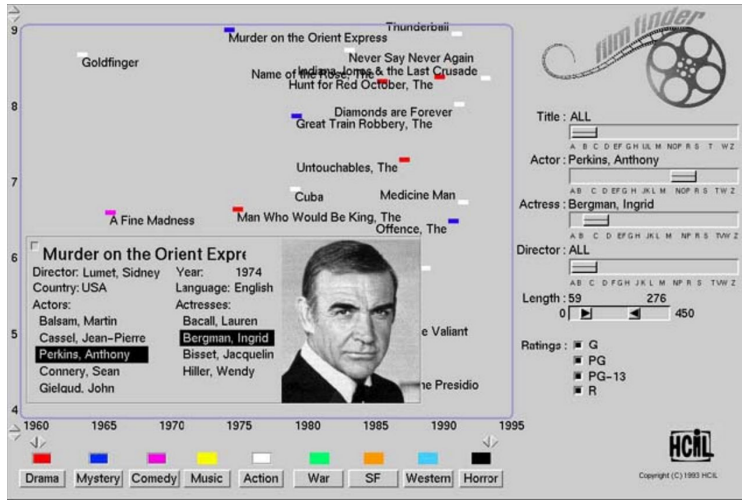


Fig. 3 FilmFinder [1] features tightly coupled interactive filtering, where the result of moving sliders and pressing buttons is immediately reflected in the visual encoding

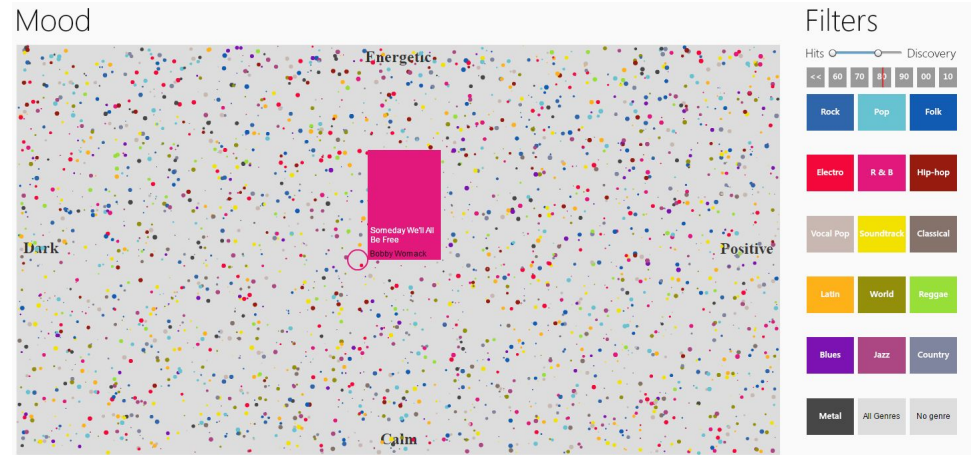


Fig. 4 Musicoverly shows a scatterplot-based visualization to find music(from <http://musicoverly.com/>)

# Introduction - related works

- Some of our ideas also come from this co-author graph

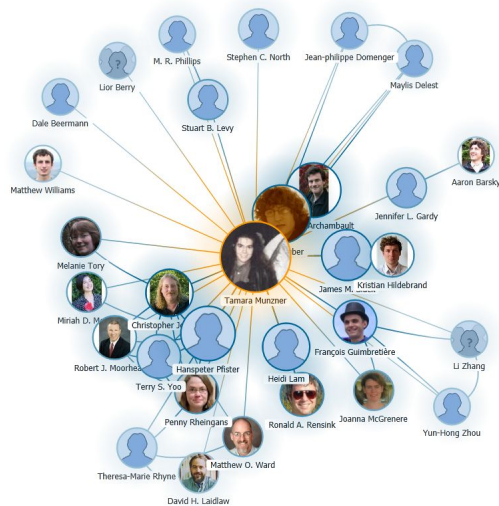



Fig. 5 Co-author graph of Tamara on Microsoft academic research(from <http://academic.research.microsoft.com/VisualExplorer#878415>)

# Why - Tasks

- Task 1: **explore** some good movies based on users' preference.
- Task 2: **explore** users' interested actors/directors and find relevant good movies.

## ➔ Search

	Target known	Target unknown
Location known	 <i>Lookup</i>	 <i>Browse</i>
Location unknown	 <i>Locate</i>	 <i>Explore</i>



# What - Data

- Raw data
  - 30k+ rows of movie data from iMDB Pro
- Selected data for MoVis website
  - 4997-row table filtered from raw data by rate  $\geq 7$
  - 4 ordered attributes: runtime, boxoffice, rate, release date
  - 5 categorical attributes: genre, country, language, director, actors
  - To help build the website: movie poster link, movie iMDB page link, actor/director picture link

# How

- Task 1: find some good movies based on users' preference.
  - Solution: Movie Scatterplot
  - Tools: HTML, javascript and d3
- 
- Task 2: explore users' interested actors/directors and find relevant good movies.
  - Solution: Actor/director Network
  - Tools: HTML, javascript and d3

Demo

# Attribute Encoding - Movie Scatterplot Page

Attribute	Type	Scale	Data Sample	Channel	Role in system
Release Date	Ordinal	1996 to 2016 year	2015/12/15	Spatial region	Scatterplot(x axis)
Rating	Quatitative	0 - 10	8.5	Spatial region	Scatterplot(y axis)
Runtime	Quatitative	0 - 400	150 min	Position on common scale/Length	Filter
Country	Categorical	Dozens	United States		Filter
Language	Categorical	Dozens	English		Filter
Boxoffice	Quatitative	Millions	10M USD	Not directly show	Not directly show
Boxoffice class (derived attribute)	Ordinal	Four	[5M,10M)	Size	Filter
Genre	Categorical	Dozens	Action Action Adventure	Color hue	Horizontal histogram; Filter
Movie count per genre (derived attribute)	Quatitative	Dozens - thousands	Action: 456 movies	Width of the bins	Horizontal histogram; filter

# What-Why-How - Movie Scatterplot Page

<b>System</b>	<b>MoVis movie scatterplot page</b>
What: Data	Table: four ordered attributes(runtime, boxoffice, rate, release date), three categorical attributes(genre, country, language)
What: Derived	Derived table: one ordered attribute(boxoffice class), one quantitative value attribute(item count per genre)
Why: Tasks	Find items by users' preference of attributes
How: Encode	Scatterplot; horizontal histogram; table
How: Facet	Multiform; overview-detail; linked highlighting
How: Reduce	Item filtering
How: Embed	Popup window with details
How: Manipulate	Constrained(brush)
Scale	Items: thousands

# Attribute Encoding - Actor/Director Network Page

Attribute	Type	Scale	Data Sample	Channel	Role in system
Movie item	Categorical	4997	Martian	Nodes	Nodes
Actors	Categorical	14384	Anne Hathaway	Nodes	Nodes
Directors	Categorical	3797	Lone Scherfig	Nodes	Nodes
Nodes (derived attribute)	Categorical	hundreds	See appendix	Spatial region	Nodes
Links (derived attribute)	Categorical	hundreds	See appendix	Line	Links

# What-Why-How - Actor/Director Network Page

<b>System</b>	<b>MoVis actor/director network page</b>
What: Data	Table(three attributes: movie name, actors, directors)
What: Derived	Networks(movies/actors/directors as nodes; relationship of actors/directors and movies as links)
Why: Tasks	Explore relevant nodes
How: Encode	Node-Link diagram; list
How: Search	Search actors/directors name
How: Embed	Popup window with details
How: Manipulate	Drag; double click actors/directors to jump to his/her network; double click movies to show details in popup window
Scale	Nodes: hundreds; links: hundreds

# Conclusion

- Contribution
  - Designed MoVis website
  - Designed a scatterplot-based visualization tool to show movie data, with filters for different attributes
  - Designed a network-based visualization tool to show cooperation of actors and directors, as well as their products
- Lessons learned
  - Web implementation skills
  - D3 and different visualization tools
  - Deal with different design choices as designers
  - Happy teamwork!



# Limitations/comments

- Movie scatterplot page
  - Manipulation: brush VS zoom
  - Movies with multiple genres - encode the first genre into color, but other solutions?
  - Filtering works slow for larger dataset
- Actor/director network page
  - Search is a bit slow
  - Lack of some pictures
- For future
  - Limited movie dataset - we will need to update our data to maintain this website

# Thank you for listening!

## Reference

[1] Ahlberg C, Shneiderman B. Visual information seeking using the filmfinder[C]//Conference companion on Human factors in computing systems. ACM, 1994: 433-434.

# Appendix - Movie Scatterplot Page

Filter

Reset all filters    Reset genre filter

- 456 Action
- 339 Adventure
- 190 Animation
- 250 Biography
- 1557 Comedy
- 607 Crime
- 3656 Drama
- 212 Family
- 179 Fantasy
- 160 History
- 123 Horror
- 250 Music
- 286 Mystery
- 788 Romance
- 127 Sci-Fi
- 83 Sport
- 520 Thriller
- 125 War

Runtime: 0 to 250 minutes

0    200    400

Choose country: (For countries not listed, search in table)

All

Choose language: (For languages not listed, search in table)

French

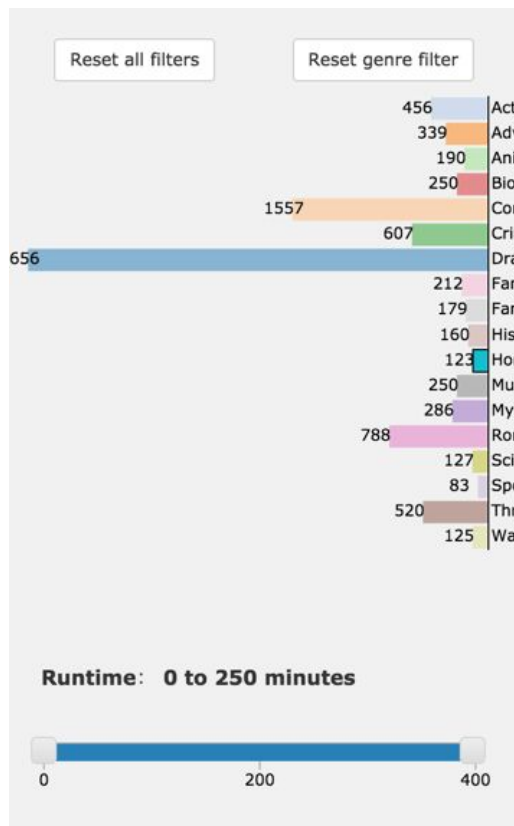


Show 10 entries

Search:

Name	Director	Rate	Boxoffice(\$)	Runtime(min)	Release Date	Genre	Country	Language
8 Women	Franois Ozon	7.1	140000	111	09-06-2002	Comedy Crime Musical	France Italy	French English
A Bottle in the	Thierry Binisti	7.2	3000	100	01-04-2013	Drama	France Israel	Hebrew Arabic

# Appendix - Filter



**Choose country:(For countries not listed, search in table)**

All

**Choose language: (For languages not listed, search in table)**

All

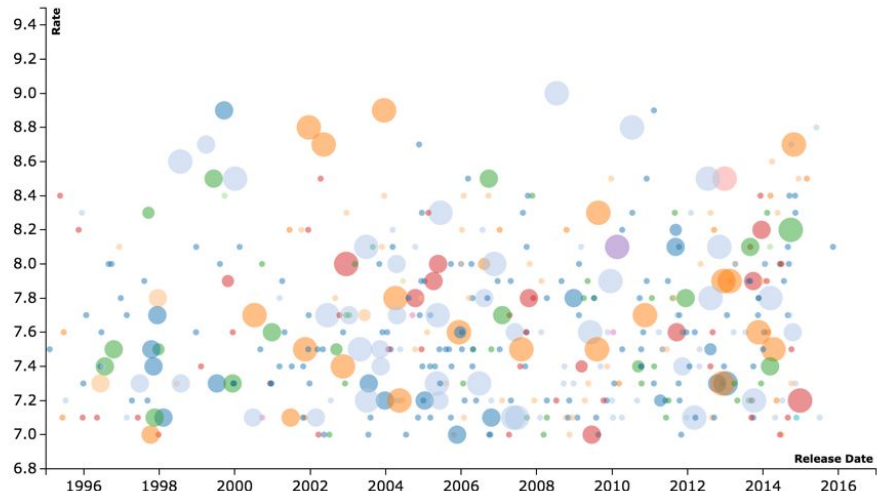
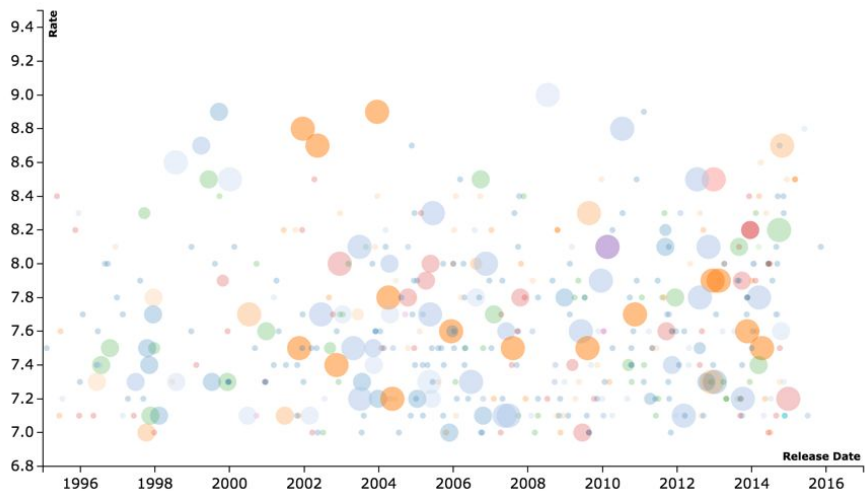
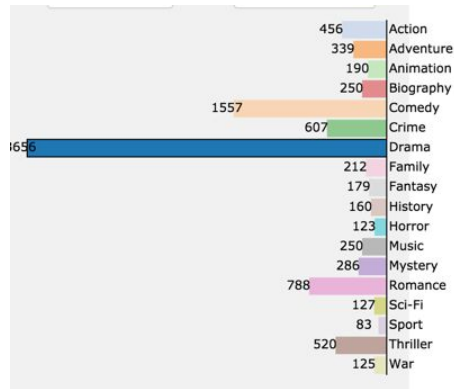
**Boxoffice(\$):**      **Size for dots:**

- All
- <5M(0 means not available)
- [5M,10M)
- [10M,30M)
- >=30M

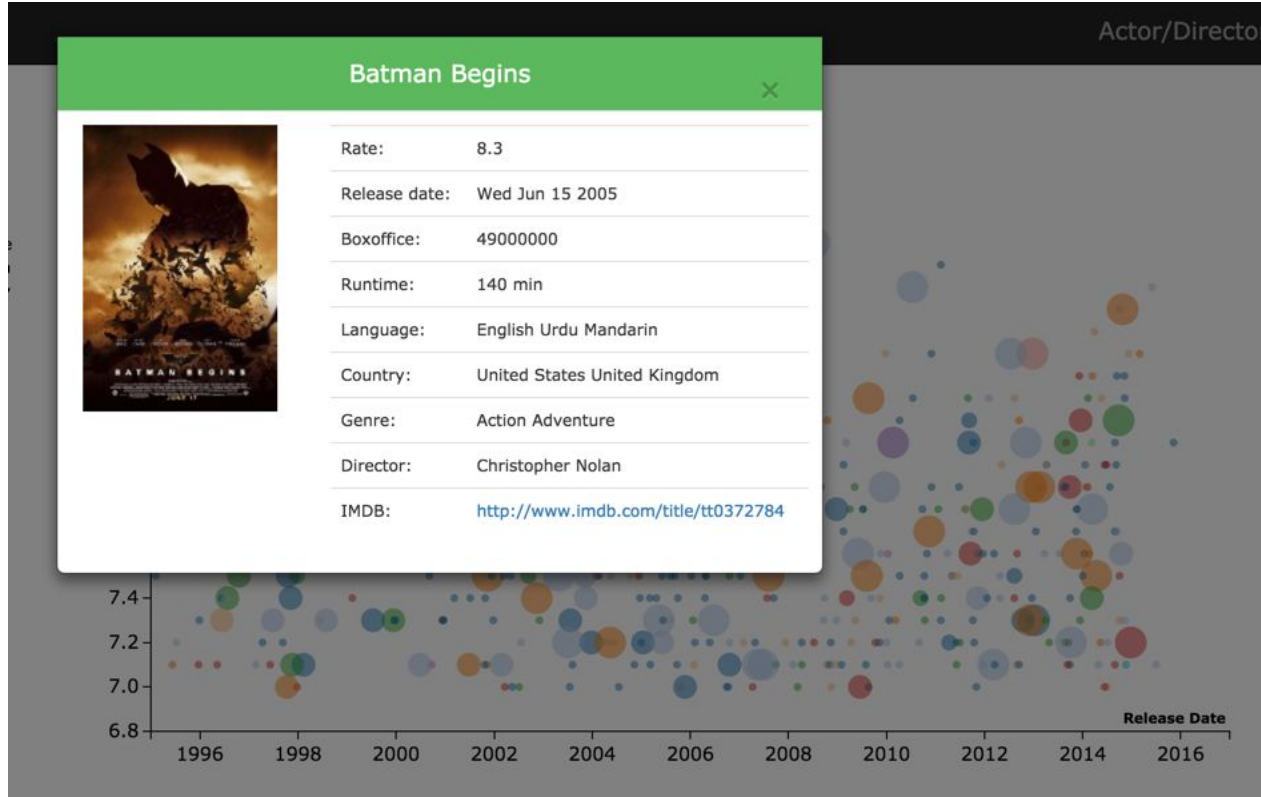
Size for dots: (Visual representation of four increasing dot sizes)



# Appendix - Linked highlight

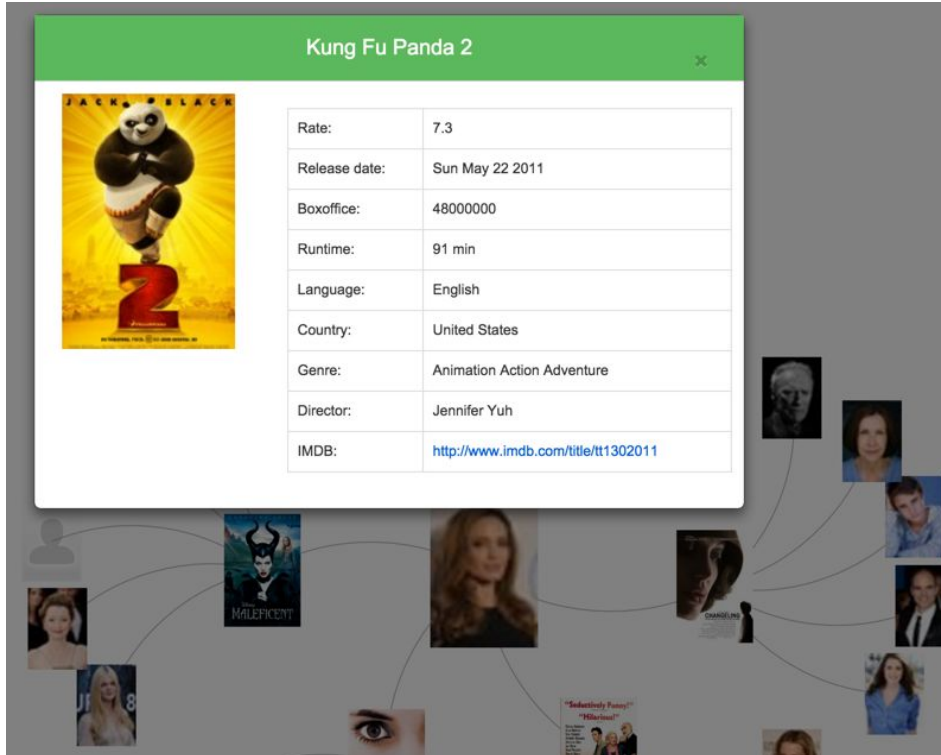


# Appendix - Window pop-up with link to IMDB





# Appendix - Window pop-up with link to IMDB



The screenshot shows a window titled "Kung Fu Panda 2" with a close button. On the left is a movie poster for "Kung Fu Panda 2" featuring Jack Black. On the right is a table with the following data:

Rate:	7.3
Release date:	Sun May 22 2011
Boxoffice:	48000000
Runtime:	91 min
Language:	English
Country:	United States
Genre:	Animation Action Adventure
Director:	Jennifer Yuh
IMDB:	<a href="http://www.imdb.com/title/tt1302011">http://www.imdb.com/title/tt1302011</a>

The background of the slide features a network diagram with various movie posters and actor portraits connected by lines, including titles like "Maleficent" and "Indivisible".