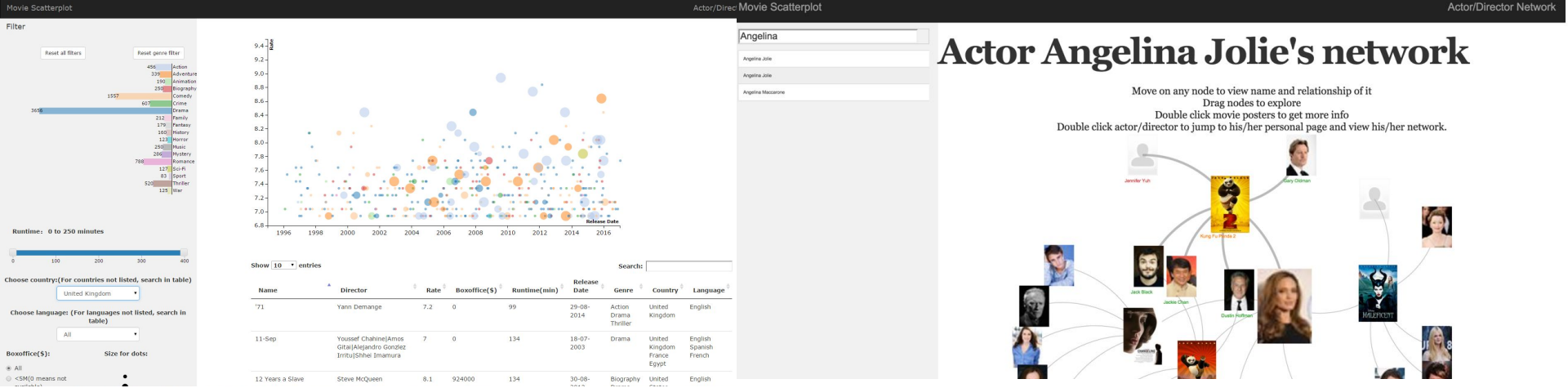


MoVis Movie Recommendation and Visualization

CPSC 547 Infomation 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

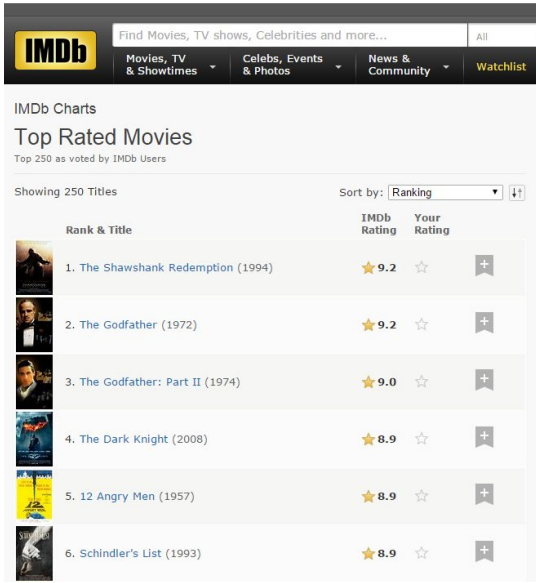


Fig. 1 iMDB top rated movies page(from http://www.imdb.com/chart/top)

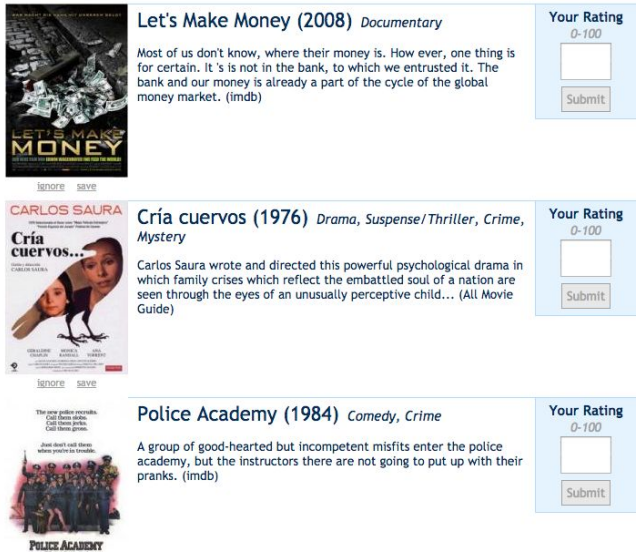


Fig. 2 Criticker recommendation page(from http: //www.criticker.com/)

Introduction - related works

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

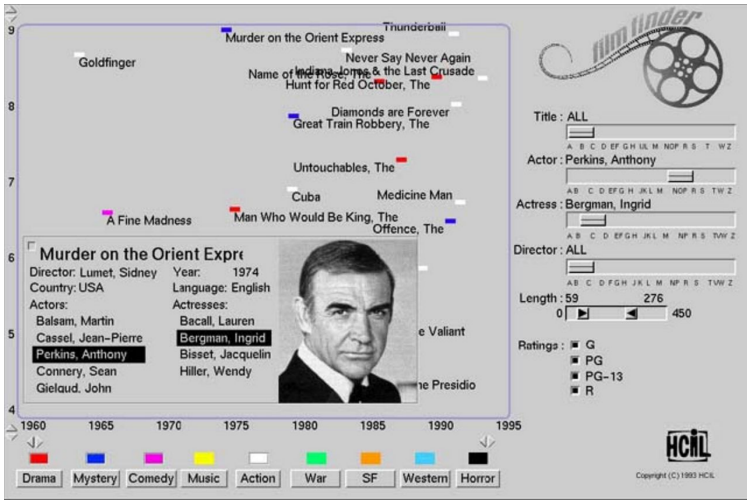


Fig. 3 FilmFinder [1] features tightly coupled interactive filtering, where the result of moving sliders and pressing buttons is immediately reflected in the visual encoding

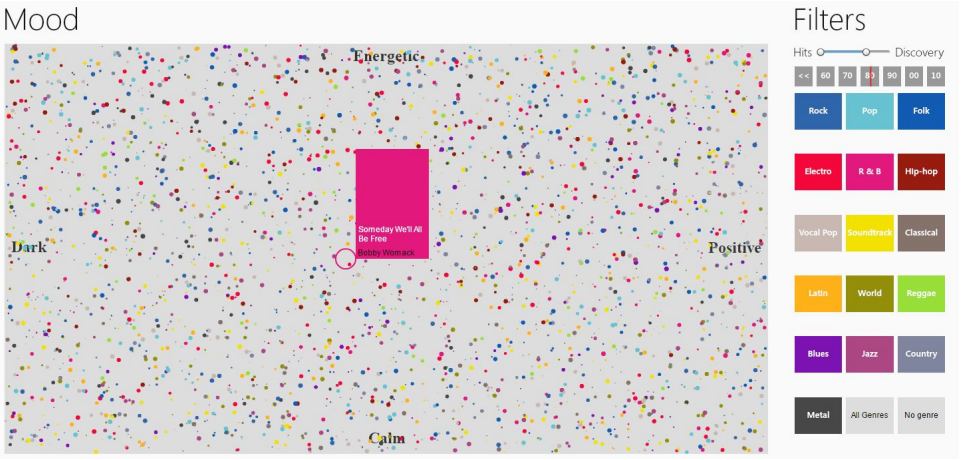


Fig. 4 Musicovery shows a scatterplot-based visualization to find music(from http://musicovery.com/)

Introduction - related works

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

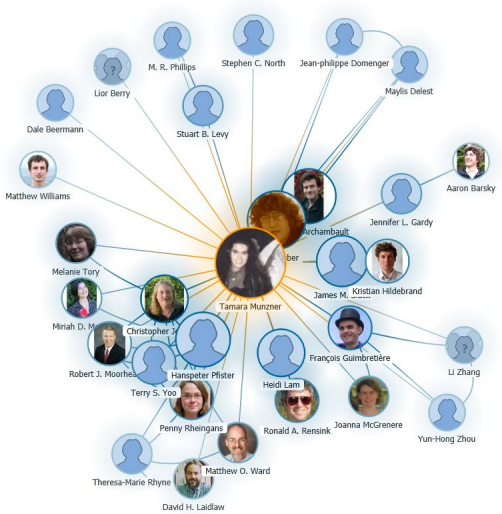


Fig. 5 Co-author graph of Tamara on Microsoft academic research(from http://academic.research.microsoft.com/VisualExplorer#878415)

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	*Lookup*	*Browse*
Location unknown	*Locate*	*Explore*

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 >= 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

System	**MoVis movie scatterplot page**
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 attribue(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

System	**MoVis actor/director network page**
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 relavant 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

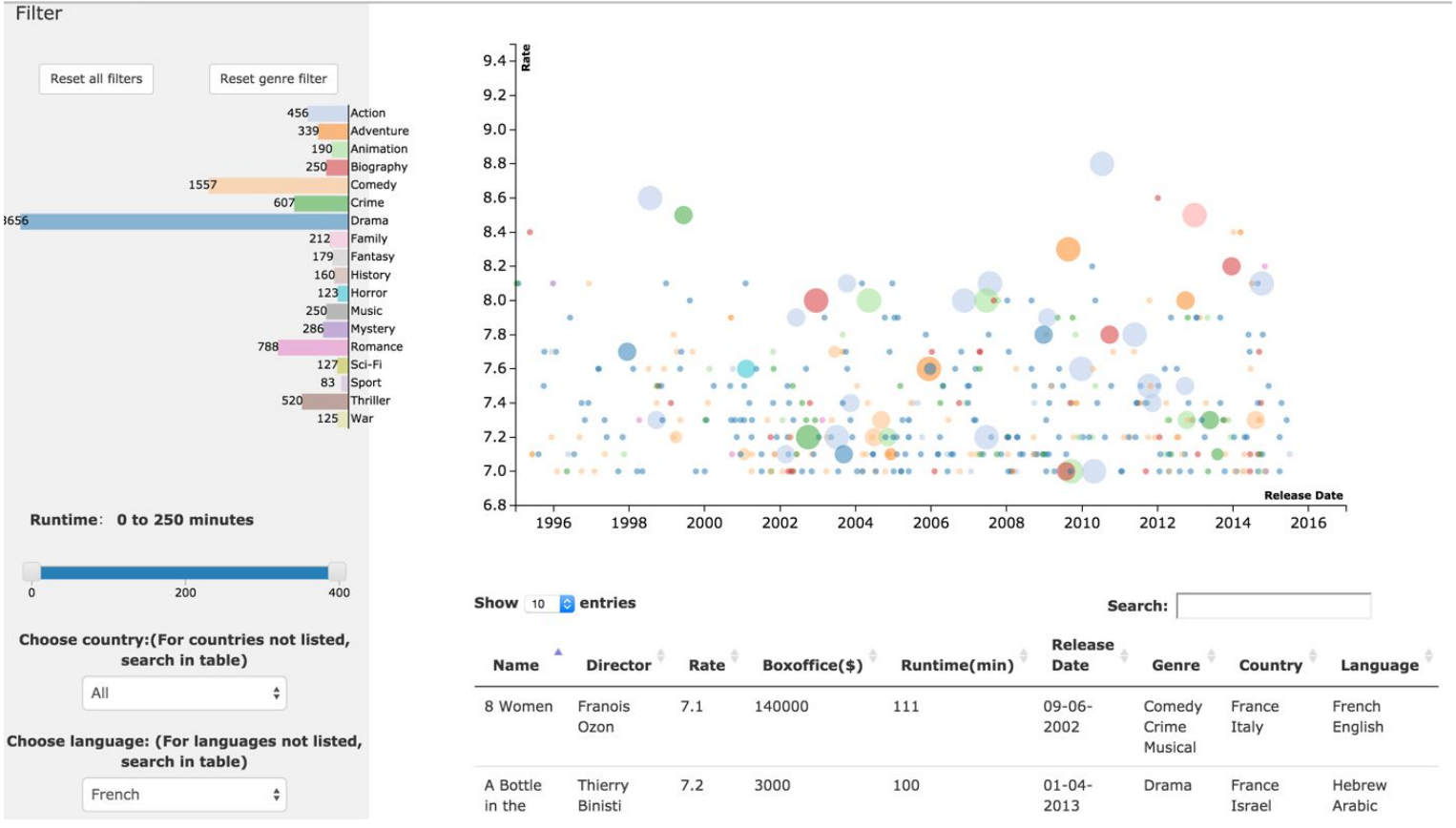
- Movie scatterplot page
  - Manipulation: brush VS zoom
  - Movies with multiple genres - encode the first genre into color, but other solutions?
  - Filtering works slow for larger dataset
- Actor/director network page
  - Search is a bit slow
  - Lack of some pictures
- For future
  - Limited movie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

Thank you for listening!

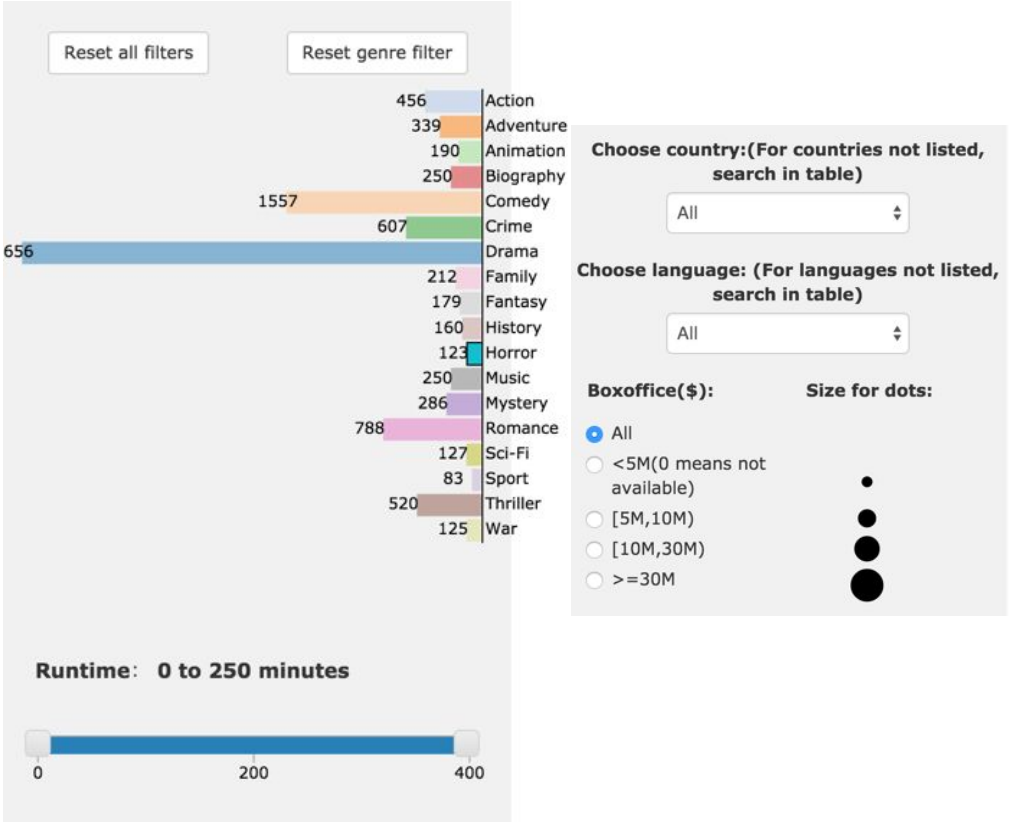
Reference

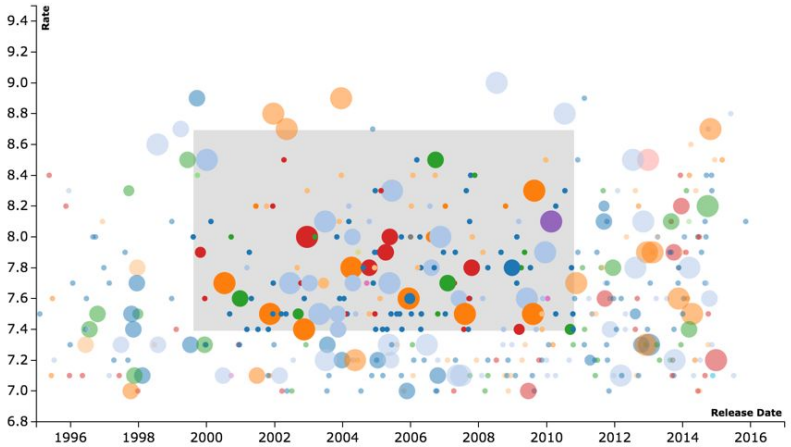
[1] Ahlberg C, Shneiderman B. Visual information seeking using the filmfinder[C]//Conference companion on Human factors in computing systems. ACM, 1994: 433-434.

Appendix - Movie Scatterplot Page

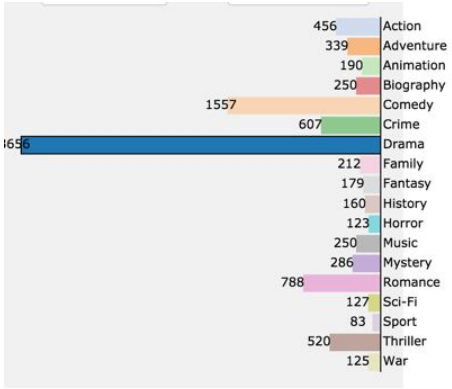


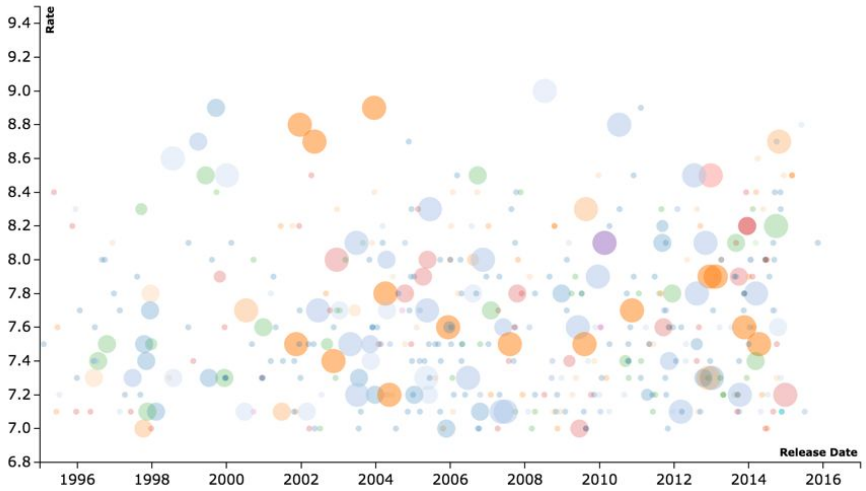
Appendix - Filter

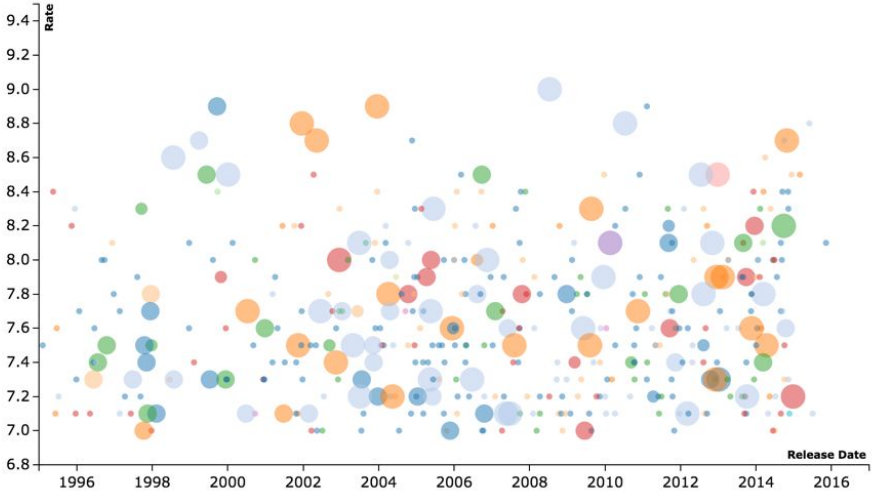




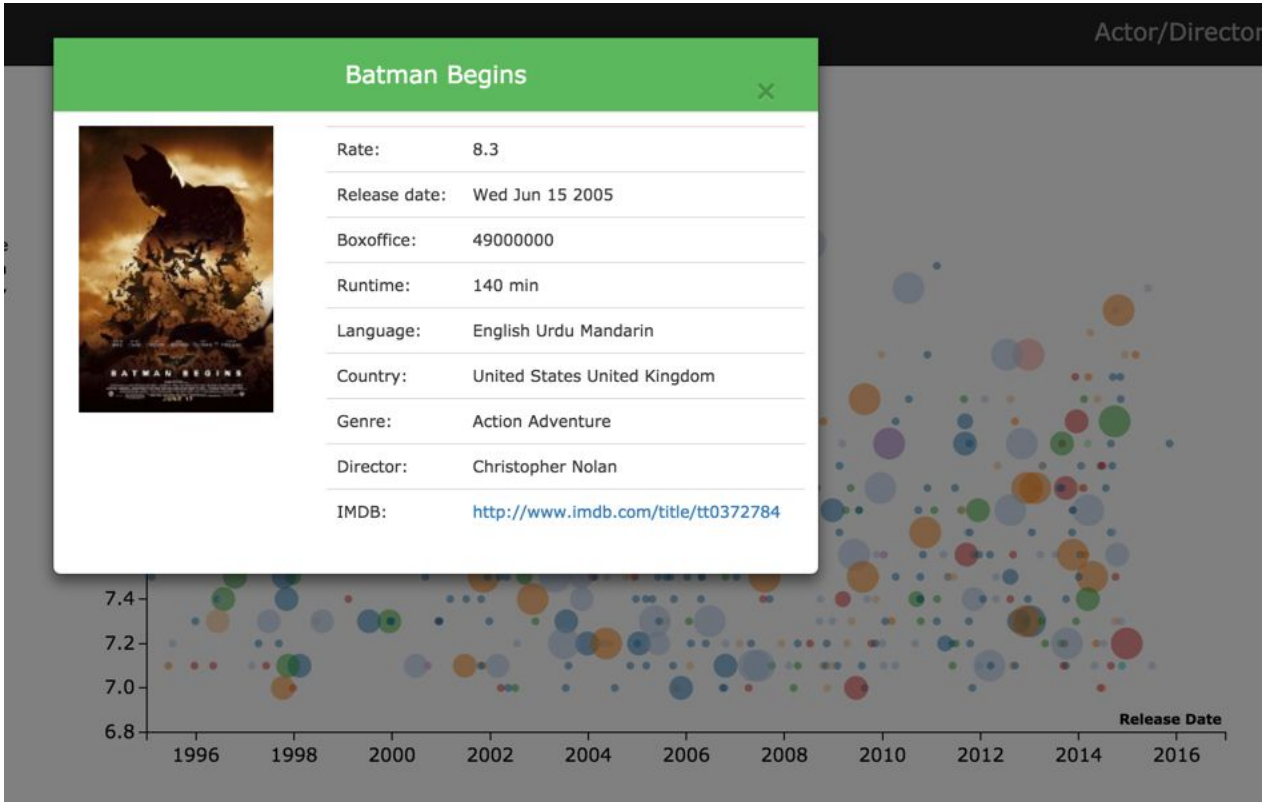
Appendix - Linked highlight



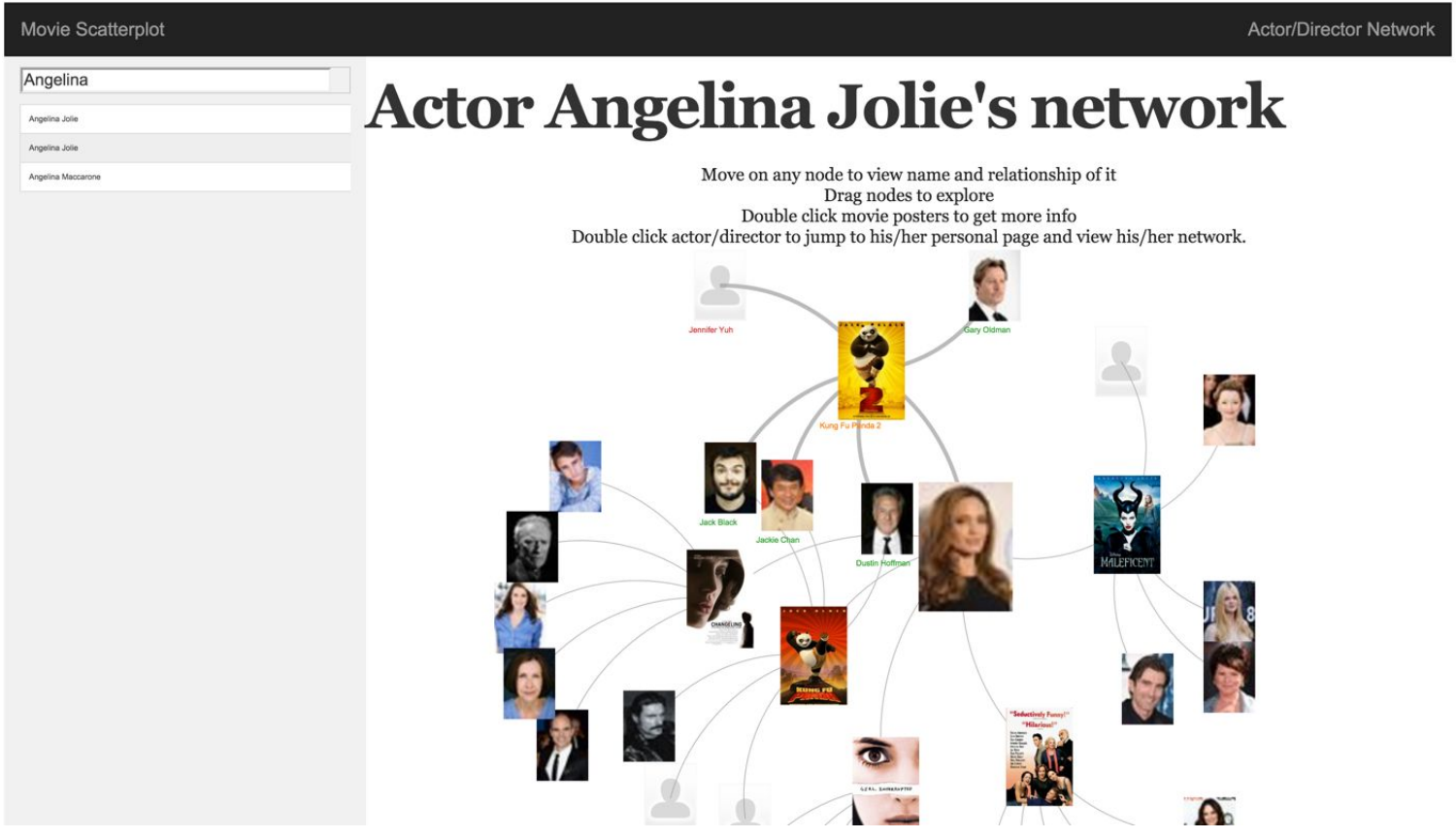
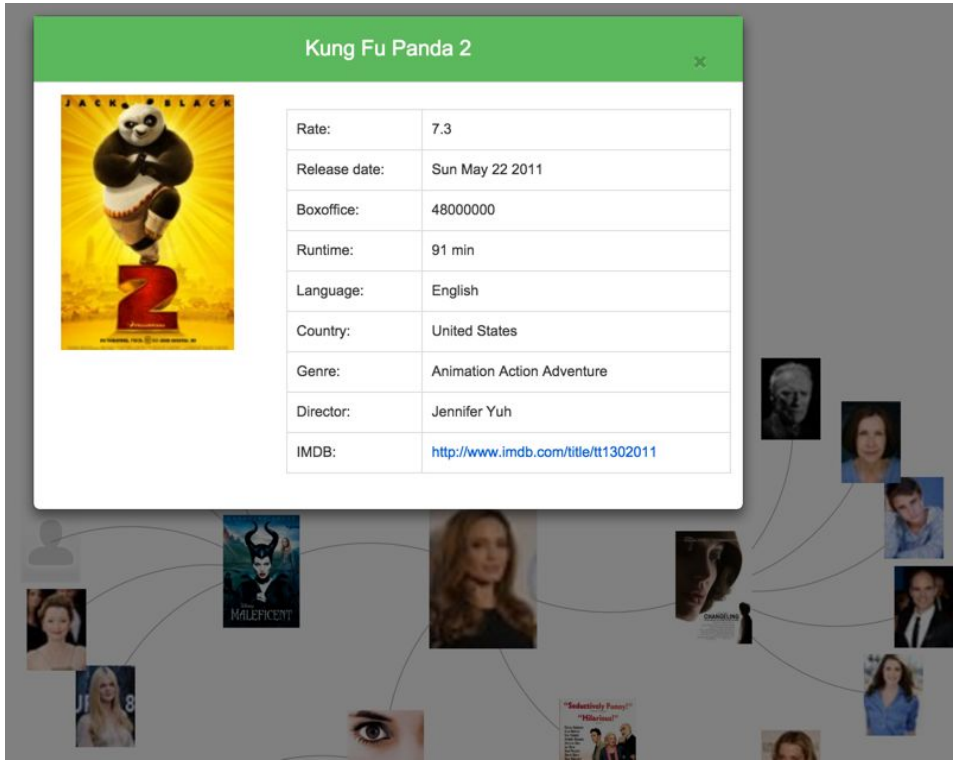




Appendix - Window pop-up with link to IMDB



Appendix - Actor/Director Network Page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