"You should know a ~~word~~ movie by the company it keeps"

User 1

Toy Story 1   Monsters, Inc. $!#   WALL-E   Ratatouille

MovieLens dataset

	user_id	movie_id	rating
0	1	296	5.0
1	1	306	3.5
2	1	307	5.0
3	1	665	5.0
4	1	899	3.5
...	...	...	...
25000090	162541	50872	4.5
25000091	162541	55768	2.5
25000092	162541	56176	2.0
25000093	162541	58559	4.0
25000094	162541	63876	5.0

25000095 rows × 4 columns

- Over 25 M tuples of users-movie-rating
- Tuples were restricted to movies that the user liked (rating > 3.0)
- Bernoulli embeddings estimated (with our own code)
- Over 10,000 movie embeddings estimated

Nearest neighbors

Star Wars: Episode VI - Return of the Jedi (1983)

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Star Wars: Episode IV - A New Hope (1977)
Star Wars: Episode V - The Empire Strikes Back (1980)
Indiana Jones and the Last Crusade (1989)
Raiders of the Lost Ark (Indiana Jones and the Raiders of the Lost Ark) (1981)
Back to the Future (1985)
Men in Black (a.k.a. MIB) (1997)
Terminator, The (1984)
Star Trek: First Contact (1996)
Indiana Jones and the Temple of Doom (1984)
Fifth Element, The (1997)
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2001: A Space Odyssey (1968)

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Blade Runner (1982)
Clockwork Orange, A (1971)
Alien (1979)
Brazil (1985)
Planet of the Apes (1968)
Metropolis (1927)
Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb (1964)
Aliens (1986)
Apocalypse Now (1979)
Psycho (1960)
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Nearest neighbors

Kill Bill: Vol. 1 (2003)

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Kill Bill: Vol. 2 (2004)
Sin City (2005)
Memento (2000)
Donnie Darko (2001)
Big Fish (2003)
V for Vendetta (2006)
Snatch (2000)
Eternal Sunshine of the Spotless Mind (2004)
Thank You for Smoking (2006)
Shaun of the Dead (2004)
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Toy Story (1995)

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Willy Wonka & the Chocolate Factory (1971)
Aladdin (1992)
Lion King, The (1994)
Birdcage, The (1996)
Groundhog Day (1993)
Beauty and the Beast (1991)
Independence Day (a.k.a. ID4) (1996)
E.T. the Extra-Terrestrial (1982)
Wizard of Oz, The (1939)
Austin Powers: International Man of Mystery (1997)
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Analogies

$$\vec{King} - \vec{Man} + \vec{Woman} \approx \vec{Queen}$$

$$\vec{SW5} - \vec{SW4} + \vec{LOR1} \approx$$

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['Lord of the Rings: The Two Towers, The (2002)',
 'Lord of the Rings: The Return of the King, The (2003)',
 'Gladiator (2000)',
 'Pirates of the Caribbean: The Curse of the Black Pearl (2003)',
 'Shrek (2001)',
 'Spider-Man (2002)',
 'Matrix, The (1999)',
 'Crouching Tiger, Hidden Dragon (Wo hu cang long) (2000)',
 'X-Men (2000)']
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