Recommender Systems

Before Netflix and Amazon

Dan Fanelli
CUNY DATA 643

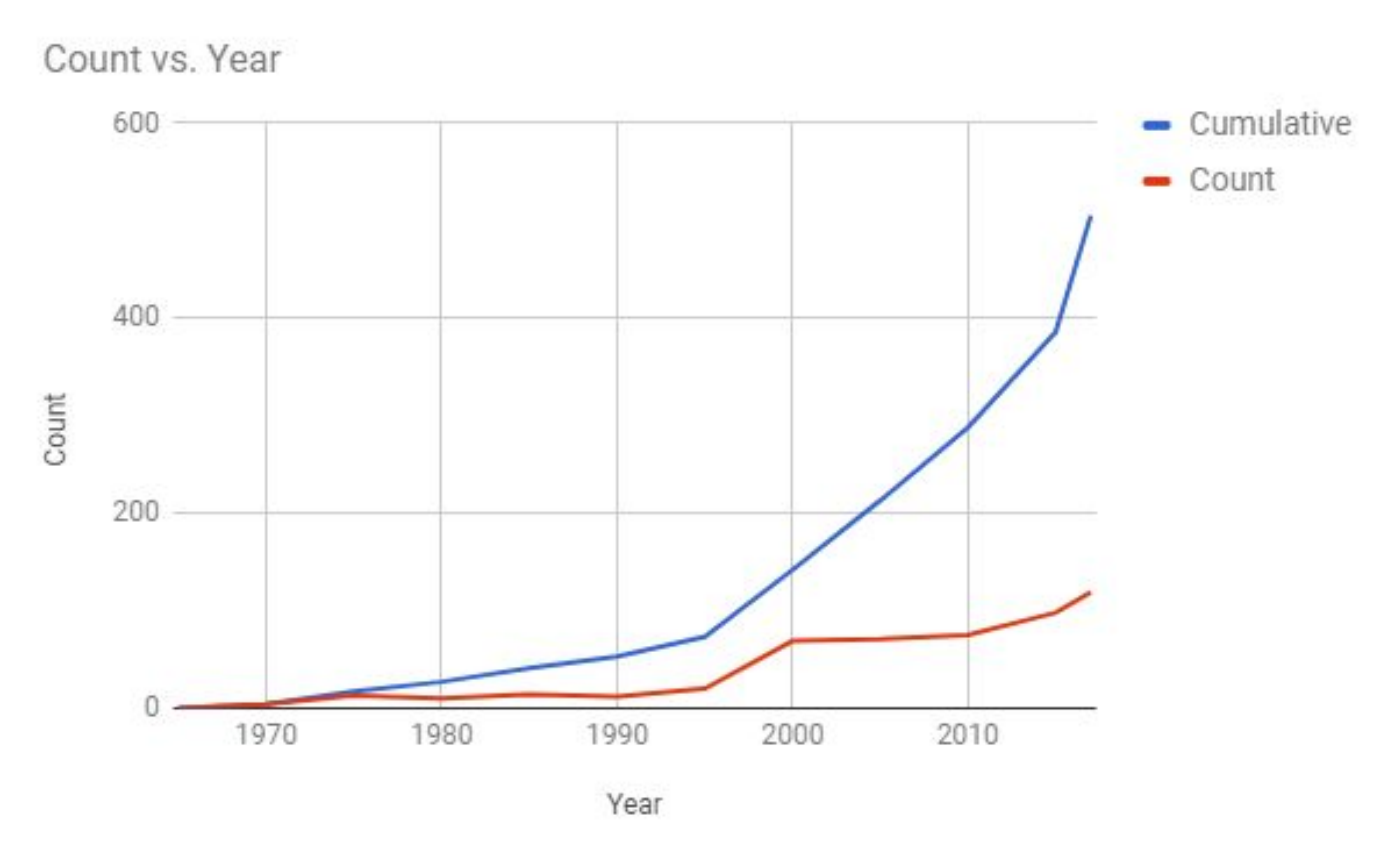
Google Counts: “Recommender Systems”:

When	# Results	Notable
1900 to 1965	0	
1966 to 1970	4	Singular value decomposition and least squares solutions
1970 to 1975	13	SLINK: efficient algorithm for single-link cluster method
1976 to 1980	10	User Modeling via Stereotypes
1981 to 1985	14	Optimal Auction Design
1986 to 1990	12	Intelligent information-sharing systems

Google Counts: “Recommender Systems”:

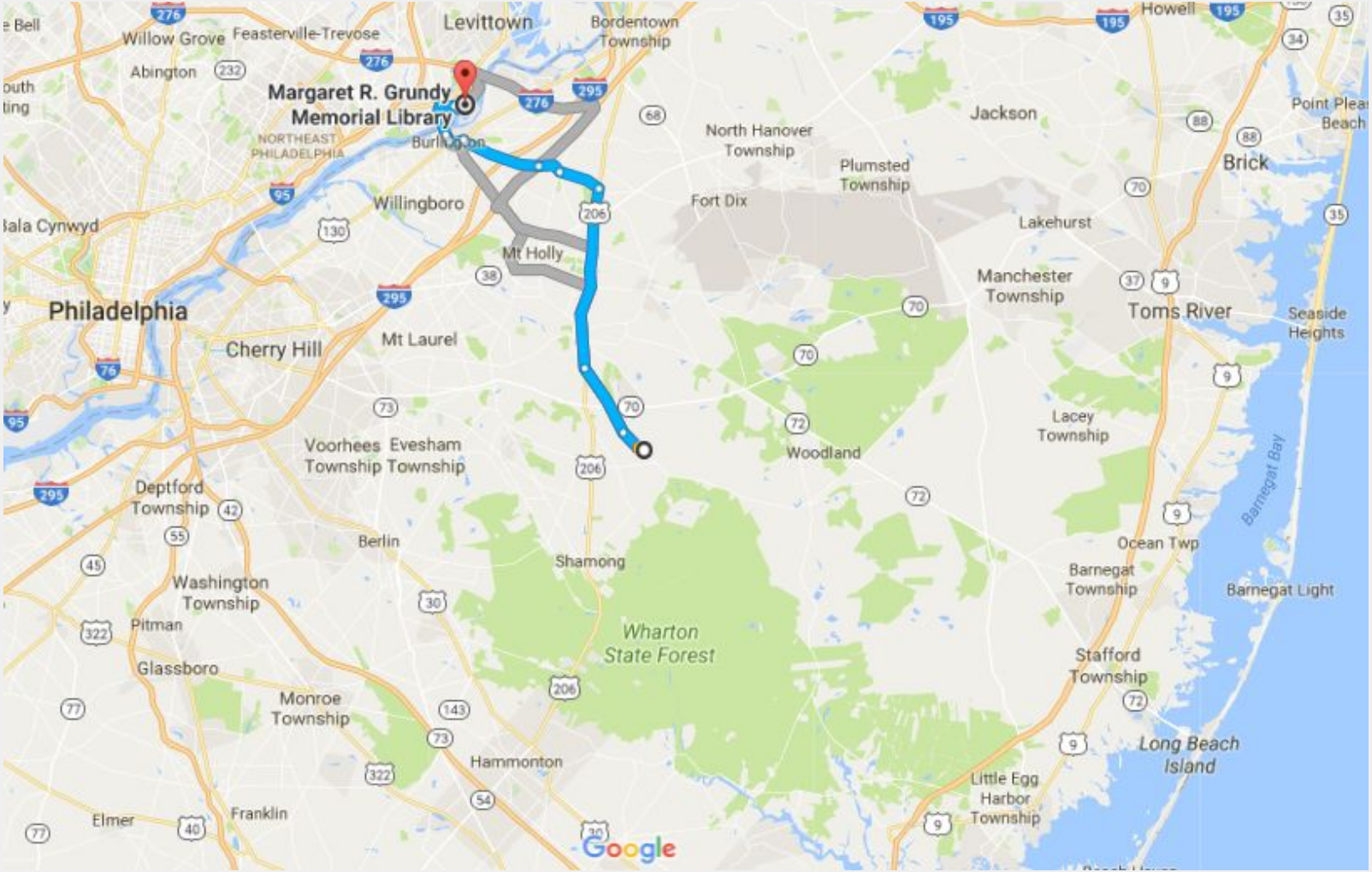
When	# Results	Notable
1991 to 1995	20	Using collaborative filtering to weave an information tapestry
1996 to 2000	69	Recommender systems - CIS @ UPenn
2001 to 2005	71	Recommender Systems for Large-scale E-Commerce
2006 to 2010	75	What is recommender systems? Webopedia Definition
2011 to 2015	98	Recommender systems, 1: Introduction to approaches and - IBM
2016 to Now	119	Recommender Systems	Coursera

Google Counts: “Recommender Systems”:



The 1866 Book Recommender System

- Margaret “Meta” R. Grundy
- Born July 14, **1866** at "Pine Grove Farm," Burlington County, NJ
- On book selection committee at her family’s Bristol Free Library
- Implemented the “Librarian’s Book Recommender”
- Attended a private girls school in Philadelphia
- Spent at least one year studying abroad, learned French fluently
- Her Recommender was fairly primitive: Grouping users into “stereotypes” based on a short interview and using hard-coded information about various stereotypes’ book preferences to generate recommendations


Margaret R. Grundy Memorial Library
Levittown
Bordentown Township
Willow Grove
Feasterville-Trevose
Abington
NORTHEAST PHILADELPHIA
Willingboro
Burlington
Mt Holly
Fort Dix
North Hanover Township
Plumsted Township
Jackson
Brick
Lakehurst
Manchester Township
Toms River
Seaside Heights
Point Pleasant Beach
Howell
Philadelphia
Cherry Hill
Mt Laurel
Voorhees Township
Evesham Township
Woodland
Lacey Township
Deptford Township
Berlin
Shamong
Washington Township
Pitman
Glassboro
Monroe Township
Wharton State Forest
Barnegat Bay
Ocean Twp
Barnegat Township
Barnegat Light
Stafford Township
Long Beach Island
Little Egg Harbor Township
Hammonton
Elmer
Franklin
Google

Tapestry for Newsgroup Documents

- **1992:** Tapestry was a manual collaborative filtering system
- Was the 1st commercial recommender system
- Developed at the Xerox Palo Alto Research Center
- Term “**collaborative filtering**” was introduced in its context
- Designed to recommend corporate e-mails, newsgroup documents
- Motivation: leverage social collaboration to prevent users from getting inundated by too many streaming documents.
- Designed to support both content-based filtering and
- collaborative filtering
- Serves both as a mail filter and repository
- Client/server architecture with “Tapestry query language”


A Xerox Company
parc
Palo Alto Research Center
3333 COYOTE HILL ROAD

GroupLens

- In 1992, John Riedl and Paul Resnick attended the CSCW conference together.
- After they heard keynote speaker Shumpei Kumon talk about his vision for an information economy, they began working on a collaborative filtering system for Usenet news.
- The system collected ratings from Usenet readers and used those ratings to predict how much other readers would like an article before they read it
- System was called the "GroupLens" recommender
- The servers that collected the ratings and performed the computation were called the "Better Bit Bureau". (later dropped at request from the Better Business Bureau).


GroupLens
Research

Ringo

- Ringo - 1994 Personal Music Pickers
- Written about in 1994 Wired Article
- Quote: “Ever felt clueless in the record store because you didn't know Jesus Lizard from Jesus Jones or – more importantly – didn't know whether either artist's CD was worth 15 bucks? Meet Ringo, a free Net-based "personal music recommendation service," which rates music based on your tastes.”
- Send e-mail to Ringo, it replies with list of musicians and groups for you to rate from 1 ("pass the earplugs") to 7 ("can't live without it"). Ringo recommends artists and tells you whom to avoid.


RINGO
POSTCARDS FROM PARADISE

BellCore's MovieRecommender (Bell Communications Research)

- Participants sent email to videos@bellcore.com
- System replied with a list of 500 movies to rate on a 1-10 scale (250 random, 250 popular)
  - Only subset need to be rated
- New participant *P* sends in rated movies via email
- System compares ratings for *P* to ratings of (a random sample of) previous users
- Most *similar users* are used to predict scores for unrated movies
- System returns recommendations in an email message.

Jester

- Currently on version 5, Jester for Jokes
- Is there truth behind all humor, or is it the other way around?
- Jester uses a collaborative filtering algorithm called Eigentaste to recommend jokes to you based on your ratings of previous jokes
- This dataset contains 4.1 Million continuous ratings from 73,421 users
- Earliest Record: 04/1999
- University of California in Berkeley, CA
- Available also as raw datasets

THE END

Sources

- Short History of Collaborative Filtering by Moya K. Mason
- United we find - The Economist 2005
- OurMed - Collaborative Filtering
- Collaborative Filtering Recommender Systems - By Michael D. Ekstrand, John T. Riedl and Joseph A. Konstan
- Using collaborative filtering to weave an information Tapestry. (1992)
- Recommender Systems for the Department of Defense and Intelligence Community
- http://www.grundymuseum.org/content/grundy-family#Margaret
- https://en.wikipedia.org/wiki/GroupLens_Research
- http://www.grundymuseum.org/content/grundy-family#Margaret
- https://www.ischool.utexas.edu/~i385d/readings/Goldberg_UsingCollaborative_92.pdf
- http://wiki.urbanhogfarm.com/index.php/Jester:_Online_Joke_Recommender