

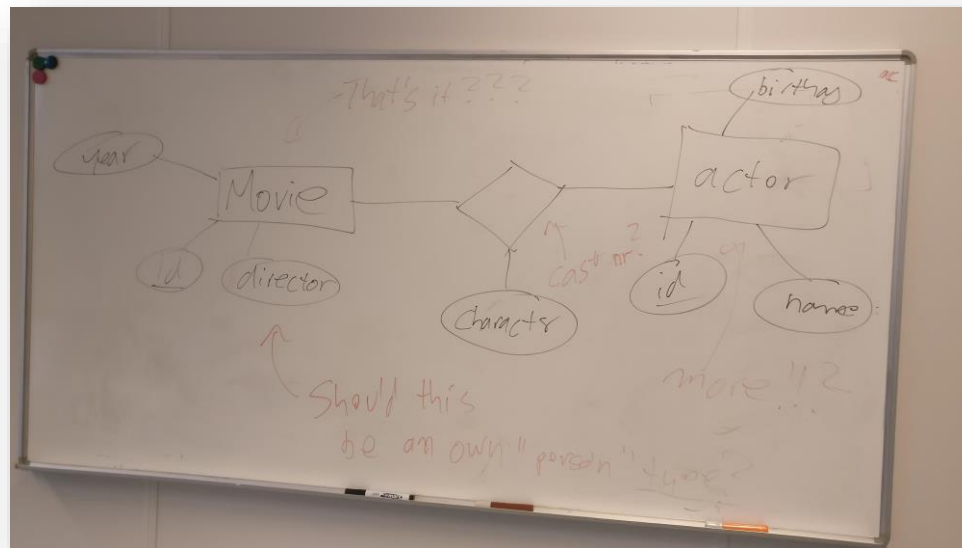
Towards Human-Centered Database Query Processing using on Perceptual Properties

TU Delft

Christoph Lofi

Towards Perceptual Properties

- Attributes in Relational Databases:
 - “An attribute is a distinct characteristic for which data is maintained.”
 - That’s the art of **Data Modelling**:
 - What are relevant distinct characteristics?



Example: Movies



Example: Movies

 **Finding Nemo (2003)** ★ 8.2 /10
707,460 ☆ Rate This

G | 1h 40min | Animation, Adventure, Comedy | 30 May 2003 (USA)



1:52 | Trailer 2 VIDEOS | 102 IMAGES

After his son is captured in the Great Barrier Reef and taken to Sydney, a timid clownfish sets out on a journey to bring him home.

Directors: [Andrew Stanton](#), [Lee Unkrich](#)

Writers: [Andrew Stanton](#) (original story by), [Andrew Stanton](#) (screenplay) | [2 more credits](#) »

Stars: [Albert Brooks](#), [Ellen DeGeneres](#), [Alexander Gould](#) | [See full cast & crew](#) »

 Metascore From metacritic.com	Reviews 868 user 300 critic	 Popularity 637 (↑ 4)
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Example: Movies

Storyline [Edit](#)

A clown fish named Marlin lives in the Great Barrier Reef loses his son, Nemo. After he ventures into the open sea, despite his father's constant warnings about many of the ocean's dangers. Nemo is abducted by a boat and netted up and sent to a dentist's office in Sydney. So, while Marlin ventures off to try to retrieve Nemo, Marlin meets a fish named Dory, a blue tang suffering from short-term memory loss. The companions travel a great distance, encountering various dangerous sea creatures such as sharks, anglerfish and jellyfish, in order to rescue Nemo from the dentist's office, which is situated by Sydney Harbor. While the two are doing this, Nemo and the other sea animals in the dentist's fish tank plot a way to return to Sydney Harbor to live their lives free again. *Written by Anonymous*

[Plot Summary](#) | [Plot Synopsis](#)

Plot Keywords: [great barrier reef](#) | [short term memory loss](#) | [shark](#) | [protective father](#) | [sydney harbor bridge](#) | [See All \(115\)](#) »

Taglines: [Sea it.](#) [See more](#) »

Genres: [Animation](#) | [Adventure](#) | [Comedy](#) | [Family](#)

Certificate: [G](#) | [See all certifications](#) »

Parents Guide: [View content advisory](#) »

Details [Edit](#)

Official Sites: [Disney \[Australia\]](#) | [Official Facebook](#) | [See more](#) »

Country: [USA](#)

Language: [English](#)

Release Date: [30 May 2003 \(USA\)](#) [See more](#) »

Also Known As: [Finding Nemo 3D](#) [See more](#) »

Filming Locations: [Pixar Animation Studios - 1200 Park Avenue, Emeryville, California, USA](#) [See more](#) »

Box Office

Budget: [\\$94,000,000 \(estimated\)](#)

Opening Weekend: [\\$70,251,710 \(USA\) \(30 May 2003\)](#)

Gross: [\\$380,838,870 \(USA\) \(11 January 2013\)](#) [See more](#) »

Company Credits

Production Co: [Walt Disney Pictures](#), [Pixar Animation Studios](#), [Disney Enterprises](#) [See more](#) »

[Show detailed company contact information on IMDbPro](#) »

Technical Specs

Runtime: [100 min](#)

Sound Mix: [DTS-ES](#) | [Dolby Digital EX](#) | [SDDS](#)


Color: [Color](#)

Aspect Ratio: [1.85 : 1](#)

[See full technical specs](#) »

Finding Nemo (2003) ★ **8.2** /10
707,460 ☆ **Rate This**

[Animation, Adventure, Comedy](#) | [30 May 2003 \(USA\)](#)




[Trailer](#) | [2 VIDEOS](#) | [102 IMAGES](#)

Great Barrier Reef and taken to Sydney, a timid clownfish sets to home.

[See Unkrich](#)

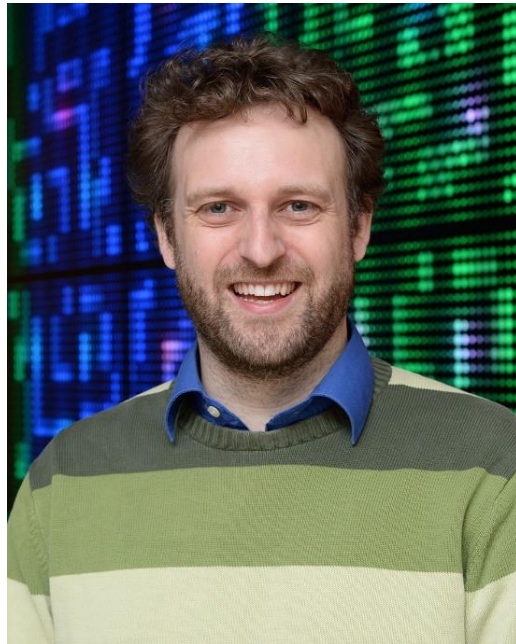
[Original story by](#)), [Andrew Stanton](#) (screenplay) | [2 more credits](#) »

[Genres](#), [Alexander Gould](#) | [See full cast & crew](#) »

Popularity  **637** (♦ 4)



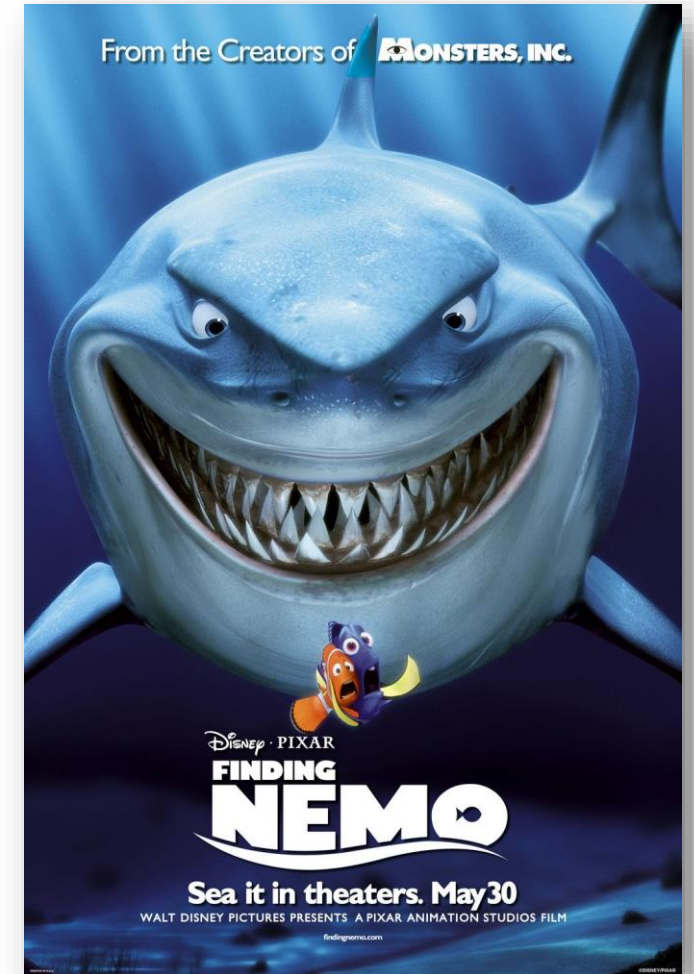
Example: Movies



Funny!

Good storyline!

Fantastic Animation!

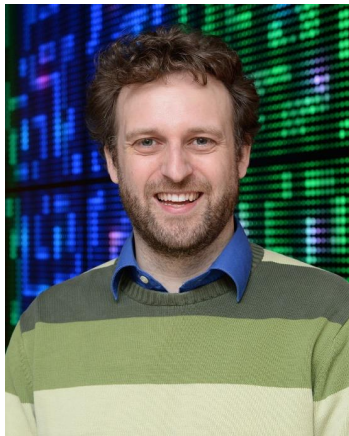


Perceptual Properties

- “...not so distinct characteristics for which data should be maintained because it is important to users”
 - Data model should represent how users perceive the entities!
 - Perception is subjective!
 - Perception is hard to model!
 - Perception of different people might be conflicting and contradictory!
 - If we can do it: Allows for human-centered queries
 - Queries and schema which adapts to people perception

Perceptual Properties

- Perception of different people might be conflicting and contradictory!
 - But: Limited number of consensual views



Horrible plot!



Exiting story!



Perceptual Properties – Concesual Views

a_1	a_2	a_3	p_1	p_2	p_3
i1
		
		
i2
		
...
		

Perceptual Properties – Where to start?

- Where to obtain perception? Exploit Social Judgements!
 - User provided feedback for database items
 - Reviews, Ratings, Votes, Tags, etc.
 - Aspect-oriented Sentiment Analysis, text mining, crowdsourcing, etc.
- Easier start: Latent Perceptual Properties
 - We aim for **high-dimensional latent properties**
 - Useful for query-by-example, similarity navigation, clustering, recommendation, etc.

Case Study: Implicit Perceptual Properties



Finding Nemo (2003)
 100 min - Animation | Adventure | Comedy - 20 November 2003 (Germany)
 Your rating: ★★★★★ -/10
 Ratings: 8.1/10 from 263,202 users Metascore: 89/100
 Reviews: 769 user | 203 critic | 37 from Metacritic.com

Rambo (2008)
 92 min - Action | Thriller | War - 14 February 2008 (Germany)
 Your rating: ★★★★★ -/10
 Ratings: 7.2/10 from 107,663 users Metascore: 46/100
 Reviews: 673 user | 248 critic | 26 from Metacritic.com

In Thailand, John Rambo joins a group of mercenaries to venture into war-torn Burma, and rescue a group of Christian aid workers who were kidnapped by the ruthless local infantry unit.

Director: [Sylvester Stallone](#)
 Writers: [Art Monterastelli](#), [Sylvester Stallone](#), and [1 more credit](#) »
 Stars: [Sylvester Stallone](#), [Julie Benz](#) and [Matthew Marsden](#)

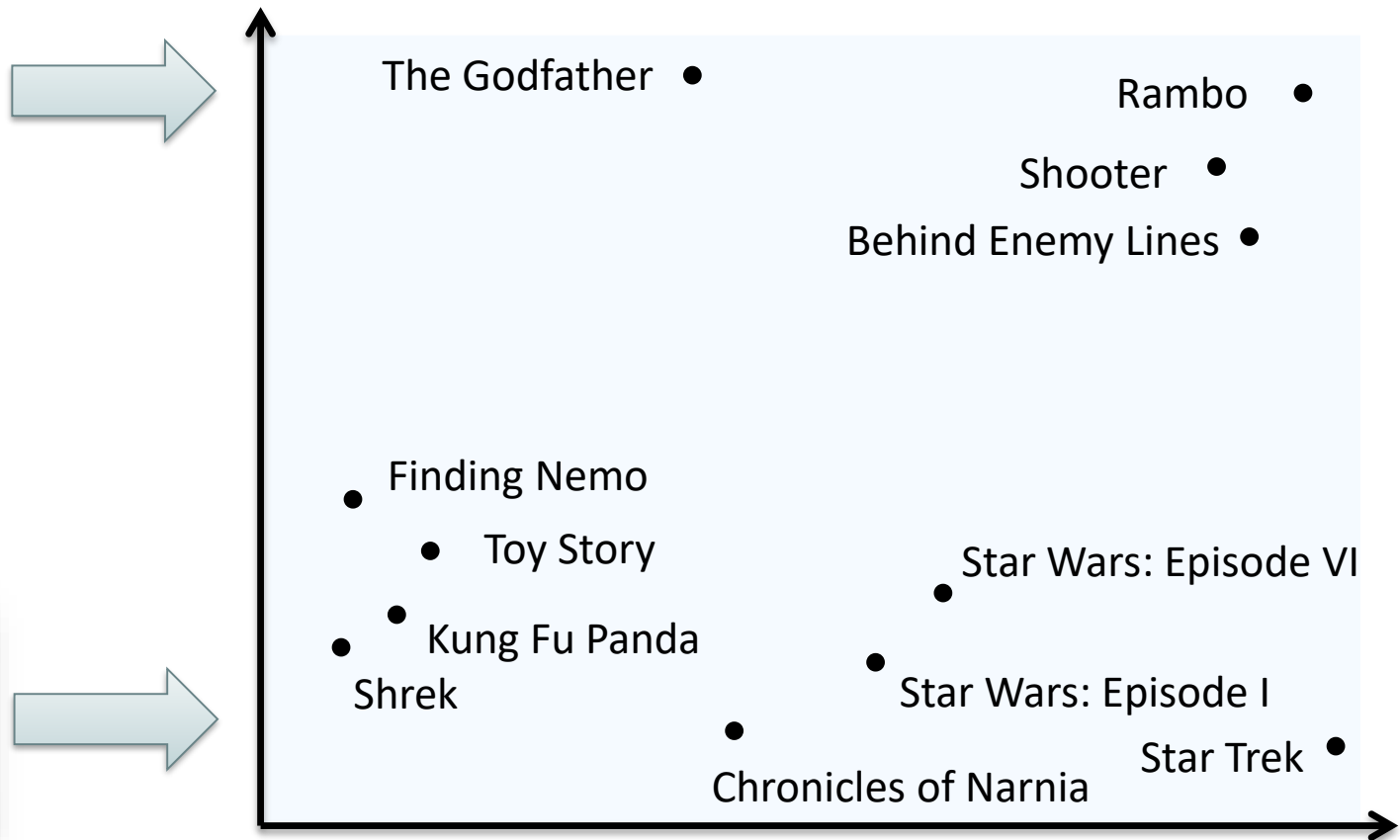
Best action film ever!!!
 ★★★★★
 Author: jamesqt from Ireland
 18 February 2006

This superb sequel surpasses the excellent original in every department and quite simply you won't see a better action film. Set 15 years after the original Arnie may return as the good Terminator trying to protect John Connor but he's a redundant piece of scrap metal compared to the T-1000.

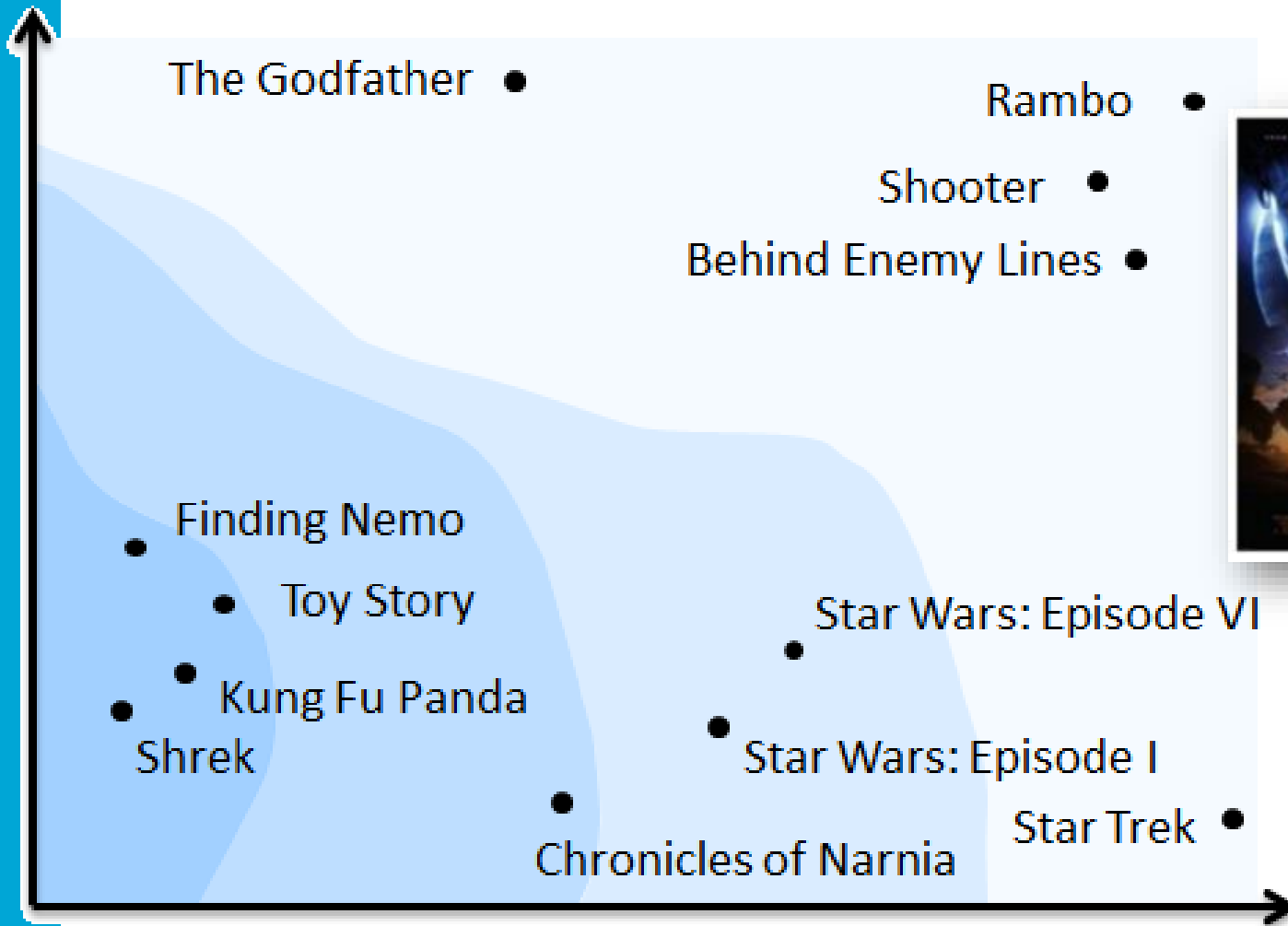
The opening hour and the last half hour is absolutelv. breathtaking with action sequences that still remain unsurpassed. Their's also a wonderful piece of storytelling 3/4 of 10 of 10 people found the following review helpful

★★★★★ **A wonderfully original animated film for adults as well as kids**
 By K. Gordon on May 12, 2010

Format: DVD | **Verified Purchase**
 Utterly original, terrific animated film, with great voice performances by Mike Meyers and Eddie Murphy, written with lots of adult wit and humor. Word play and visual puns abound. You don't have to be a kid to love it, or have kids to rent or buy it. Charming, sweet, funny and romantic.



...from implicit to explicit



Avatar (2009)

★★★★★☆☆☆☆ 8.2/10

1421 reviews with positive or negative sentiment

Top Positive Features

[Special effects \(216\)](#)
[CGI \(184\)](#)
[Screen \(151\)](#)
[Plot \(138\)](#)
[Visuals \(93\)](#)
[+ more](#)

Top Negative Features

[Plot \(178\)](#)
[Dialogue \(68\)](#)
[Script \(68\)](#)
[Storyline \(63\)](#)
[CGI \(24\)](#)
[+ more](#)

very humorous (10-8) humorous (7-5) some humor (4-3) grave (2-1)

Summary

- Perceptual Properties
 - Attributes which rely on human perception
 - Need to mine them from social feedback
 - Focus on consensual views
 - Implicit properties are easier, explicit ones harder
- Human-Centered Queries
 - Adapt query capabilities to the conceptualization of humans

See you next time!