



iTraff  
Technology



**PROGRAMA.PL**  
IT SOLUTIONS



# Image Recognition

on a daily basis

# How computers could communicate with humans?



Text



Image



Sound



Touch

# How could we communicate with computers?



Google climbing kilimanjaro Search

About 718,000 results (2.43 seconds) Advanced search

**Everything**  
Images  
Videos  
News  
Shopping  
More

**Mountain View, CA**  
Change location

**All results**  
Wonder wheel  
Social  
More search tools

**Climbing Mt Kilimanjaro in Tanzania - professional tours**  
Climbing Kilimanjaro, a complete guide to climbing Mount Kilimanjaro by Climbing Kilimanjaro - 97% success rate, over 8000 clients to the summit.  
Prices And Climbing Dates - Fitness program - Planning And Tips For Success  
[www.climbingkilimanjaro.com/](http://www.climbingkilimanjaro.com/) - Cached - Similar

**How To Climb Mount Kilimanjaro**  
How To Climb Mount Kilimanjaro, tips for a successful ascent to Africa's highest mountain.  
Enjoy reaching Uhuru peak because you have chosen the right tour ...  
[gothrae.about.com/od/tanzania/h/howtoclimbkilimanjaro.htm](http://gothrae.about.com/od/tanzania/h/howtoclimbkilimanjaro.htm) - Cached - Similar

**Climbing Kilimanjaro**  
Aug 23, 2010 ... Some people reading this post might wonder, "Can I climb Kilimanjaro?" I read that about 50% of people make it to the summit, ...  
[www.matcutts.com/blog/climbing-kilimanjaro/](http://www.matcutts.com/blog/climbing-kilimanjaro/) - Cached  
Matt Cutts shared this

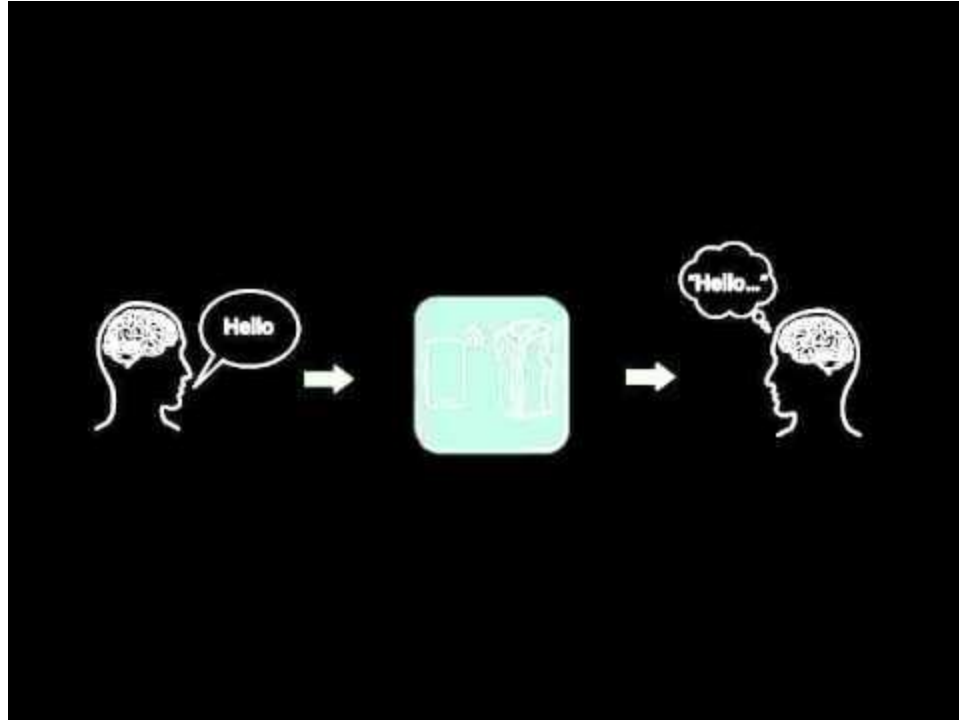
**Climbing Kilimanjaro - Interactive Graphic - NYTimes.com**  
Oct 26, 2007 ... Tom Bissell's account of his painful and exhausting climb to the summit of Mount Kilimanjaro.  
[www.nytimes.com/.../20071028\\_KILIMANJARO\\_GRAPHIC.html](http://www.nytimes.com/.../20071028_KILIMANJARO_GRAPHIC.html) - Similar - Add to iGoogle

Text



Sound  
(Voice+Music)

# New sense?

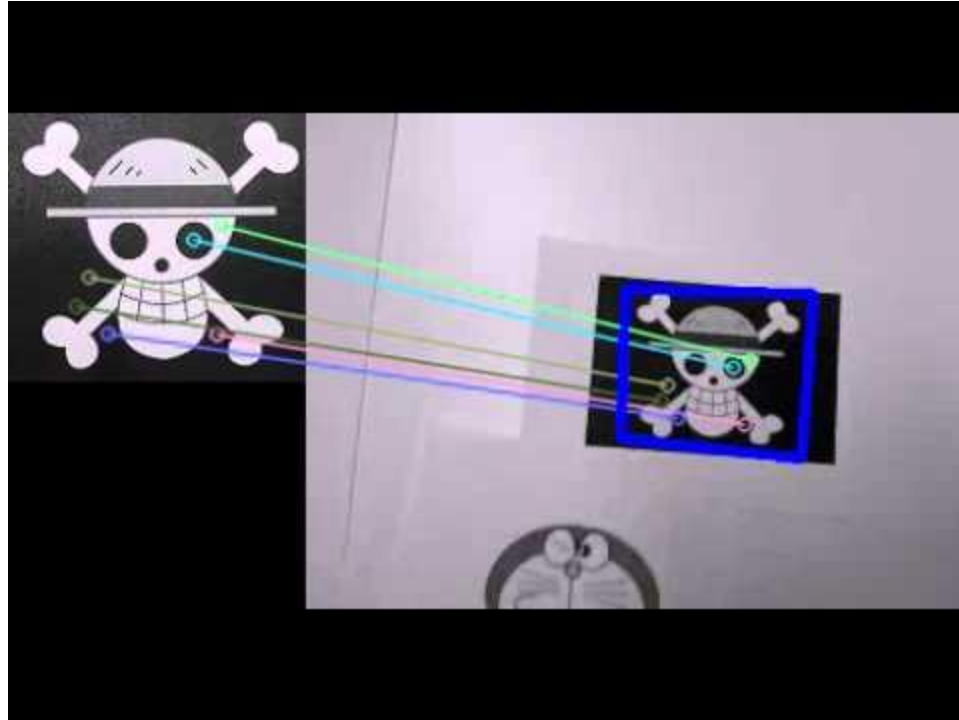




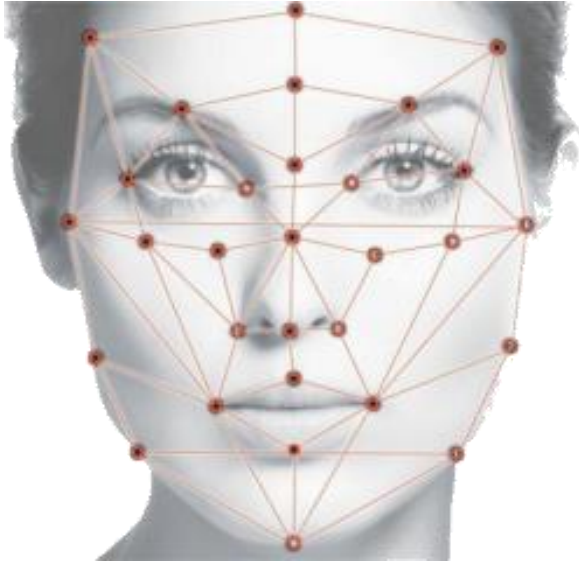
# Image recognition?



## Object tracking - another movie



# Face recognition



- notebook unlock (security)
- automatic photo marking (picassa, facebook)
- potential treat detection
- future?



## Iris recognition



## Image matching - how it works?



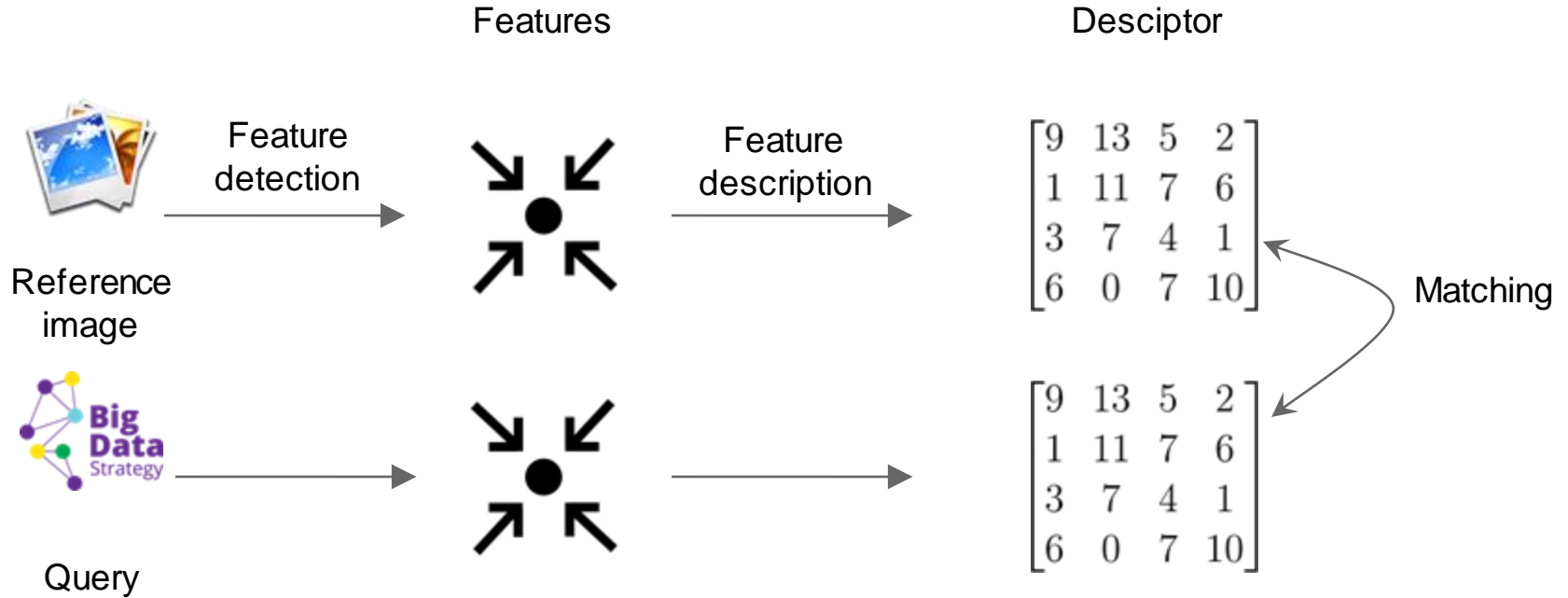
Only identical images?

## Types of deformation

- Scale
- Rotation
- Skew
- Crop
- Stretch
- combination of above

What about colours, light, etc?

# Image matching - how it really works?



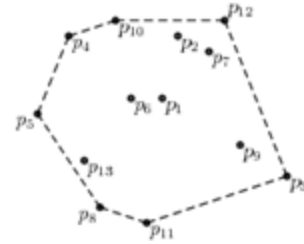
# Types of feature



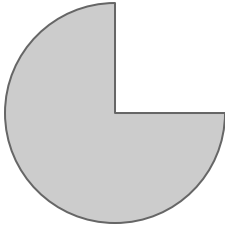
Edge



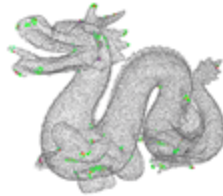
Blob



Convex hull



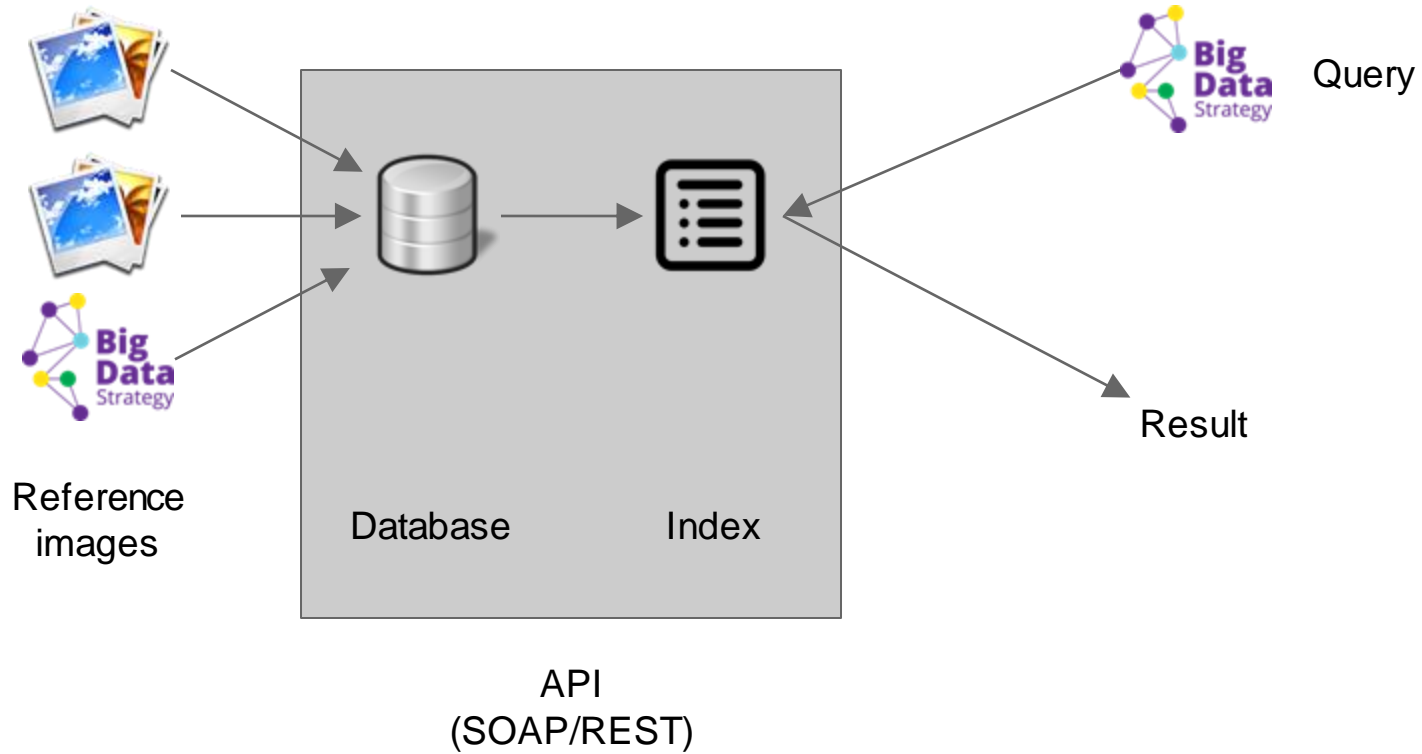
Shape



Cloud of points

brightness gradient, colour gradient, ...

# Recognize.im - how it works?



# Result



Text



Image



Sound



Touch

Anything!

## Recognition modes

- “Single”
  - One to One
  - One To Many (probability)
- “Multi”
  - Many To Many
- “Shelf”
- “Logo”





# Showcase

## Shazam for books

- Book cover
- Take a photo
- Recognize
- Buy online




Bored in museum? No more!

- Recognize.im API
- Europeana API
- Android SDK
- Google Translate
- Pico TTS



# Art4Europe



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## Art4Glass

- Art4Europe ported to Glass API
- Cards elements
- Action feed
- Dev. in less than 24h

## RecognizeMe

- Native Android App
- Google Glass Launcher
- Online scanner

## Coca-Cola - #colouryoursummer

- New Zealand
- 6 special summer cans
- No app needed (HTML5)
- Games & Videos
- position & colour information



## Knorr - Przepisy.pl

- Most popular Polish cooking app
- Snap photo
- Get recipe



## Live Green

- COP 2013
- Simple shapes
- Colourless
- A lot of symmetry
- First use of “logo mode”



live  
green






## Fun App

- TV Brand
- Video material
- Frame recognition



## Electronic Arts game stands

- Single network of markets (Saturn)
- Stand with screen & camera
- few games
- scan cover for additional movie

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# Merchandise Monster Beta

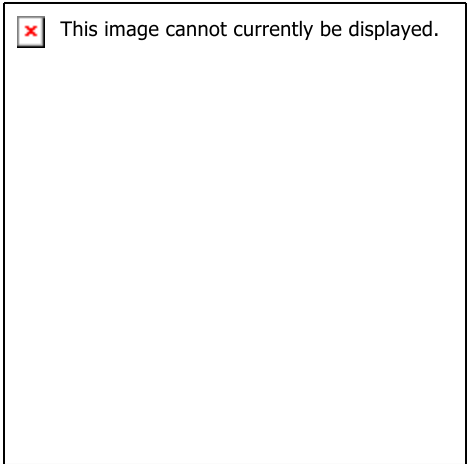
- What is on that shelf?
- Count objects
- Prepare report



## Tests

- 216 000 images
- 30 GB data
- recall 82%
- precision 75%
- avg. search time 495 ms
- max. search time 772 ms

# Thanks!



This is time for questions!

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[www.programa.pl](http://www.programa.pl)

[recognize.im](http://recognize.im)