

INTERNET-BASED RESEARCH: THEORY AND APPLICATION

MVZ507

SPRING 2019

Session 4

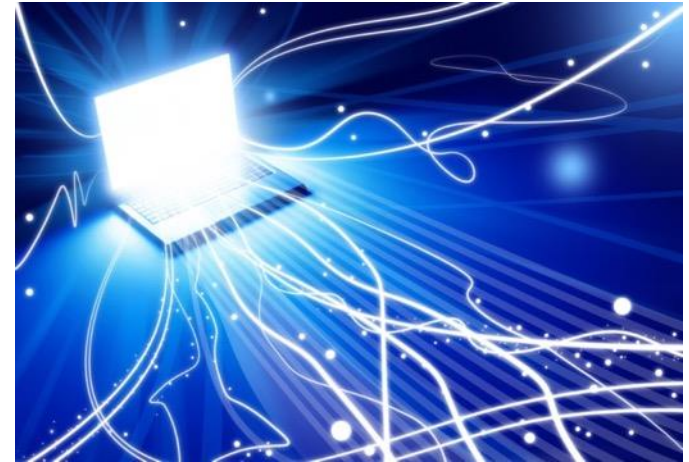


Maya Hadar

On the Agenda for Today

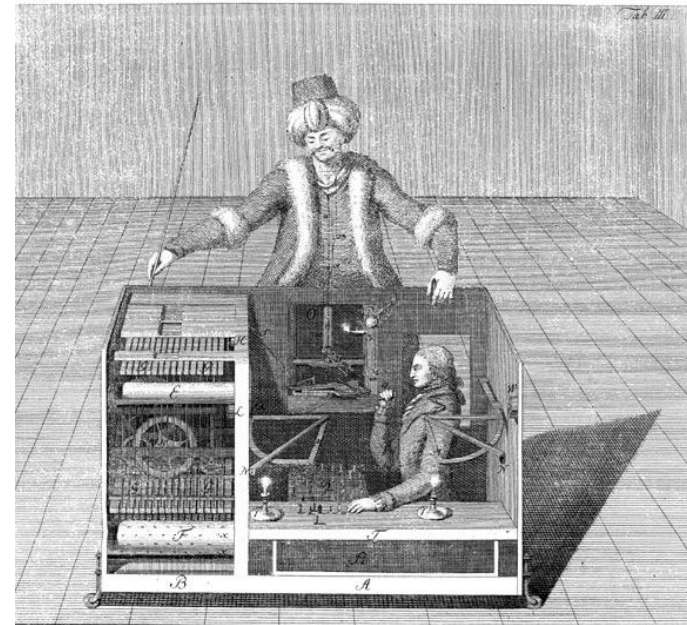
2

1. Conducting behavioral research on **Amazon's Mechanical Turk**
2. **Twitter**
 - Twitter in the Czech Republic
3. **Mining Twitter**, a source for 'wisdom of the crowds'



Conducting Behavioral Research on Amazon's Mechanical Turk

*** The Turk, an 18th-century fake chess-playing machine



Evaluating Amazon's Mechanical Turk as a Tool for Experimental Behavioral Research

Matthew J. C. Crump^{1*}, John V. McDonnell², Todd M. Gureckis²

¹ Department of Psychology, Brooklyn College of CUNY, Brooklyn, New York, United States of America, ² Department of Psychology, New York University, New York, New York, United States of America

Conducting behavioral research on Amazon's Mechanical Turk

Winter Mason • Siddharth Suri

„How to“ Guide to MTurk

- **What** is Amazon's Mechanical Turk?
- **Why** Mechanical Turk?
- **Who** are the Workers?
- How to Become a **Requester**?
- How to **Create a Study**?
- How to **Ensure Quality**?
- What about **Ethics** and **Privacy**?
- **Turker Communities** and Useful Websites

What is Amazon's Mechanical Turk?

- Amazon's Mechanical Turk is a **crowdsourcing Internet marketplace** that enables **individuals** and **businesses** (known as 'Requesters') to **coordinate the use of human intelligence** to perform tasks that **computers** are currently **unable** to do
- A labor market for **microtasks** (Huang, Zhang, Parkes, Gajos, & Chen, 2010)
- A job **outsourced** to an undefined group of **people** in the form of an open call (Howe 2006)

What is Amazon's Mechanical Turk?

- **Large set of people** willing to do **task** for relatively **low pay**
- Initially invented for **human computation tasks, microtasks** that are very difficult/impossible for computers to perform: extracting data from images, labeling images, filtering adult content, etc.

Instructions

Guidelines for selecting an image as adult content. Select the image if you consider any of the following to be true.

- Does the image contain nudity?
- Does the image portray hate or hate crimes?
- Does the image contain bloody violence?
- Does the image contain offensive gestures?



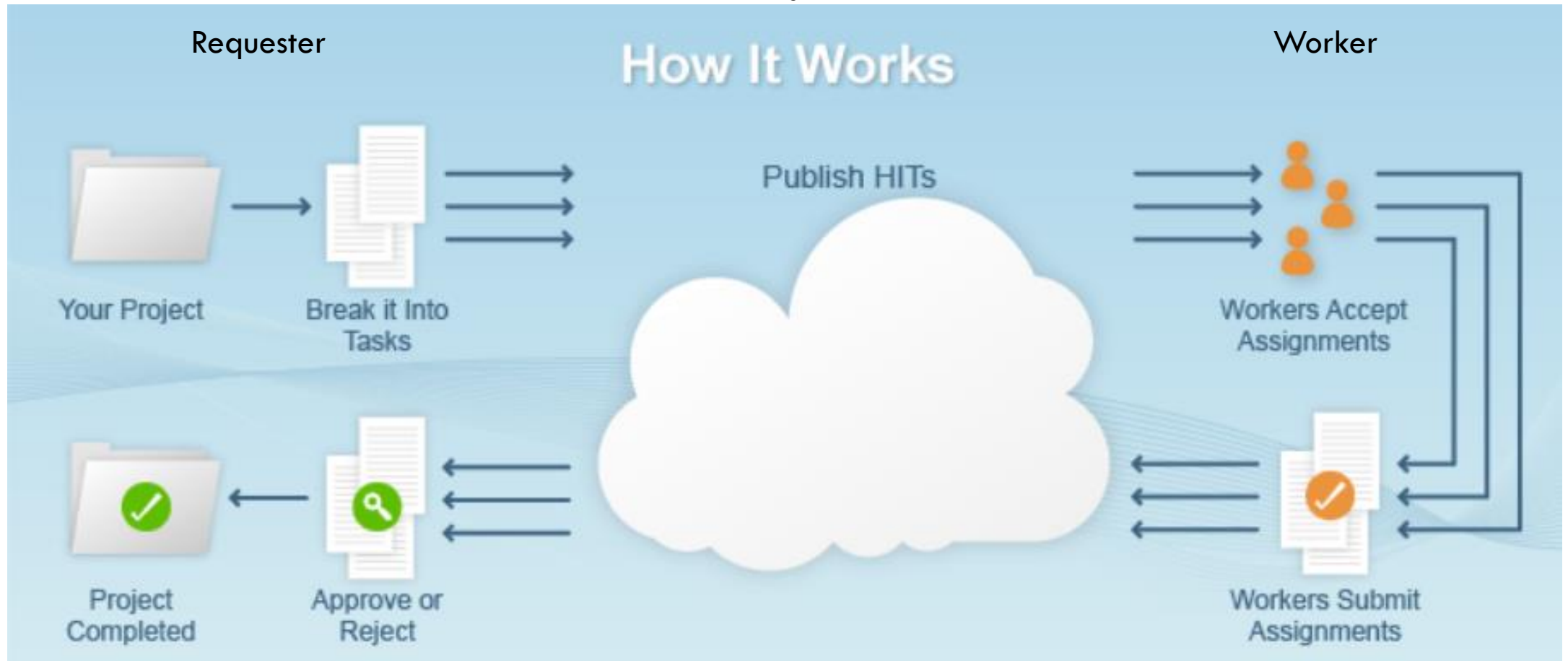
Why Mechanical Turk?

- Stable subject **availability**
- **Large** set of people + **low cost**
- Subject pool **diversity** (age, ethnicity, socioeconomic status, language, country of origin)
- Low cost and **built-in payment mechanism**
- **Faster** theory-experiment cycle
- **Validity** of worker behavior (e.g. Paolacci et al. 2010)
- **Replications** of **standard** judgment and decision making tasks (Paolacci et al. 2010)

How does it work?

Human Intelligent tasks

HITs



Amazon's Mechanical Turk

How does it work?

Working on HITs

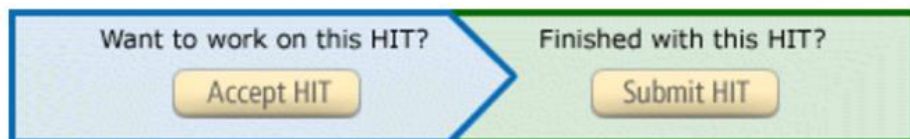
Step 1: Find work

Search or browse through the Human Intelligence Tasks (HITs) and click on the one that interests you.

Evaluate search results	View a HIT in this group	
Requester: PowerSet	HIT Expiration Date: Jul 9	Reward: \$0.02
	Time Allotted: 10 minutes	HITs Available: 1114
Select the best category for a product	View a HIT in this group	
Requester: Channel Intelligence	HIT Expiration Date: Jul 9	Reward: \$0.01
	Time Allotted: 10 minutes	HITs Available: 425
Expedited podcast transcription	View a HIT in this group	
Requester: CastingWords	HIT Expiration Date: Jul 9	Reward: \$4.95
	Time Allotted: 30 minutes	HITs Available: 2

Step 2: Work on your HIT

Accept the HIT and follow the instructions. When you're done, submit your work.



Step 3: Get paid for your work



After the requester approves your work, money is deposited into your Amazon Payments account.

Examples

[Find HITs Now ▶](#)

Here are just a few examples of HITs that workers have completed on Mechanical Turk.

Select the correct spelling for these search terms

Is this website suitable for a general audience?

Find the item number for the product in this image

Rate the search results for these keywords

Are these two products the same?

Choose the appropriate category for products

Categorize the tone of this article

Translate a paragraph from English to French

Currently **386,479 HITs** available.

[Find HITs Now ▶](#)

Who are the Workers?

- Countries of origin:
 - *100K-200K unique workers on Amazon (Difallah et al. 2018: Jan 2018)*
 - *500k workers (Amazon)*
 - *50% USA, 40% India (Ipeirotis, 2010) => Most of the workers are from the US and India because amazon allows **cash payments** only in USD and Rupees*
- Country of origin tends to change the motivation of workers to participate in the marketplace
 - **India** => the online marketplace is a **primary** source of income
 - **US** => most workers consider Mechanical Turk a **secondary** source of income

Who are the Workers?

- Patterns of activity:
 - *On average, 2K-5K workers are active on Amazon at any given time (equivalent to 10K-25K full-time employees)*
 - *On average, 50% of the worker population changes within 12-18 months*
 - *Workers exhibit **widely different patterns of activity**, with most workers being active only occasionally, and few workers being very active*
 - *MTurk has a **yearly transaction volume** of a few **hundreds of millions of dollars***

Who are the Workers?

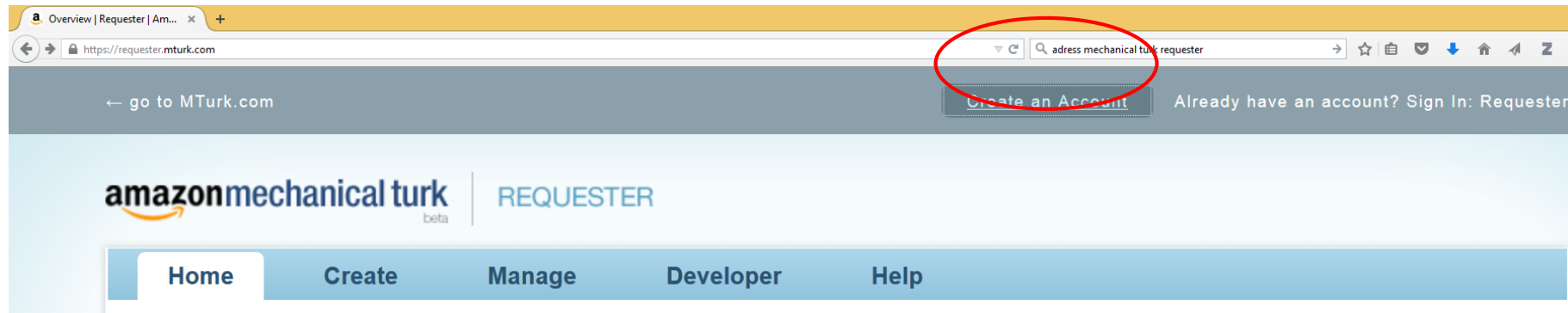
- **Mean age:** 32 years
- **Gender:** Slightly more females (55%)
- **Income:** income level of US workers on Mechanical Turk is shifted towards lower income levels (Ipeirotis, 2010)
- **Main Motivation** to participate in the marketplace => **Money**
 - Other reasons => entertainment and education

Who are the Workers?

- <http://www.newyorker.com/culture/culture-desk/video-turking-for-respect>

How to become a requester?

- Create **Requester Account** and **Amazon Payments Account**



What you need =>

- E-Mail address (advise: use unique email address for running studies)
- Credit Card
- U.S. Billing address (create one with International Parcel Services)

HITs

Internal HIT (using Amazon Templates)
External HIT (Link to Study)

Amazon Mechanical Turk - All HITs

amazonmechanicalturk Artificial Intelligence

Your Account HITs Qualifications 93,352 HITs available now

Sign In

All HITs | HITs Available To You | HITs Assigned To You

Search for containing that pay at least \$ for which you are qualified

All HITs
51-60 of 1966 Results

Sort by:

Show all details |

[First](#) << [Previous](#) < [4](#) [5](#) [6](#) [7](#) [8](#) > [Next](#) >> [Last](#)

<u>Grade Snippet of Audio Transcription</u> View a HIT in this group				
Requester: CastingWords	HIT Expiration Date: Nov 19, 2010 (7 hours 46 minutes)	Reward: \$0.03		
	Time Allotted: 1 hour 30 minutes	HITs Available: 6		
<u>Event Moods and Modes</u> View a HIT in this group				
Requester: Restaurant Recommender	HIT Expiration Date: Nov 26, 2010 (6 days 23 hours)	Reward: \$0.10		
	Time Allotted: 10 minutes	HITs Available: 676		
<u>Review & Proof this short article</u> View a HIT in this group				
Requester: Todd Dickerson	HIT Expiration Date: Nov 20, 2010 (23 hours 46 minutes)	Reward: \$0.15		
	Time Allotted: 60 minutes	HITs Available: 1		
<u>Grade Audio Transcription</u> View a HIT in this group				
Requester: CastingWords	HIT Expiration Date: Nov 20, 2010 (11 hours 46 minutes)	Reward: \$0.07		
	Time Allotted: 3 days 18 hours	HITs Available: 6		

Creating a Study

Start a New Project

Categorization

Data Collection

Moderation of an Image

Sentiment

Survey

Survey Link

Tagging of an Image

Transcription from A/V

Transcription from an Image

Writing

Other

Example of Survey

Instructions

Enter instructions for your survey:

- Instruction #1
- Instruction #2
- Instruction #3

1. What is your gender?

- Male
 Female

2. What is your age?

3. Which of the following best describes your highest achieved education level?

- select one -

4. What is the total income of your household?

- Less than \$12,500
\$12,500 - \$24,999
\$25,000 - \$37,499
\$37,500 - \$49,999
\$50,000 - \$62,499

Create Project »

Creating a Study

Start a New Project

Categorization

Data Collection

Moderation of an Image

Sentiment

Survey

Survey Link

Tagging of an Image

Transcription from A/V

Transcription from an Image

Writing

Other

Example of Survey Link

Instructions

We are conducting an academic survey about social networks. We need to understand your opinion about social networks. Select the link below to complete the survey. At the end of the survey, you will receive a code to paste into the box below to receive credit for taking our survey.

Make sure to leave this window open as you complete the survey. When you are finished, you will return to this page to paste the code into the box.

Template note for Requesters - To verify that Workers actually complete your survey, require each Worker to enter a unique survey completion code to your HIT. Consult with your survey service provider on how to generate this code at the end of your survey.

Survey link:

<http://www.linktomysurvey.com>

Provide the survey code here:

e.g. 123456

You must ACCEPT the HIT before you can submit the results.

Create Project »

Creating a Study

Edit Project

Specify the properties that are common for all of the HITs created using this project.

- 1 Enter Properties 2 Design Layout 3 Preview and Finish

Project Name: This name is not displayed to Workers.

Describe your HIT to Workers

Title

Describe the task to Workers. Be as specific as possible, e.g. "answer a survey about movies", instead of "short survey", so Workers know what to expect.

Description

Give more detail about this task. This gives Workers a bit more information before they decide to view your HIT.

Keywords

Provide keywords that will help Workers search for your HITs.

This project may contain potentially explicit or offensive content, for example, nudity. ([See details](#))

Setting up your HIT

Reward per assignment

\$

Tip: Consider how long it will take a Worker to complete each task. A 30 second task that pays \$0.05 is a \$6.00 hourly wage.

Number of assignments per HIT

How many unique Workers do you want to work on each HIT?

Time allotted per assignment

Hours



Maximum time a Worker has to work on a single task. Be generous so that Workers are not rushed.

HIT expires in

Days



Maximum time your HIT will be available to Workers on Mechanical Turk.

Auto-approve and pay Workers in

Days



This is the amount of time you have to reject a Worker's assignment after they submit the assignment.

Creating a Study

Edit Project

Use the HTML editor below to design the layout of your HIT. This layout is common for all of the HITs created with this project. You can define variables for data that will vary from HIT to HIT ([Learn more](#)).

1 Enter Properties 2 Design Layout 3 Preview and Finish

Project Name: This name is not displayed to Workers.

Frame Height: Height in pixels of the frame your HIT will be displayed in to Workers. Adjust the height appropriately to minimize scrolling for Workers.

Format Schriftart **U** **I** **B** **A** **I_x** ☰ ☰ ☰ ☰ ☰ ☰ ↶ ↷ 📄 Quellcode

Instructions

For my PhD thesis, I am conducting a study about medical decision making. I need to understand preferences about medical side effects as well as gambling tasks. Select the link below to complete the study. At the end of the study, you will receive a code to paste into the box below to receive credit for taking our study.

Make sure to leave this window open as you complete the study. When you are finished, you will return to this page to paste the code into the box.

Survey link:	https://ww3.unipark.de/uc/SPDS_Uni_Konstanz/b0ac/
Provide the survey code here:	<input type="text" value="e.g. 123456"/>

Creating a Study

Worker requirements:

Customize Worker Requirements...

Specify ALL the qualifications Workers must meet to work on your HITs:

HIT Approval Rate (%) for all

greater than or equal to

95

remove

Location

is one of (select up to 30 values)

ANTIGUA AND BARBUDA (AG)
ARGENTINA (AR)
ARMENIA (AM)
ARUBA (AW)
AUSTRALIA (AU)

expand remove

Not yet participated in my study

has not been granted

remove

(+) Add another criterion

(up to 5)

Creating a Study

Payment =>

- 10% service fee to amazon
- Reservation wage: \$1.38 per hour
- Average effective hourly wage of \$4.80 (Ipeirotis, 2010)
- Bonus
- Little to no effect of wage on quality of work (Marge et al., 2010; Mason & Watts, 2009)
- **Reject or accept work**

How to Ensure Quality?

- **Problem** => Spammers, Bots
- **Solution** =>
 - Set qualification criteria (e.g. 95% approval rate)
 - Verifiable questions (e.g. “What is $2 + 2$?“), attention checks
 - Seriousness checks
 - Make clear that Turkers won't be paid if the questions are incorrectly answered

What about Ethics and Privacy?

- **Informed consent** (purpose of the study, risks and benefits of the research, contact information of researcher)
- **Debriefing** (purpose of experiment, contact details of researcher)
- **Compensation:** hours and working conditions wholly determined by workers
- **Confidentiality:** with template HIT, Amazon has access to data

Off-site Turker Communities

Off-site reputation systems

- **Turkopticon =>**
- Turker Nation
- Rate requesters based on communicativity, generosity, fairness and promptness

How Turkopticon works:

Turkopticon adds functionality to Amazon Mechanical Turk as you browse for HITs and review status of work you've done. As you browse HITs, Turkopticon places a button next

The screenshot shows a requester profile for 'Tagasauris' with the following metrics:

Metric	Score	Max Score
communicativity	2.79	5
generosity	2.36	5
fairness	3.95	5
promptness	3.22	5

Additional information shown includes: 'HIT Expiration Date', 'Scores based on 203 reviews', 'Terms of Service violation flags: 2', and a button to 'Report your experience with this requester'.

to each requester and highlights requesters for whom there are reviews from other workers. Bad reviews let you avoid shady employers and good reviews help you find fair ones. You can view reports made against requesters with a quick click.

As you review HITs you've completed, are there HITs you weren't fairly paid for? Turkopticon adds a button that lets you review requesters from your "Status Detail" page.

Off-site Turker Communities

Off-site reputation systems

- Turkopticon
- **Turker Nation**
- Rate requesters based on communicativity, generosity, fairness and promptness

The screenshot displays the Turker Nation forum interface. It features several sections with a blue header and a white background. The 'Great HITs' section includes a thread titled 'Daily HIT Threads' with a lock icon and a description: 'Please share any great HITs you see here! Requesters: Please only post your HIT once per day. If you have multiple HITs, you can post each once daily.' The 'Forum Supporters Only' section has a thread titled 'Forum Supporters: eBooks threads' with a lock icon and a description: 'Place for Forum Supporters to chat and find free/cheap eBooks!'. The 'Forum Information' section includes 'Forum News' with a lock icon and the text 'Anything new? It's news!', and 'Forum Discussion' with a lock icon and the text 'Are you having a problem on the forum? Post here for help! Have a suggestion for the forum? That goes here, too. This is ONLY for discussion of Turker Nation, NOTHING else!'. Below these are 'Sub-Forums' for 'Affiliate News', 'Chat Help', 'TurkerNation FAQ', and 'Thank You for Access'. The 'General Turking' section includes a thread titled 'mTurk General' with a lock icon and the text 'General chat about mTurk topics.' The interface also shows 'Threads / Posts Last Post' information for each thread.

- Requesters should introduce themselves before posting hits
- **Workers reactions** to study can provide useful **insights** into **method**
- Keep the relationships with workers professional as if they were employees

Useful Websites

- **Experimental Turk** <https://experimentalturk.wordpress.com/>
 - Blog reporting evidence concerning the reliability of Amazon Mechanical Turk as an online subject pool for experiments
- **CrowdFlower** <https://angel.co/crowdflower/jobs>
 - A platform that enables data scientists to enrich their data by distributing work to on-demand human contributors located around the world

Mining Twitter, a Source for Psychological Wisdom of the Crowds

Ulf-Dietrich Reips • Pablo Garaizar

Published online: 24 June 2011

© Psychonomic Society, Inc. 2011

Introduction



- **Twitter is a Microblogging service** => personal broadcasting media, information and opinion are mixed together, usually tightly linked with current reality
 - A web application (also on mobiles) in which users can post text-based messages of up to 140 characters (plans to increase to 280)
 - Twitter also works as a social network, allowing its users to follow other users, group them in lists, forward other users' messages or send private messages
- Using **location** awareness and promptness (via the Internet) researchers can detect **changes in voiced (twittered) emotions, cognitions, and behaviors**

Introduction



- **iScience Maps** is a **free Web service** for **researchers**, technologically based on Twitter's streaming and search application programming interfaces (APIs)
- Allows **researchers** to **assess** (via Twitter) the **effects of specific events** in **different places** as they are happening, to **compare cities, regions, or countries** and test the evolution of responses in the course of an event
- In the article, **results from a study on affective and personality characteristics** inferred from first names **are replicated by mining Twitter data with iScience Maps** in two regions (western U.S. and the U.K./Ireland)

Introduction

- *Crandall and colleagues* created maps of world regions from ca. 35 million geotagged photos uploaded to **flickr**
- These maps show **relative interest in motifs & places** and may lead to applications in tourism, city planning, ecology, and economics



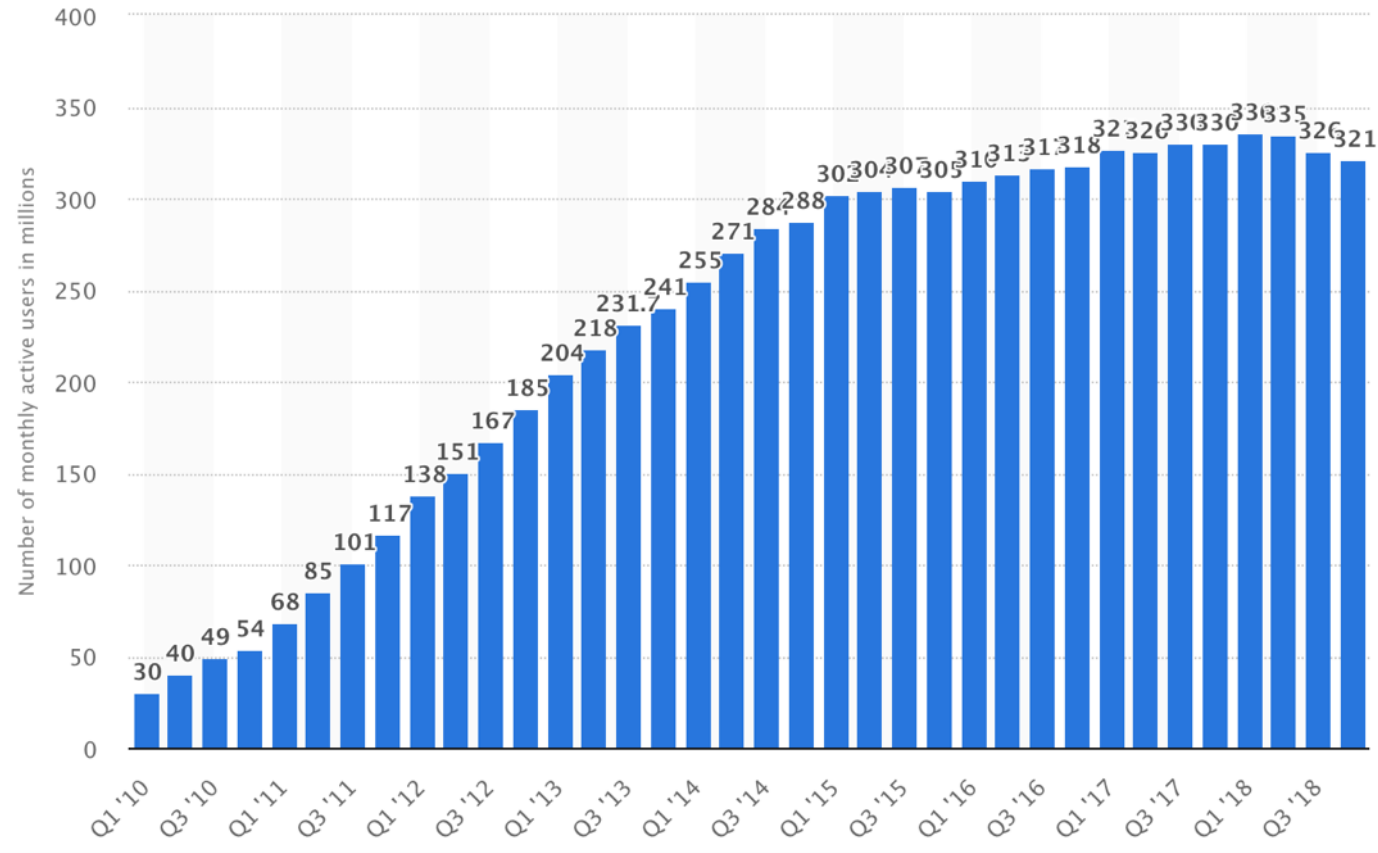
Introduction

- **Social media** => an interesting resource for **social-behavioral research** (the “wisdom of the crowds”)
- The “**wisdom of the crowds of researchers**” => **identify “hot topics”** (interdisciplinary)

Background



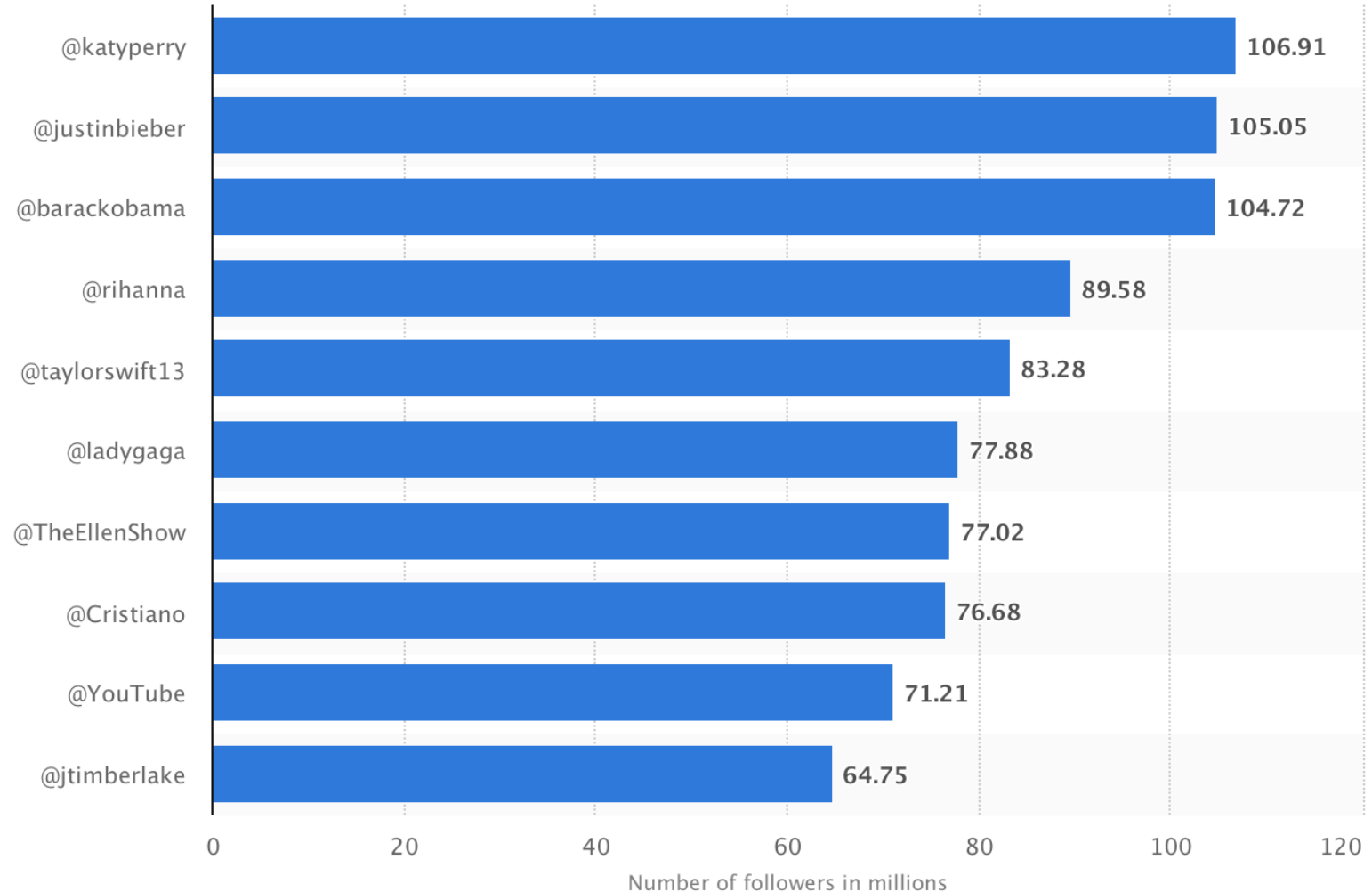
- Twitter has more than **321 million monthly active users** (2018)
- Number of **monthly active Twitter users worldwide** from 1st quarter 2010 to 4th quarter 2018 (in millions) =>



Background



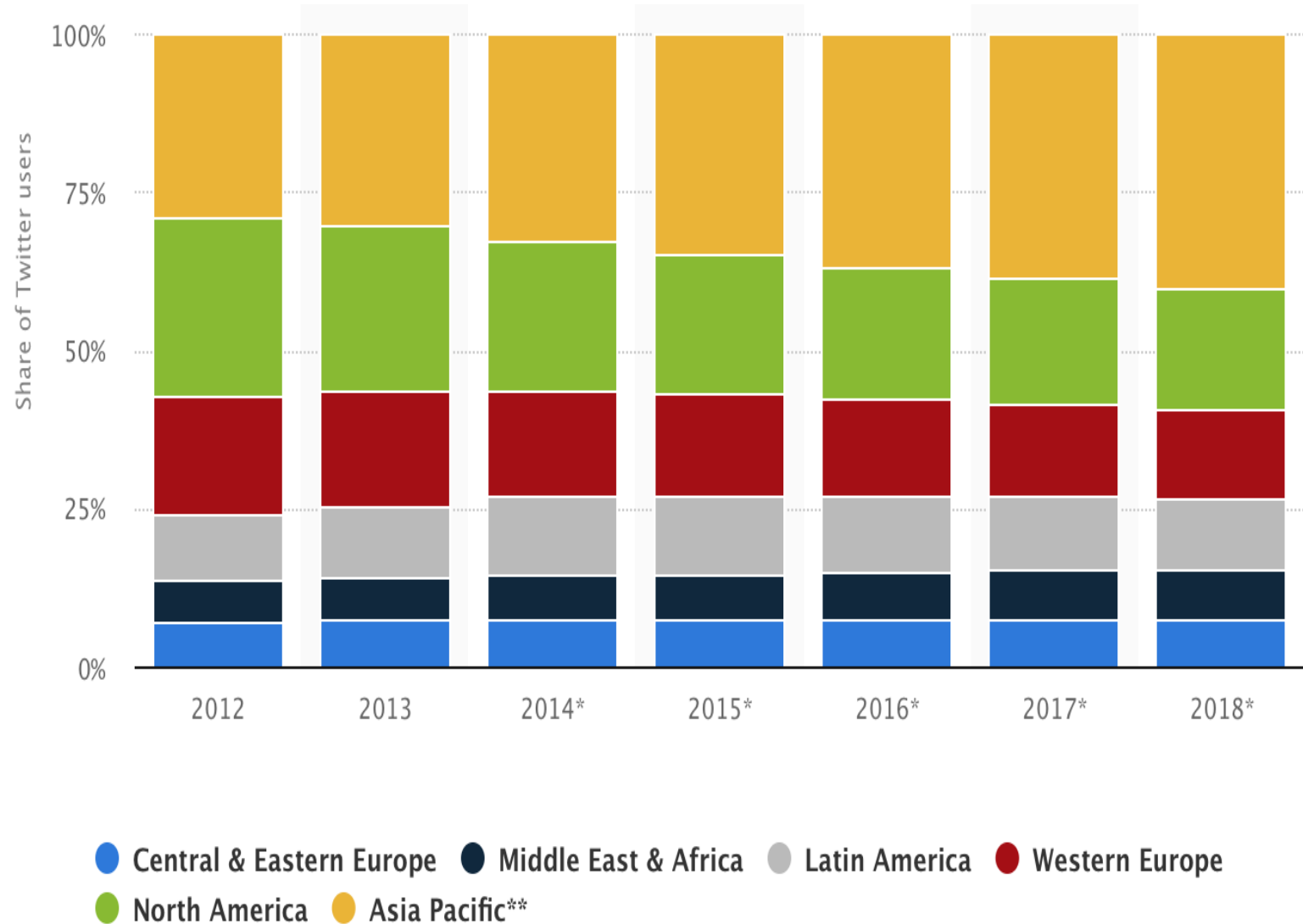
- Twitter accounts with the **most followers worldwide** as of **February 2019** (in millions)



Background



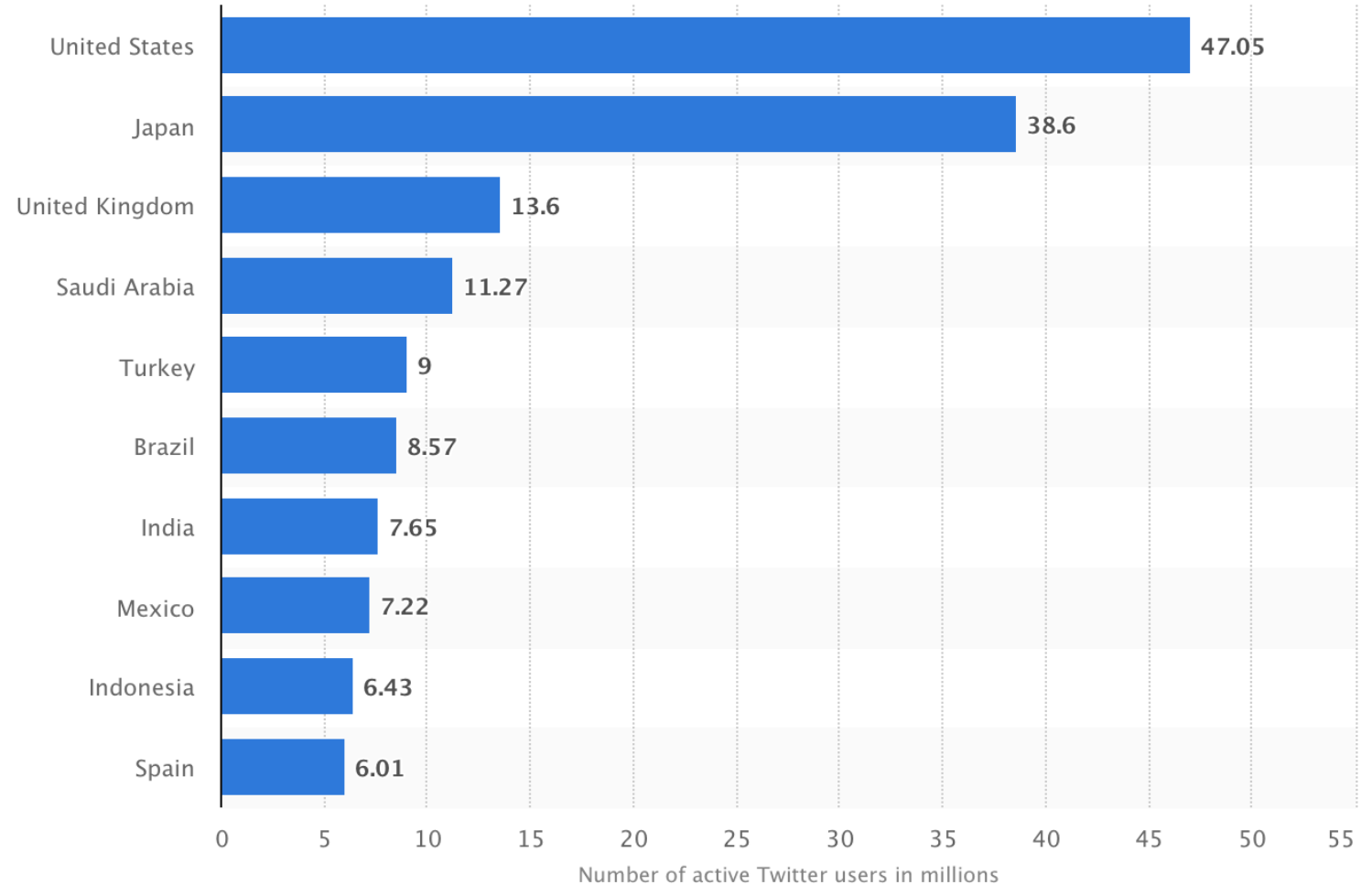
- Distribution of **Twitter users worldwide** from 2012 to 2018, by region



Background



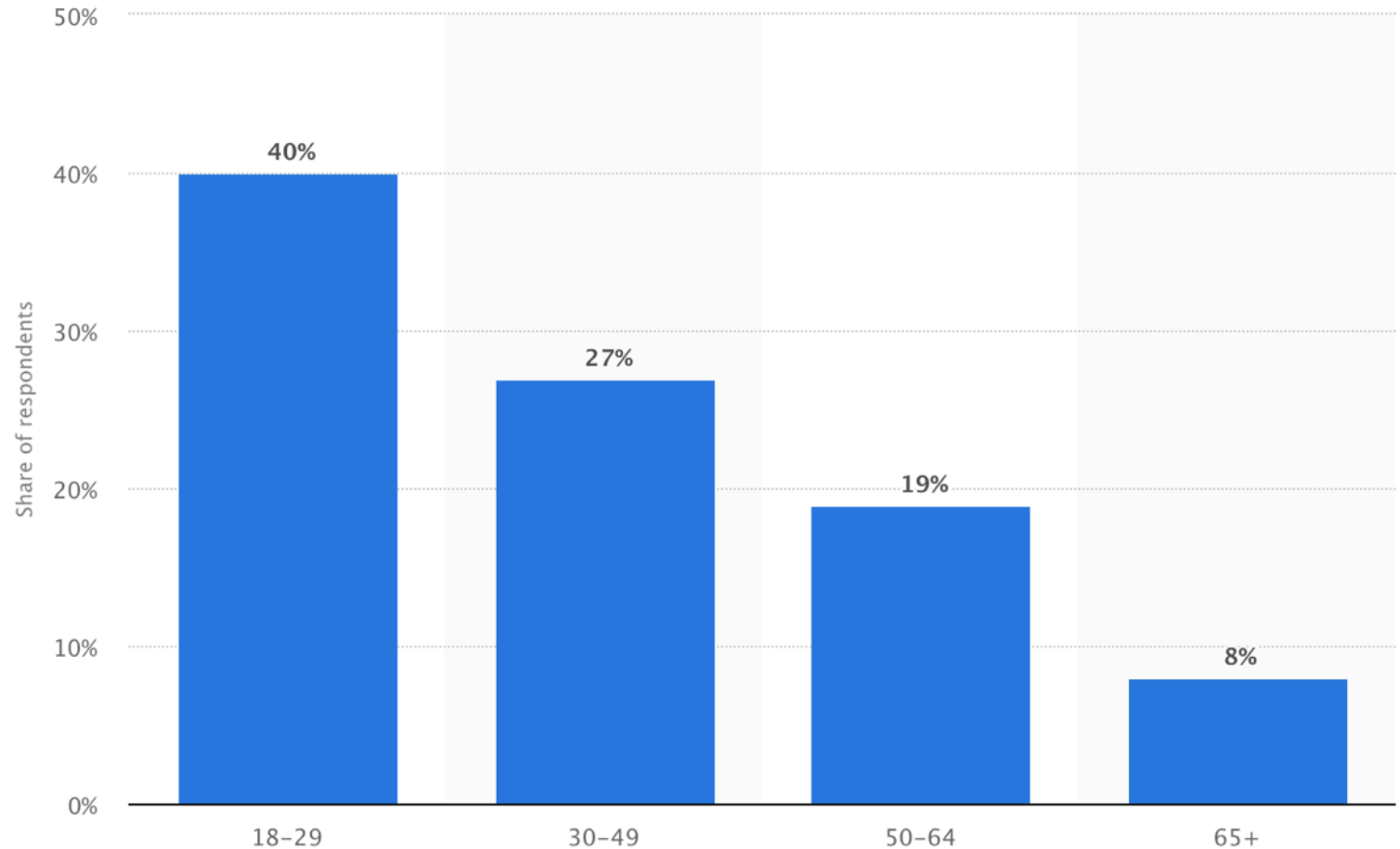
- **Leading countries** based on number of **Twitter users** as of January 2019 (in millions)



Background



- Percentage of **U.S. adults who use Twitter** as of January 2018, by **age group**



Background



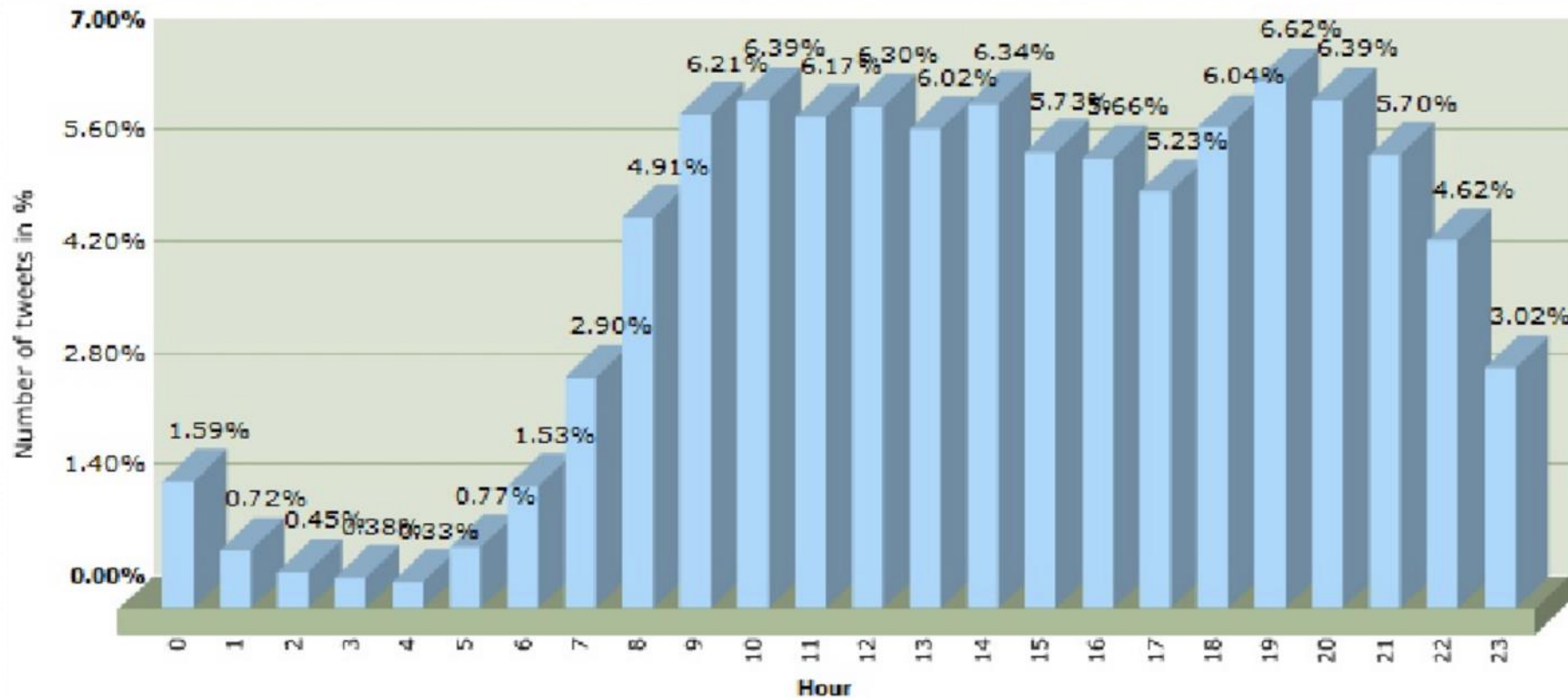
- Less than **1%** of **tweets** contain information about the **sender's location**
- Rough location can often be inferred from a **user's profile**
- **Simple Twitter search** is available in many browsers and online applications, from Twitter directly or via Twitter application programming interfaces (APIs)
- **Simple Twitter search** in the form of **monitoring** certain terms has been used as early as **2010** in research concerning **elections**

Twitter in the Czech Republic

- Around 70 thousands twitterers who
 - Speak Czech and/or
 - Come from Czech republic
- Twitter in Czech republic is used from 2006
- Twitterers: geeks, bloggers, journalists, sportsmen, marketers, media, shopping, travelling, designers...

Twitter in the Czech Republic

Tweeting during Day (Weekly average) May 2012



Twitter in the Czech Republic

Tweeting during Sundays



Twitter in the Czech Republic

TOP 10 - Followers

Order	Twitter Account	# Followers
1.	@68jagr - Official twitter account of Jaromir Jagr. Also on Facebook:	81.580
2.	@PragueBob - ...a Czech-speaking American ex-pat living in Prague since 1993. Battling cancer, now. Secular Humanist. Left Libertarian. Critical Thinker.	73.201
3.	@avast_antivirus - Official Twitter feed of avast! security software	49.845
4.	@webnode - Webnode is a powerful on-line website builder that gives you 24-hour access to web design and content management by just using the Internet.	29.847
5.	@ProSyn - The World's Smartest Opinion Page	27.985
6.	@vtipy - Vtip ráno, odpoledne nebo večer. Vybíráme i vaše nejlepší vtipy!	21.688
7.	@Roman86_K - Rider of Astana Team	21.361
8.	@zdenekstybar	17.475
9.	@computer_zive - Baví nás počítače a internet. Twituje redakce webu Živě.cz a časopisu Computer.	16.503
10.	@socialbakers - Socialbakers.com - Social Media Statistics and Pro Analytics for Facebook, Twitter, LinkedIn, Youtube, Google+ CEO @janrezab	13.223



- **iScience Maps for Twitter => a set of Web applications:**
 - Assisting researchers interested in social media analysis— **mining tweets**
 - Developed in order to **implement comparative searches of Twitter**
 - Targeted at **behavioral researchers** (almost all other available tools are designed for personal Twitter users, marketing purposes, or a simple search)
- In iScience Maps, it is possible to **combine terms**, using **Boolean** operators, **compare searches for different locations** and to **download results** in several formats



Features:

- **Temporal and geospatial content analysis** + rich set of features for comparative search options
- **Trends within a date interval** can be **detected** (via the **Global Search** panel) and **visualized** as an animated movie using the Scalable Vector Graphics based worldwide map's animations
- **Local Search** also enables **comparative searches**
- Can calculate relative proportions of **search term combinations** in Twitter for a **given geo location**



Features:

- Can combine the **location information** with aggregated data available via **zip code** = useful in determining the extent to which tweeting on a particular topic is concentrated in (*wealthy communities across the U.S.*)
- The **results** can be easily **exported** to the clipboard or to CSV or Excel format
- The **tweets** can be **accessed**
- Researchers can **combine** raw **results from official Twitter APIs** with refined results taken from the **iScience Maps API** and can **cross-check** trends or proportional ratios

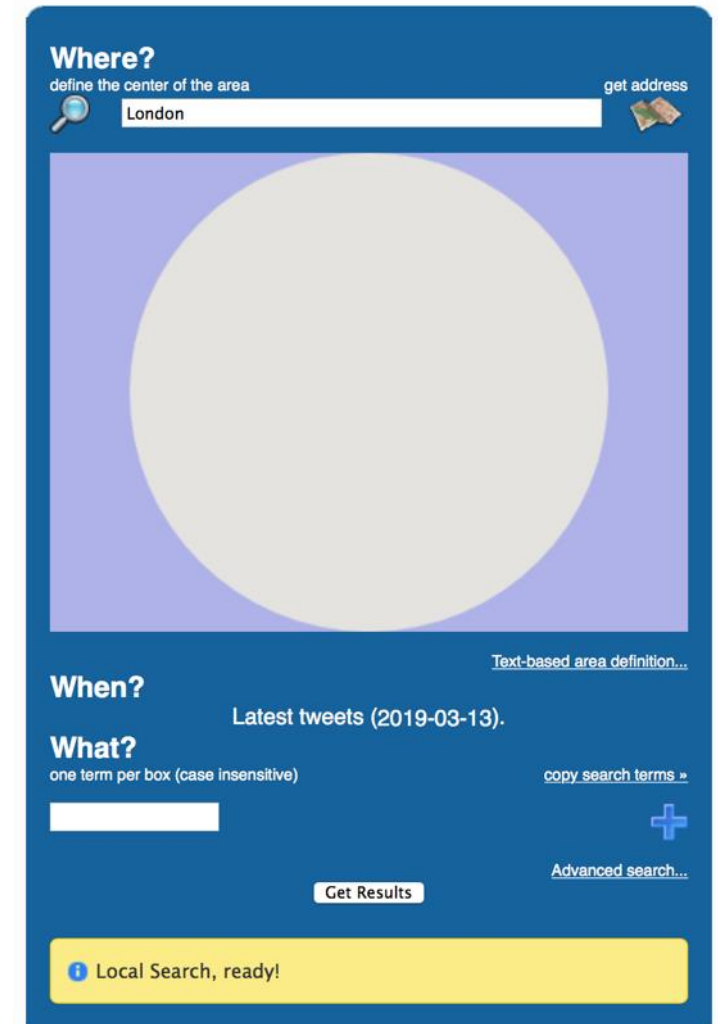
Using the global and local search features

- **Two query panels** grouped side by side; easily to compare searches between places, date ranges, and search terms.
- **Where?**
 - Location can be defined using the **map** to set the area range or by **typing** in the **text** field above the map
- **When?**
 - A horizontal scale with two sliders allows users to **define a date range**. Twitter provides data only for the last **3–7 days**
- **What?**
 - Pressing the “+” button initiates a **Boolean search** for **two search terms**. Three operators (and, or, and not) can be defined

Using the global and local search features

2 APIs to be queried:

- **Local Search's Twitter API:** provides more results than its alternative but ...
 - 1,500 results limit
 - Slow if there are too many results
 - Limited date range (2,500 km)



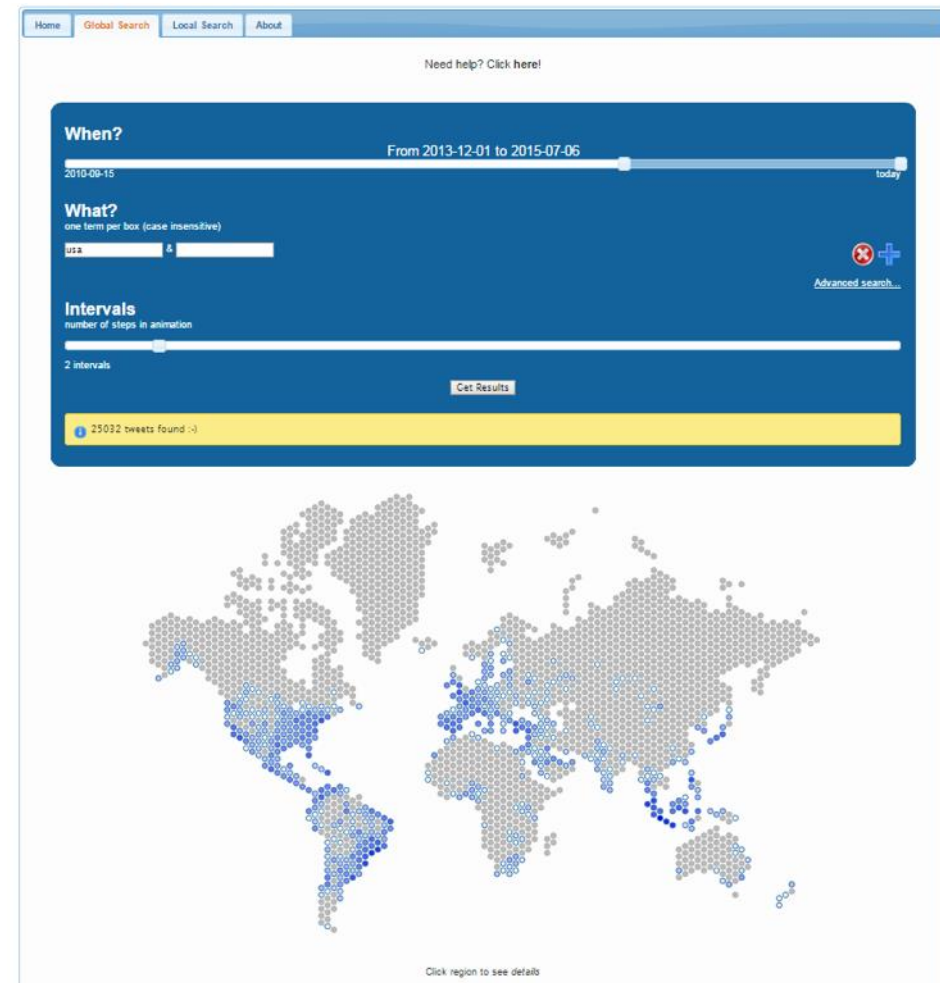
The image shows a screenshot of the Twitter Local Search interface. At the top, there is a section titled "Where?" with the instruction "define the center of the area". Below this is a search input field containing the text "London" and a "get address" button with a location pin icon. A large, light gray circular area is centered on the page, representing the search radius. Below the map area, there is a "When?" section with the text "Latest tweets (2019-03-13)". Underneath, there is a "What?" section with the instruction "one term per box (case insensitive)" and a search input field. To the right of the input field is a "copy search terms »" link and a plus sign icon. Below the input field is a "Get Results" button. At the bottom of the interface, there is a yellow banner with the text "Local Search, ready!" and an information icon.

Using the global and local search features

2 APIs to be queried:

- **Global Search's Twitter API:**

- No result limits (date range or distance),
- Shows geotagged tweets only (no profile-based location inference).
- Draws on a random sample of 1%–10% of all tweets.



Using the global and local search features

- <http://maps.iscience.deusto.es/#local>

Step By Step Example of Local Search

The goal =>

- **Replicate** a study on **personality characteristics** inferred from first names (1993) Using 6 male names
- For 3 of the names (Alexander, Charles, Kenneth), **strong connotation** of the dimension “successful” (“ambitious,” “intelligent”, “creative”***) was found
- **Weak connotation** was found for the rest (Otis, Tyrone, Wilbur)
- Hypothesis: *If these names’ having the specific connotation of a personality characteristic really holds, this should be apparent when Twitter is mined* (***)e. g., “Charles is an intelligent guy”)

Step By Step Example of Local Search

The Method =>

- Searching for **one name at a time, 3 days period** (to avoid reaching the threshold for number of tweets per search imposed by Twitter- 1,500)

In “Local search” tab =>

1. **Define locations** in the 2 map areas: Western U.S. and U.K. & Ireland (also works with geographical coordinates of a point and radius)
2. **“When?”**: 3 days
3. **Base rate**: simple search for each name (What? “Otis”=> “Get Results.”)
4. Search for each name **in combination** with an attribute (“Charles” and “intelligent”)
5. **Comparing** the U.S. west coast with the U.K. and Ireland.

Step By Step Example of Local Search

The Results =>

- All the high-connotation names indeed appear in the same tweets with some of the aforementioned terms
- Opposite connotation search:
 - **US** => **No** combination of low-connotation names with any of the terms “successful,” “ambitious,” “intelligent” or “creative” was found
 - **UK** => **some** combinations for 2 of the 3 high connotation names were found

*** The **base rate** of high-connotation vs. low-connotation names is a **confounding factor** and may also explain the findings in the original study (**less frequent names** may cognitively be less associated with any personality characteristics)

iScience maps vs. other Twitter search services

- Web services that were developed around the Twitter APIs (not specifically for scientific research) may be useful in research projects:
- **Monitter**- monitoring the Twitter world in real time for a set of keywords and watch what Twitter users are writing
- Web service providers which don't provide search options but do provide **content**:
 - Twitter Halfhose (~50% of all Twitter content, delivered in real time)
 - Twitter Link Stream (all Twitter statuses containing URLs, delivered in real time)
 - Twitter User Mention Stream

iScience maps vs. other Twitter search services

Main drawback => Price (unsuitable for low-budget research initiatives)

Alternatives:

- **SemioCast-** provides **semantic analysis** services through a public API. This API can be used to **analyze, filter, and prepare Twitter statuses in terms of their language or location**. Allows up to 1,024 API calls per day for free.
- **140kit-** free web service, enables complete data pulls for a **set of users/terms** on Twitter. Only provides on-demand Twitter data pulls and **content based filtering, not location based**

Next Session...



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- Internet research in political science
- Experimental research on the web- practical guidelines
- Discussion of experimental designs

Thank You For Your Attention!

Questions???

