

Title: TBA

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Abstract:

Producing Knowledge in Academy and Industry

Andrew Mao



How did I end up here?



HARVARD

**School of Engineering
and Applied Sciences**

EconCS Group

Research at the intersection between computer science and economics

Microsoft®
Research

How did I end up here?

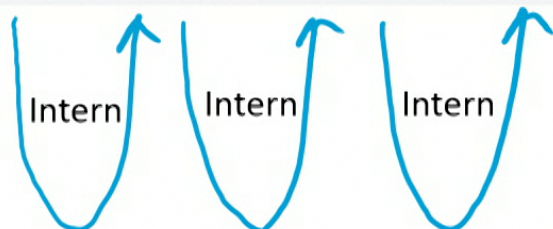


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Postdoc

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Computational Social Science

Tenure-
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How did I end up here?



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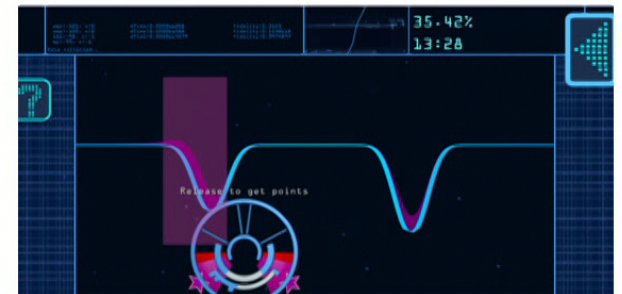
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Computational Social Science

Tenure-
track



SCHOOL OF BUSINESS AND SOCIAL SCIENCES
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CTRL-labs

Start-up

Two provocations...

Important areas of research, under the purview of companies, will not be done

It's impossible to produce open-source software in academia

Companies have an advantage.



More (behavioral) data



More computational resources

Companies have an advantage.

LETTER

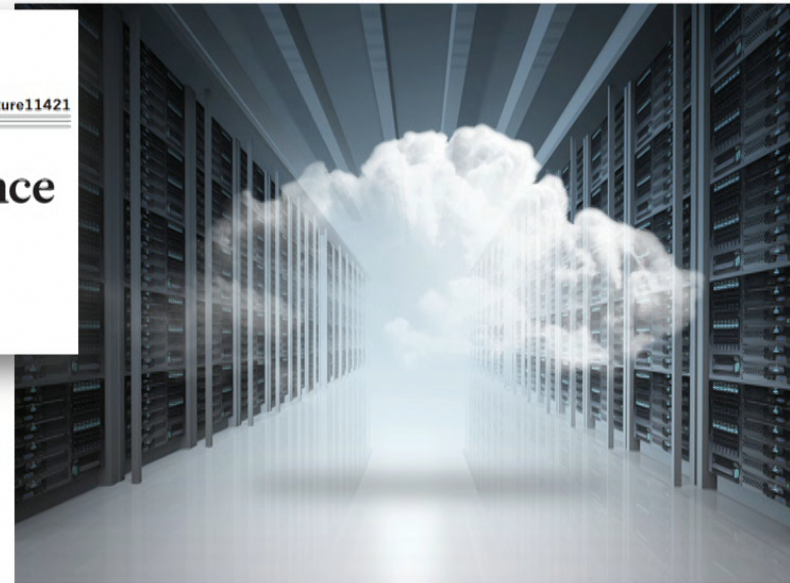
doi:10.1038/nature11421

A 61-million-person experiment in social influence and political mobilization

Robert M. Bond¹, Christopher J. Fariss¹, Jason J. Jones², Adam D. I. Kramer³, Cameron Marlow³, Jaime E. Settle¹ & James H. Fowler^{1,4}



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More (behavioral) data



Bigtable: A Distributed Storage System for Structured Data

Fay Chang, Jeffrey Dean, Sanjay Ghemawat, Wilson C. Hsieh, Deborah A. Wallach, Mike Burrows, Tushar Chandra, Andrew Fikes, Robert E. Gruber

{fay,jeff,sanjay,wilsonh,kerr,m3b,tushar,fikes,gruber}@google.com

Google, Inc.

More computational resources

Companies can do unique research.

Data scientists at Facebook conduct large-scale, global, quantitative research to gain deeper insights into how people interact with each other and the world around them.

Our findings directly inform decisions to improve people's everyday experiences on Facebook, make it easier and more intuitive to use, and find ways to facilitate meaningful social interactions. Research efforts span a variety of disciplines, including computational social science, econometrics, operations research, market intelligence, survey science, and statistical computing. We employ a mixture of methods to accomplish our goals, including machine learning, field experiments, surveys, and information visualization. We also build scalable platforms for the collection, management, and analysis of data, and actively contribute our scientific findings to the academic research community

Experimental evidence of massive-scale emotional contagion through social networks

Adam D. I. Kramer^{a,1}, Jamie E. Guillory^b, and Jeffrey T. Hancock^{c,d}

^aCore Data Science Team, Facebook, Inc., Menlo Park, CA 94025; ^bCenter for Tobacco Control Research and Education, University of California, San Francisco, CA 94143; and Departments of ^cCommunication and ^dInformation Science, Cornell University, Ithaca, NY 14853

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 25, 2014 (received for review October 23, 2013)

Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. Emotional contagion is well established

demonstrated that (i) emotional contagion occurs via text-based computer-mediated communication (7); (ii) contagion of psychological and physiological qualities has been suggested based

Facebook Manipulated User News Feeds To Create Emotional Responses



Gregory S. McNeal, CONTRIBUTOR

I write about technology, law, and policy. [FULL BIO](#)

Opinions expressed by Forbes Contributors are their own.


TWEET THIS



Facebook conducted a massive psychological experiment on 689,003 users, manipulating their news feeds to assess the effects on their emotions.

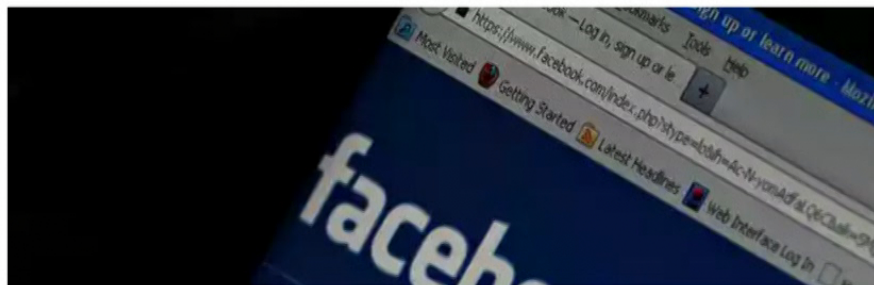


The short version is, Facebook has the ability to make you feel good or bad, just by tweaking what shows up in your news feed.

Facebook conducted a
experiment on 689,000
their news feeds to as
emotions.  The d

Facebook fiasco: was Cornell's study of 'emotional contagion' an ethics breach?

A covert experiment to influence the emotions of more than 600,000 people. A major scientific journal behaving like a rabbit in the headlights. A university in a PR tailspin



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
TWEET THIS



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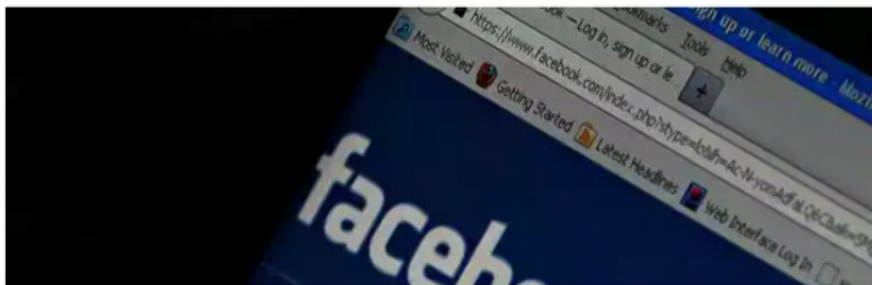


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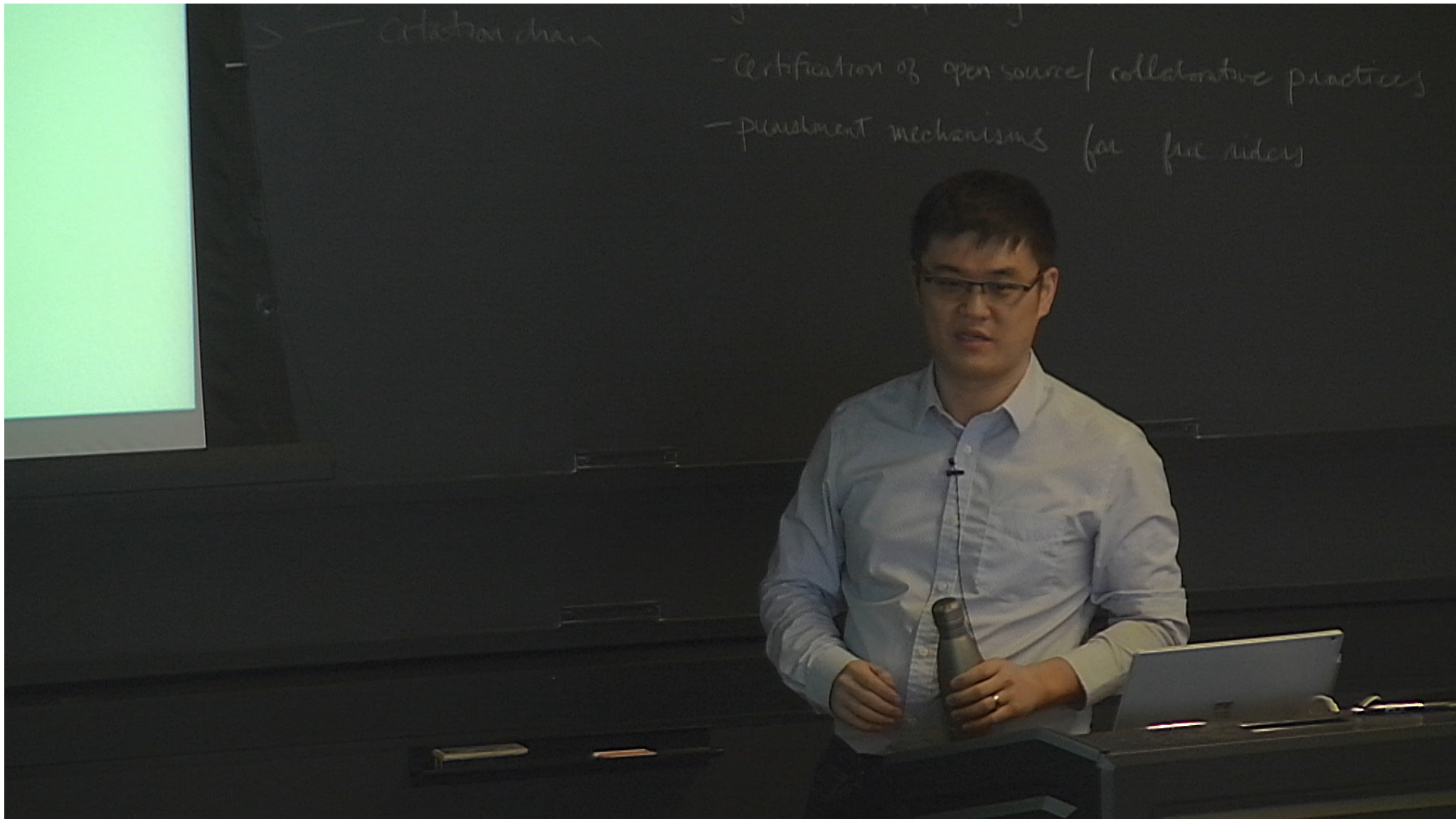
A covert experiment to influence the emotions of more than 600,000 people. A major scientific journal behaving like a rabbit in the headlights. A university in a PR tailspin



Everything We Know About Facebook's Secret Mood Manipulation Experiment

It was probably legal. But was it ethical?





→ Citation chain

- Certification of open source / collaborative practices
- punishment mechanisms for free riders

How Trump Consultants Exploited the Facebook Data of Millions

[Leer en español](#)

By MATTHEW ROSENBERG, NICHOLAS CONFESSORE and
CAROLE CADWALLADR MARCH 17, 2018



Mark Zuckerberg Thinks We're Idiots.

by Jean-Louis Gassée

Surprise: Thanks to the Cambridge Analytica revelations, we're finding out that Facebook allowed a much broader and deeper prostitution of our private data than it had previously claimed. Facebook's disingenuous explanations call for more questions and even less trust.



ICE USES FACEBOOK DATA TO FIND AND TRACK IMMIGRANTS, INTERNAL EMAILS SHOW

Facebook Exit Hints at Dissent on Handling of Russian Trolls

By NICOLE PERLROTH, SHEERA FRENKEL and SCOTT SHANE MARCH 19, 2018



Alex Stamos, the chief information security officer for Facebook. He has urged more disclosure over Russian activity on Facebook. Steve Marcus/Reuters

RELATED COV



Mr. Stamos, who plans to leave Facebook by August, had advocated more disclosure around Russian interference of the platform and some restructuring to better address the issues, but was met with resistance by colleagues, said the current and former employees. In December, Mr. Stamos's day-to-day responsibilities were reassigned to others, they said.

Facebook is the largest socio-technical system of
in the world.

But transparent research about its design and
impact may never see the light of day.

Another example: the sharing economy



Another example: the sharing economy

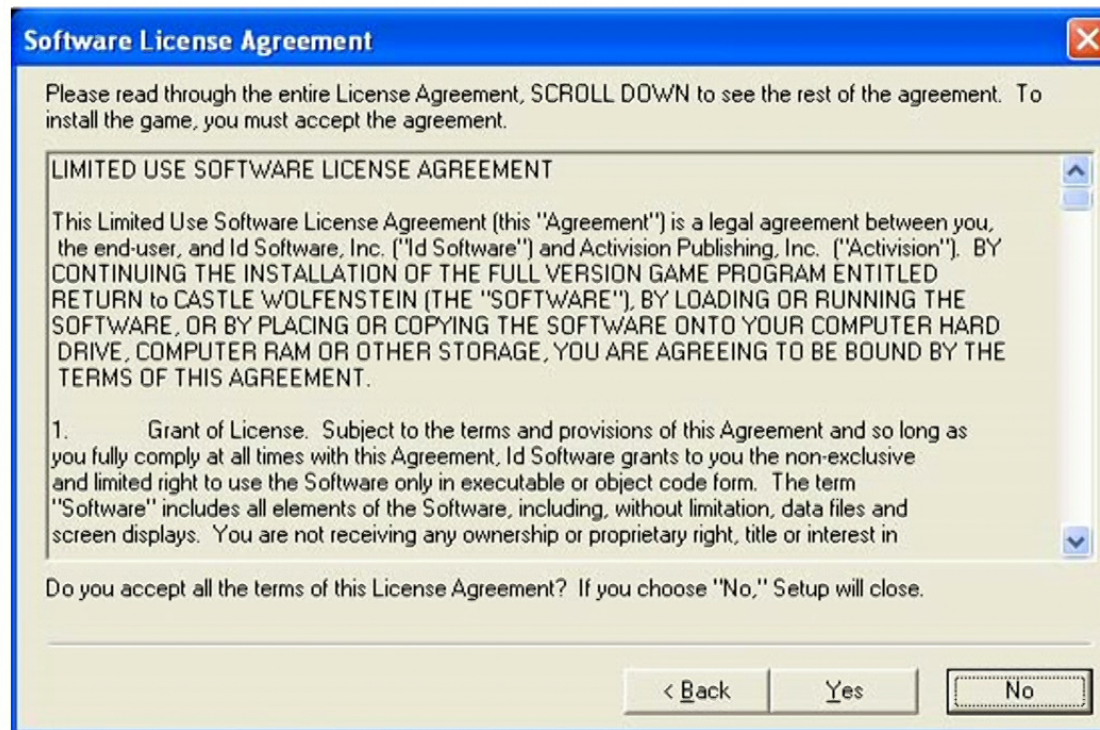




Open-source software in industry and academy

A long time ago...





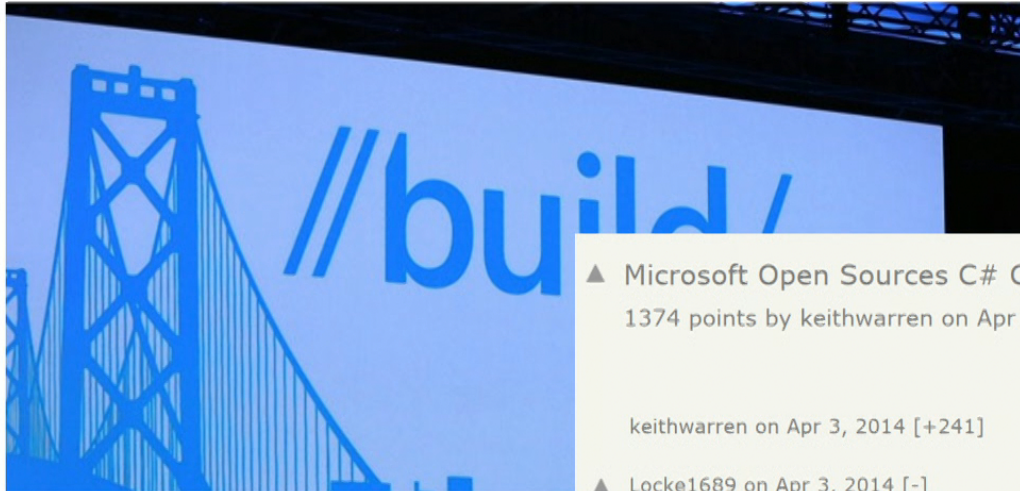


Ballmer: “Linux is a cancer that attaches itself in an intellectual property sense to everything it touches.”

Microsoft open sources .NET compiler platform “Roslyn” and announces open source .NET Foundation initiative



by EMIL PROTALINSKI — Apr 3, 2014 in MICROSOFT



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▲ Microsoft Open Sources C# Compiler (codeplex.com)

1374 points by keithwarren on Apr 3, 2014 | [hide](#) | [past](#) | [web](#) | [favorite](#) | [446 comments](#)

keithwarren on Apr 3, 2014 [+241]

▲ Locke1689 on Apr 3, 2014 [-]

Everyone on Roslyn is really excited about this and we hope that it serves as a signal that big things are happening in .NET to make the entire platform more open and agile!

P.S. We're the Visual Basic compiler too :)

▲ stusmall on Apr 3, 2014 [-]

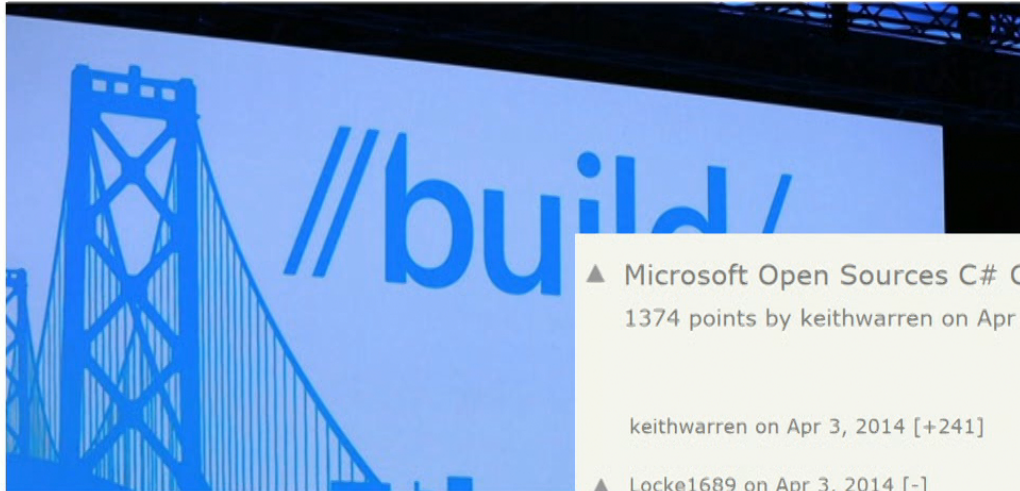
From an open source neckbeard to a MS employee, thanks!!!

Man, this is a crazy world. Cats and dogs living together. Open source MS projects. The falcon cannot hear the falconer

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Open source has won, and Microsoft has surrendered

Many Linux users are ticked off and anxious about Microsoft joining the Linux Foundation. They are missing the real significance of that move.

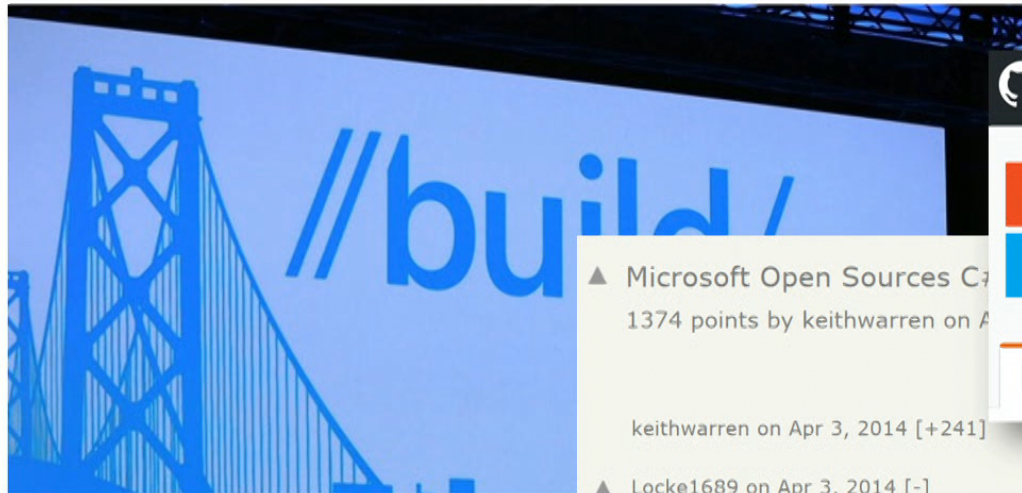
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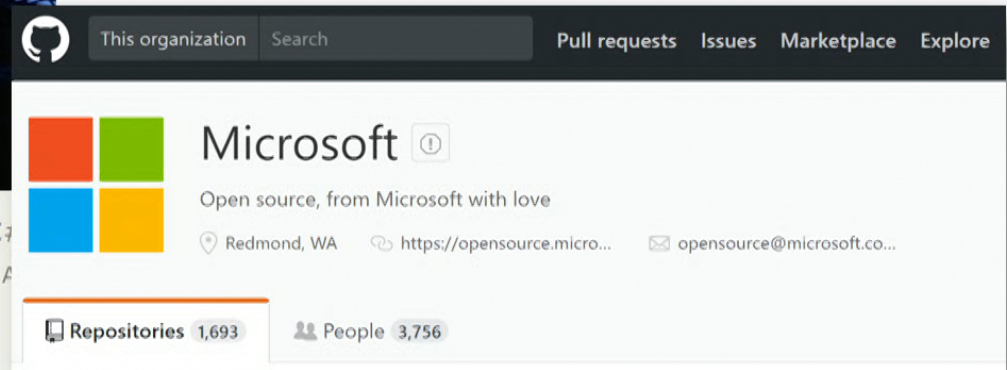
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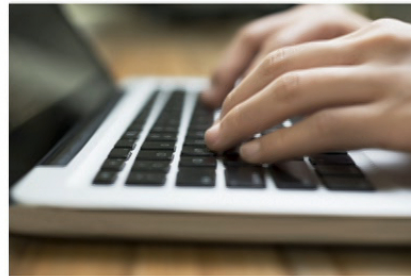


Git After It: Why GitHub Won When So Many Other Big Companies Failed

MAR 13, 2015 / BY [HANNAH FLEISHMAN](#)

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Yesterday, [Google announced](#) they would officially be pulling the plug on open source project hosting service, Google Code. What launched ten years ago as an alternative to SourceForge never really grew up to be *the* social coding platform Google envisioned. In other words, it wasn't GitHub.



"Facebook sees open source as being good for business: "It means we build better software, write better code, our engineers are able to work with more pride, and we're able to retain the world's best engineers because they know they can open-source their work." Ultimately, because engineers can see for themselves the kinds of things Facebook is working on, **it makes it easier to attract the top talent.** "It's not all altruism, there's solid business sense behind this."

- James Pearce, Facebook

Meanwhile, in academia...

Academics aren't software engineers

Why do many talented scientists write horrible software?



I am a software engineer and I have been working for years with people hired from academic background. Many times I've noticed that (even otherwise brilliant scientists) produce code of extremely low quality (unless their background was precisely Computer Science).

126



Since those people are very good in doing their research - and eventually obtain remarkable results - it seems they are clever enough to write *decent* code. Is it just that they don't think it's worth the effort? Plain arrogance? Lack of time?

Truly reusable software is hard.

The Rule of Three:

1. It is **three** times as difficult to build reusable components as single use components, and
2. a reusable component should be tried out in **three** different applications before it will be sufficiently general to accept into a reuse library.
3. It's **three** times harder to document a software product well than just writing the code.

[Facts and Fallacies of Software Engineering](#)

Software tools != citations.

Software tools != citations.

All hail ggplot2—The code powering all those excellent charts is 10 years old

By [Dan Kopf](#)

June 18, 2017



📷 Happy birthday ggplot2. (Reuters/Suzanne Plunkett)

On June 10, 2007, the statistician and developer Hadley Wickham [officially released ggplot2](#), a chart-making system for the statistical programming language R. It would alter the course of his life and the future of data visualization.

Software tools != citations.

On **Hadley Wickham**:

his motivation ... was primarily to provide better ways of accomplishing routine tasks in R, an immensely useful contribution that sadly wasn't recognized in an academic setting.

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“There are definitely some academic statisticians who just don't understand why what I do is statistics, but basically I think they are all wrong . What I do is fundamentally statistics. **The fact that data science exists as a field is a colossal failure of statistics.** To me, that is what statistics is all about. It is gaining insight from data using modelling and visualization. Data munging and manipulation is hard and statistics has just said that's not our domain.”

All hail ggplot2—The code powering all those excellent charts is 10 years old

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“There are definitely some people who don't understand why we think they are all wrong statistics. **The fact that data visualization is a colossal failure of statistics** is all about. It is gaining importance in data science and visualization. Data science and statistics has just said

 RDocumentation



Hadley Wickham

100th percentile impact ⓘ

26,998 direct downloads

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An example from experience...



TurkServer: OSS platform + experiments

TurkServer / turkserver-meteor

Unwatch 12 Star 59 Fork 10

Code Issues 29 Pull requests 1 Wiki Pulse Graphs Settings

Web-based, real-time behavioral studies and experiments using Meteor <http://turkserver.github.io> — Edit

0 releases 8 contributors

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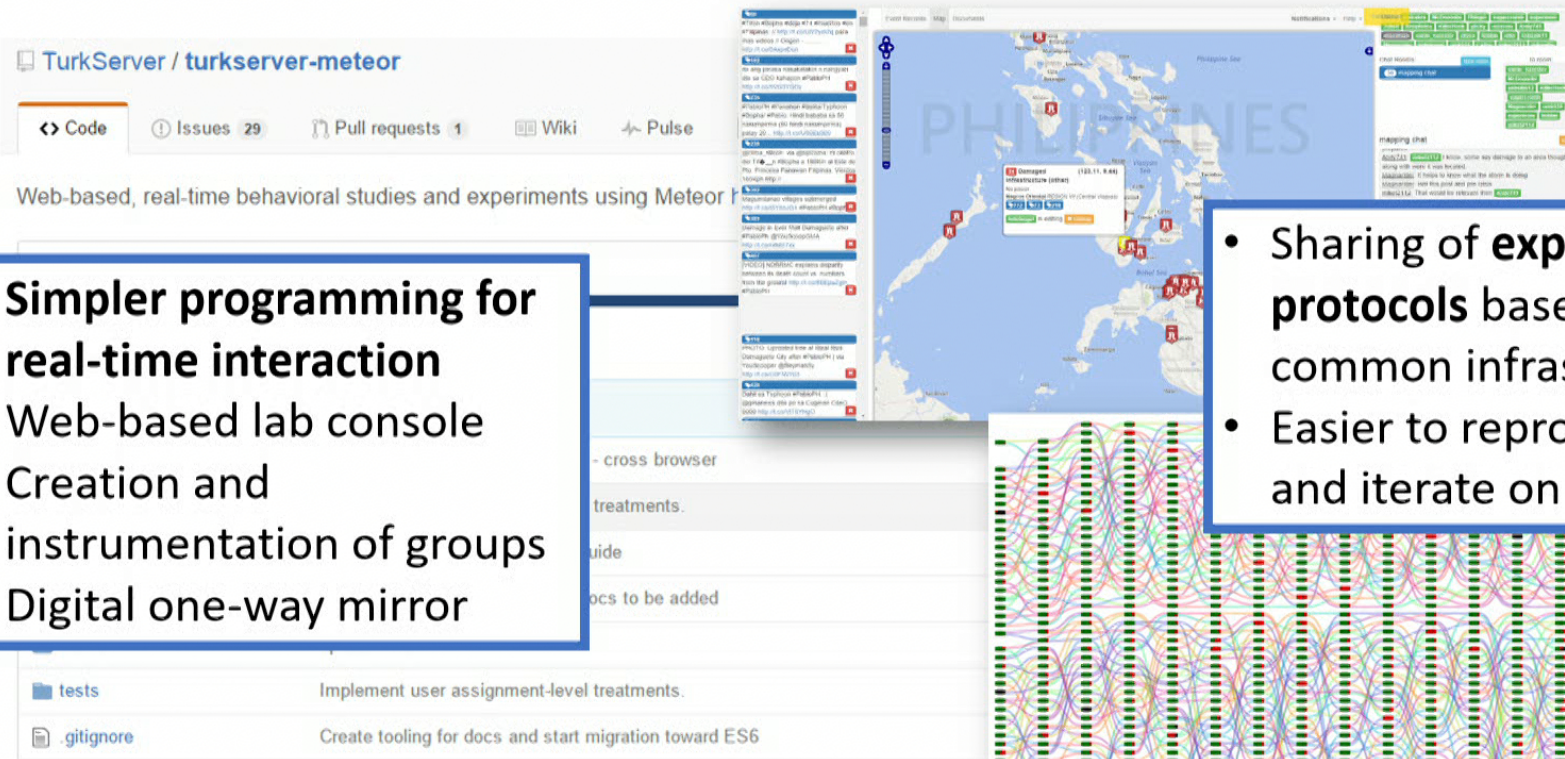
Latest commit c2a3347 2 days ago

- cross browser	2 months ago
treatments.	3 months ago
uide	2 days ago
ocs to be added	2 months ago
	4 days ago
tests Implement user assignment-level treatments.	3 months ago
.gitignore Create tooling for docs and start migration toward ES6	11 months ago

- **Simpler programming for real-time interaction**
- Web-based lab console
- Creation and instrumentation of groups
- Digital one-way mirror

<https://www.github.com/TurkServer/turkserver-meteor>

TurkServer: OSS platform + experiments



- **Simpler programming for real-time interaction**
- Web-based lab console
- Creation and instrumentation of groups
- Digital one-way mirror

- Sharing of **experiment protocols** based on a common infrastructure
- Easier to reproduce, vary, and iterate on existing work

<https://www.github.com/TurkServer/turkserver-meteor>

A virtual lab: web-based real-time view

The screenshot shows the 'Current Lobby' interface. At the top, it says 'Viewing lobby users in batch pilot'. Below this, it indicates '49 users currently in lobby' and '49 ready users currently in lobby'. A table lists 20 users with their IDs and status (all are 'READY'). To the right of the table are two buttons: 'next-game' and 'Trigger Lobby Event'. On the far right, a horizontal bar chart shows the duration of ongoing experiments. The x-axis represents time from 4/4/2016, 11:54:30 PM to 11:55:00 PM. The bars represent the duration of various experiments, with some labeled with IDs like 'g28hy7TDyXWc1Mba_Worker' and 'gF4b6Jd8ountH7L1_Worker'.

User	Status
(5ee9-JW9h-0b586a_Worker)	READY
(06652-WDwZ-5L1TXhe_Worker)	READY
(0e6j6a0C8R2Wc1_ypj_Worker)	READY
(Tjyhg0RkKcLjPDMkZ_Worker)	READY
(6uFafY5dR3qRAJor_Worker)	READY
(0Rk4bafq0bTEW0M_Worker)	READY
(Kk0ap0G2CkaJTYN_Worker)	READY
(oae0xJahV56DaeRK_Worker)	READY
(w0B6-5Yh6A6pWVb_Worker)	READY
(xyPeaKJ7JkzyRobwJ_Worker)	READY
(NDHY6-cbAaTY2w0b_Worker)	READY
(qgRufJ8L-55A-a4Bc-Worker)	READY
(ZkYvFp)3a3aR0Gp_Worker)	READY
(gth3jvETTBaG0P_Worker)	READY
(qYqq0ar7M2bZKxouK_Worker)	READY
(4ZKTyMee0apJ9M0W_Worker)	READY
(8NwPZa0Mg7ew5Tr_Worker)	READY
(k5gCwW6G4P-unanYL_Worker)	READY
(5dFgq5A74IM0Wl4_Worker)	READY
(C6R0ay02abJ5wb0_Worker)	READY
(K0b6E10HhN3nD7s_Worker)	READY
(qGLWtRQ2vz7Y47J2_Worker)	READY
(w6wRZ7G4y0HMAa3p_Worker)	READY
(nRQdC-G0pafpC6A1_Worker)	READY
(Tee0dZPy0Bw0P3_Worker)	READY
(K0RbJHb0m0R0RZ1dH_Worker)	READY
(v6u0P0P3uNW5M0K_Worker)	READY

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

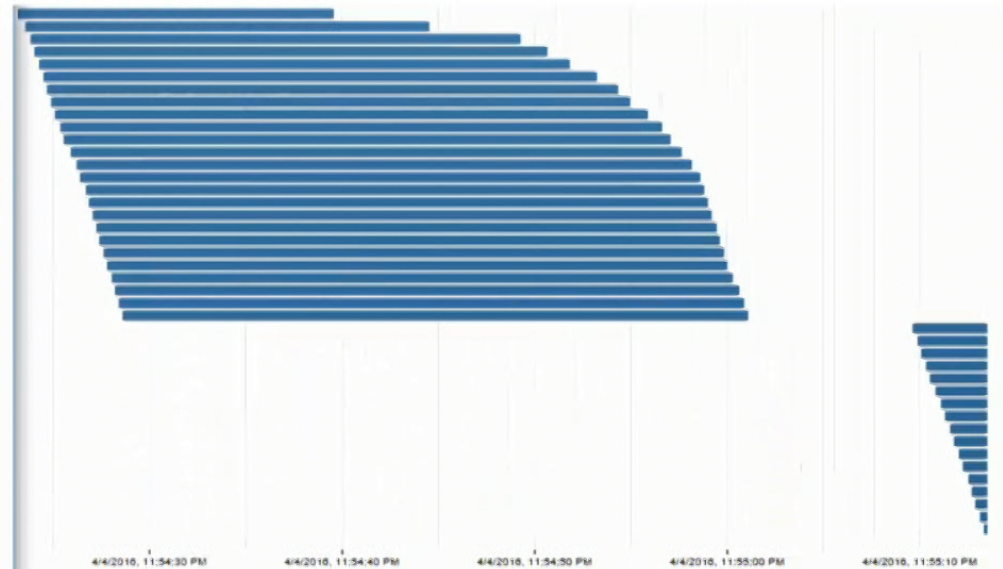
14 users currently in lobby.

14 ready users currently in lobby.

User	Status
[RoFafYU85qBAJor_Worker]	READY
[BRKASufqDAtEV0M_Worker]	READY
[pr9dR_5Tef4sOpWvb_Worker]	READY
[qYqg0m7N78o7Eamuc_Worker]	READY
[uKsWZ770y9MFAuJa_Worker]	READY
[QuR0u0RkAJANd0Kt_Worker]	READY
[7Kuf0u3W12u0PpK_Worker]	READY
[Ku0G7pYRT4mATea_Worker]	READY
[u0uR30m2ZT8u0y_Worker]	READY
[H4Ry748QX3Mong_Worker]	READY
[MOMQ2Fv3ZCw7MCo_Worker]	READY
[M3p0RA6v8Keguo0_Worker]	READY
[5u07C8u0u7CQ0u6_Worker]	READY
[07F49uJH0u0u07T1_Worker]	READY

next-game

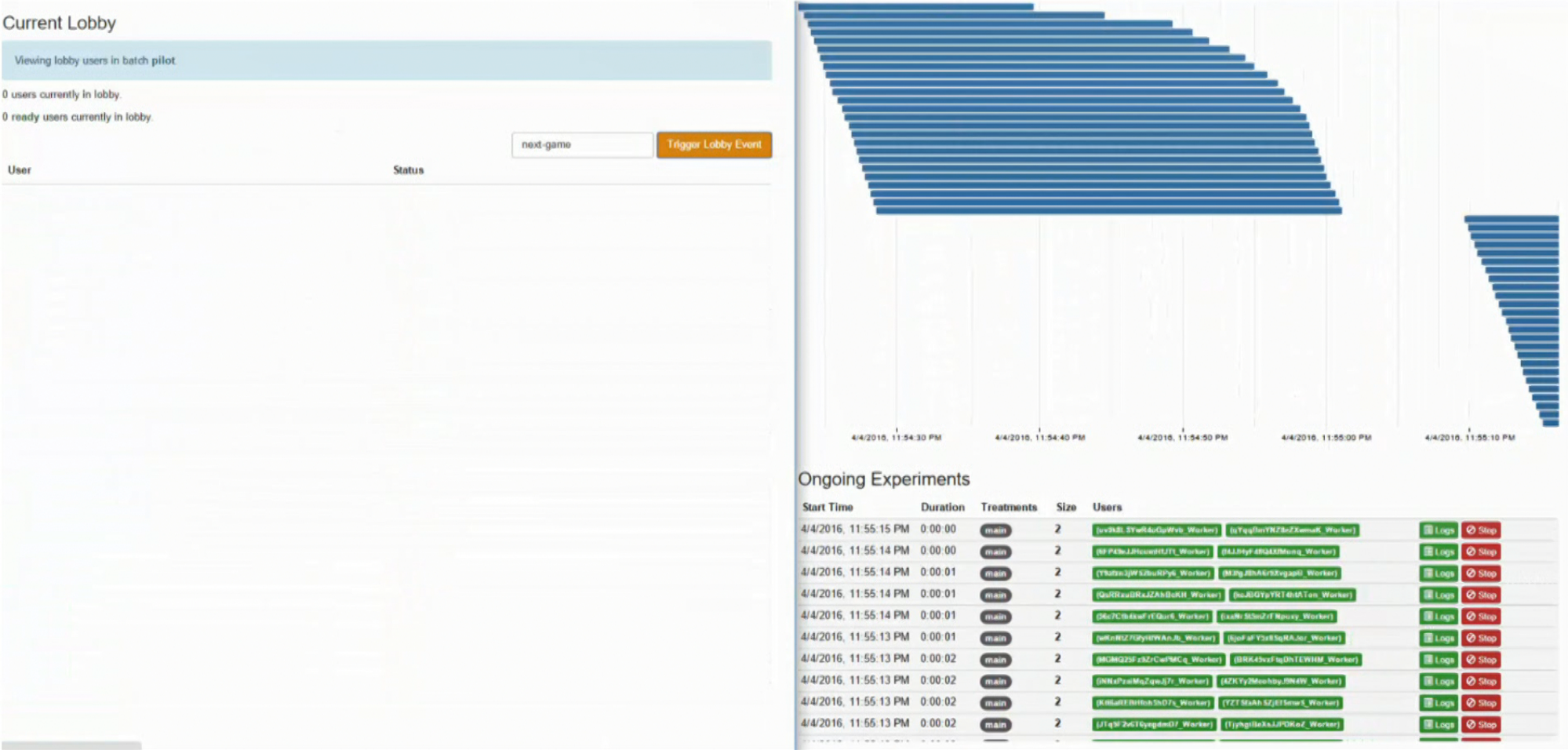
Trigger Lobby Event



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users	Log	Stop
4/4/2016, 11:55:13 PM	0:00:00	main	1	[R0uP0uMq7owJ7r_Worker]	Log	Stop
4/4/2016, 11:55:13 PM	0:00:00	main	2	[X0u0F00u0u3u07u_Worker] [Y7T3u0A5Z770y9MFAuJa_Worker]	Log	Stop
4/4/2016, 11:55:13 PM	0:00:00	main	2	[Z7qg3u0770y9MFAuJa_Worker] [77qg3u0770y9MFAuJa_Worker]	Log	Stop
4/4/2016, 11:55:12 PM	0:00:00	main	2	[p0R0y0v0T0R0u0G0W_Worker] [00M0y0Q0u0J0u0d0_Worker]	Log	Stop
4/4/2016, 11:55:12 PM	0:00:00	main	2	[u0R0u0Y0L0MA0u0t0_Worker] [q0q0u0R0u0T0G0u0_Worker]	Log	Stop
4/4/2016, 11:55:12 PM	0:00:00	main	2	[u0H0u0u070u0u070W_Worker] [u0H0u0u070u0u070W_Worker]	Log	Stop
4/4/2016, 11:55:12 PM	0:00:00	main	2	[u0u0u0Z0u0v0u0u0u0R0_Worker] [u0H0u0u070u0u070W_Worker]	Log	Stop
4/4/2016, 11:55:12 PM	0:00:00	main	2	[T0u0u0Z0P0u0u0u0P0_Worker] [u0u0u0Q0u0u0Z0u0u0P0_Worker]	Log	Stop
4/4/2016, 11:55:11 PM	0:00:01	main	2	[u070q0u0Z0u0u0u0u0d0_Worker] [u0H0u0u070u0u070W_Worker]	Log	Stop
4/4/2016, 11:55:11 PM	0:00:01	main	2	[Z0u0u0u0u0u0u0u0u0u0v02_Worker] [u0u0u0u0u0u0u0u0u0u0v02_Worker]	Log	Stop

A virtual lab: web-based real-time view



A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

0 users currently in lobby.

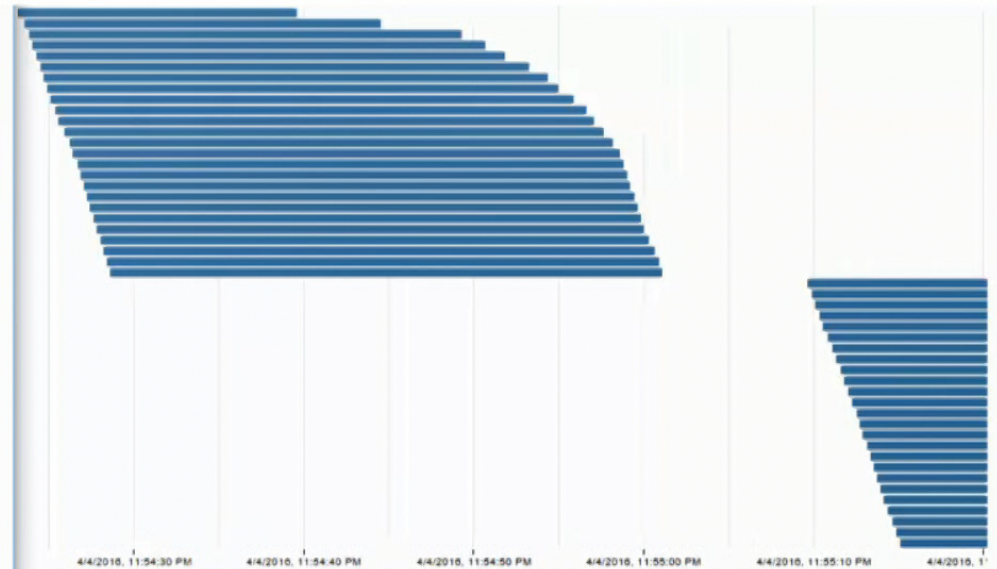
0 ready users currently in lobby.

next-game

Trigger Lobby Event

User

Status



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users	Logs	Stop
4/4/2016, 11:55:15 PM	0:00:06	main	2	[uv9dL:SYwR6CpWeb_Worker] [uYq9l8rYKZbCZemaR_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:06	main	2	[8FP6uJHsuo9EJTL_Worker] [8LJHtF48Q4XMonq_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:07	main	2	[YR6mJWShw8Py6_Worker] [M2gAbA6K2egap0_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:07	main	2	[QvR9uBRxJZAbuRH_Worker] [8uJOGYpYRT8MATa_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:07	main	2	[6u7C84wFv7EQu8_Worker] [Eu8B:85mZ7F8uay_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:07	main	2	[u6uN8Z7Qy8WAnJb_Worker] [9p9afY3u85qRAJc_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:08	main	2	[M2M22Fv8ZvCefMCq_Worker] [8R643vaf8u8TEWIM_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:08	main	2	[8NM8PuaMaZqasJ7r_Worker] [4ZKYY8uochbyJH4W_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:08	main	2	[K96uEE8H8hShD7s_Worker] [Y2TMaAN5ZjEYme8_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:08	main	2	[L7q3r2hCTeg8mD7r_Worker] [Tyn9u8eksJUP8Kz2_Worker]	Logs	Stop

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

0 users currently in lobby.

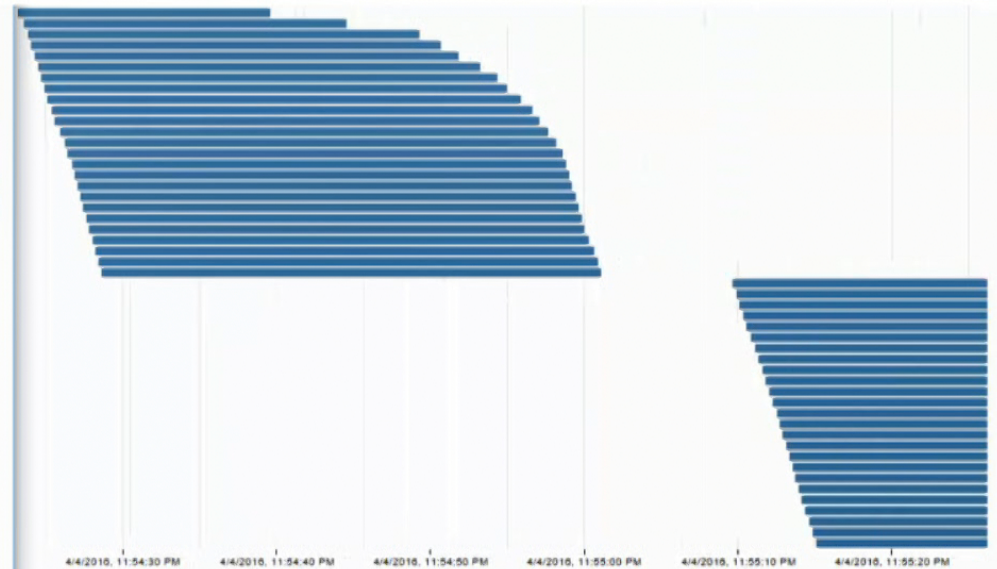
0 ready users currently in lobby.

next-game

Trigger Lobby Event

User

Status



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users		
4/4/2016, 11:55:15 PM	0:00:10	main	2	[uv9b8L5YwR6GqWeb_Worker] [uYq9bnYKZbc2XmaoR_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:10	main	2	[8FP4NzJHsuo9EJTL_Worker] [8AJJHfF48Q4XMonq_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:11	main	2	[YR6bnJW5bwi8Py6_Worker] [M2gAbA6R2egap0_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:11	main	2	[QvR9auBRxJZAbBuRH_Worker] [bu3DQYyYRT8HATan_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:11	main	2	[O6vTCB4bvfTQvR6_Worker] [EuRb9GmZ7FNaay_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:11	main	2	[uKsNGZ7Qy9WAAuJb_Worker] [qoFafY3d85qRAJoc_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:12	main	2	[M2M225Fv3ZvCefMqCq_Worker] [8Rk43vaf9d8TEWIM_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:12	main	2	[9NM6PcuMa2qaj7r_Worker] [4ZKYY3MeehbyJRM4W_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:12	main	2	[K96aEE3HbShD7s_Worker] [Y2T5aAH5ZjEY5me5_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:12	main	2	[L7Jq3r2hCTegamD7r_Worker] [TjyngolleksJJP0kaZ_Worker]	Logs	Stop

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

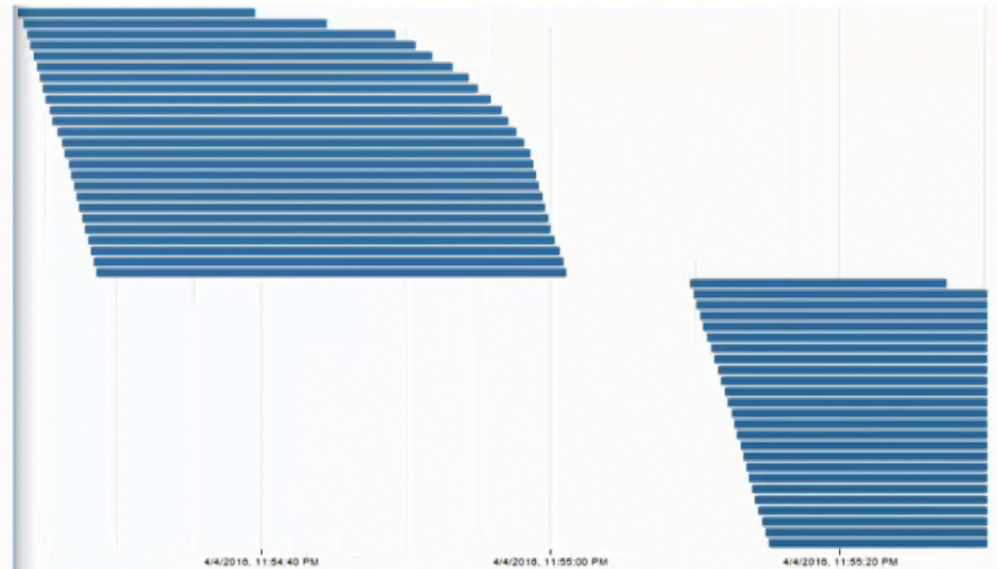
2 users currently in lobby.

2 ready users currently in lobby.

next-game

Trigger Lobby Event

User	Status
[EPKJnd7pzevG4ZPn_Worker]	READY
[JubKY2NexK8p-SF5CE_Worker]	READY



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users	Logs	Stop
4/4/2016, 11:55:15 PM	0:00:14	main	2	[uv9b8L5YwR6GpWeb_Worker] [uYq9bnYK2bc2XmaR_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:14	main	2	[8FP4NcJHscu0EJTL_Worker] [8LJHtYF48Q4XMonq_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:15	main	2	[YR6bnJW52bu8Py6_Worker] [M2gJbH4G82gagp_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:15	main	2	[QzR9auBRxJZAhBuRH_Worker] [buJDDGyYrT8HATan_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:15	main	2	[G6CTC84nfrcQuR6_Worker] [Eu8B95nZrFMonay_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:15	main	2	[uKsN6Z7Qy0WFAuJb_Worker] [qoFafY3d85qRAac_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:16	main	2	[M2M223Fv3Z-CefM6Cq_Worker] [8R643vaf9d8TEWIM_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:16	main	2	[NMcPcuMa2qesJ7r_Worker] [4ZKYY3MeehbyJRM4W_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:16	main	2	[K96aEE3Hh8ShD7s_Worker] [Y2T5aAH5ZjETime5_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:16	main	2	[L71q3r2hCTpge8mD7r_Worker] [Tyn9oileksJJP0KaZ_Worker]	Logs	Stop

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

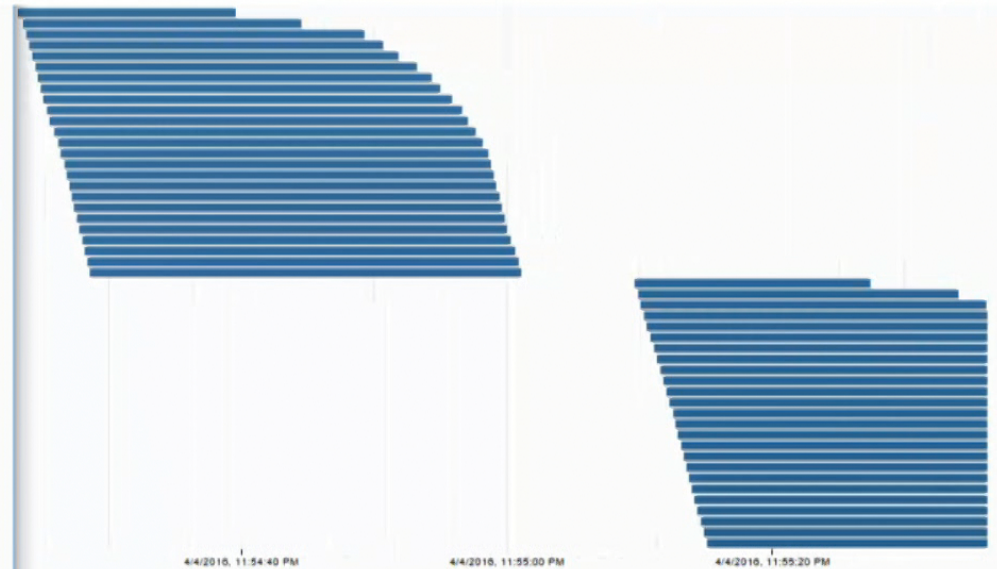
6 users currently in lobby.

6 ready users currently in lobby.

User	Status
[EPKJnd7pzevG4ZPn_Worker]	READY
[JubkY2Nex0pSF8CE_Worker]	READY
[Au7pplA5p4KACqKq_Worker]	READY
[Zk7hPp3b3uB83p_Worker]	READY
[uR2b6C3Up4pCRA1_Worker]	READY
[LuuG2JKN1b0b5864a_Worker]	READY

next-game

Trigger Lobby Event



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users	Logs	Stop
4/4/2016, 11:55:15 PM	0:00:21	main	2	[uv9bM:SYwR6GqWeb_Worker] [uYq9bnYK2bCZamaR_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:21	main	2	[BFP4bLPMu0dHJ1L_Worker] [BJJHfY4B4X0Ming_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:22	main	2	[YR6bnJW5b6uPy6_Worker] [M2gJbA6G2egap0_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:22	main	2	[QuR9uBRxJZAbBuRH_Worker] [buJDDYpYRT8MATan_Worker]	Logs	Stop
4/4/2016, 11:55:14 PM	0:00:22	main	2	[G6JCB4b6f7CQuR8_Worker] [EuBb:95mZ7FNaay_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:22	main	2	[uK6N5Z7Qy0WFAuJb_Worker] [qpfalY3u85qRAac_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:23	main	2	[M2M225FxbZCefM6Cq_Worker] [BRK4b6uf9u0hTEWIM_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:23	main	2	[NMcPuaMa2q6J7r_Worker] [AZKYY3MeehbyJN4W_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:23	main	2	[K96uE3HbHbShD7a_Worker] [Y2T5aAH5ZjEYme5_Worker]	Logs	Stop
4/4/2016, 11:55:13 PM	0:00:23	main	2	[J7q3r2hC1Upag6mD7_Worker] [Tyn9u0kxJJP0KaZ_Worker]	Logs	Stop

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

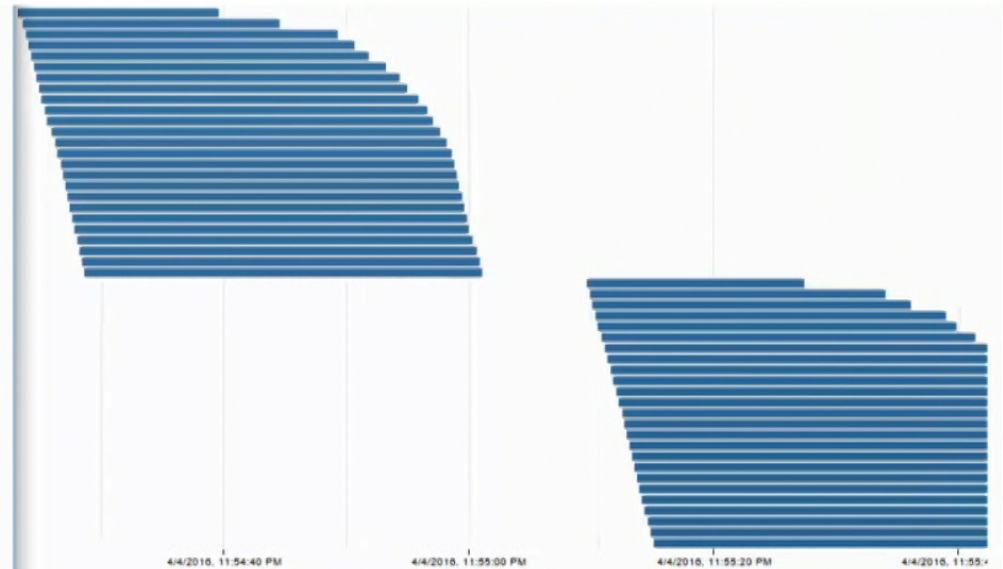
14 users currently in lobby.

13 ready users currently in lobby.

User	Status
[EPKJwC7paveQAZPn_Worker]	READY
[JbKxY2Nex0BjSF8CE_Worker]	READY
[AaP3pLAs2gaKACqKq_Worker]	READY
[ZkYvPh3a3aRkZg_Worker]	READY
[uQD4C3UpuKpCMA1_Worker]	READY
[Lear2LKW9hG58Mda_Worker]	READY
[nmr2EdopYed3x4S_Worker]	READY
[U3gCvWGD4UvmanY1_Worker]	READY
[HqGLWvWQbvyJ747Z2_Worker]	READY
[ybu8Pj83uWw8h8G_Worker]	READY
[Kafep3G29CwaMYRN_Worker]	READY
[URChJ3HbGeQ8RLZLh1_Worker]	READY
[p3Hj7TDyRWb18Mhu_Worker]	READY
[xjPeaK77MxyRbweJ_Worker]	NOT READY

next-game

Trigger Lobby Event



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users
4/4/2016, 11:55:15 PM	0:00:26	main	2	[uv9b8L5YwR6GqWeb_Worker] [uYq9bnYK2bC2amaR_Worker]
4/4/2016, 11:55:14 PM	0:00:26	main	2	[BPF4bLH5uodHJ1L_Worker] [ALJHfF48Q4X0Moaq_Worker]
4/4/2016, 11:55:14 PM	0:00:27	main	2	[YRabnJW5bvi8Py6_Worker] [M2gJbA6G82gap9_Worker]
4/4/2016, 11:55:14 PM	0:00:27	main	2	[QvRRauBRxJZAbuRH_Worker] [bu3DQYpYRT8MATan_Worker]
4/4/2016, 11:55:14 PM	0:00:27	main	2	[G6v7C84wFvEGuR8_Worker] [Eu8B95e2f7Nouay_Worker]
4/4/2016, 11:55:13 PM	0:00:27	main	2	[uKnN5Z7Qy9WFAuJb_Worker] [qjofaFY3d85qRAJuc_Worker]
4/4/2016, 11:55:13 PM	0:00:28	main	2	[M2M225Fv3ZvCwPMcQ_Worker] [BRK43vafqDhTEWIM_Worker]
4/4/2016, 11:55:13 PM	0:00:28	main	2	[NMcPuaMa2qesJ7r_Worker] [AZKYyMeehbyJRM4W_Worker]
4/4/2016, 11:55:13 PM	0:00:28	main	2	[K96afE8HbA5hD7s_Worker] [Y2T5aA85ZjEYmeS_Worker]
4/4/2016, 11:55:13 PM	0:00:28	main	2	[L7jq3r3hC3pge8mD7_Worker] [Tjyng0lksAJPUkaZ_Worker]

A virtual lab: web-based real-time view

Current Lobby

Viewing lobby users in batch pilot

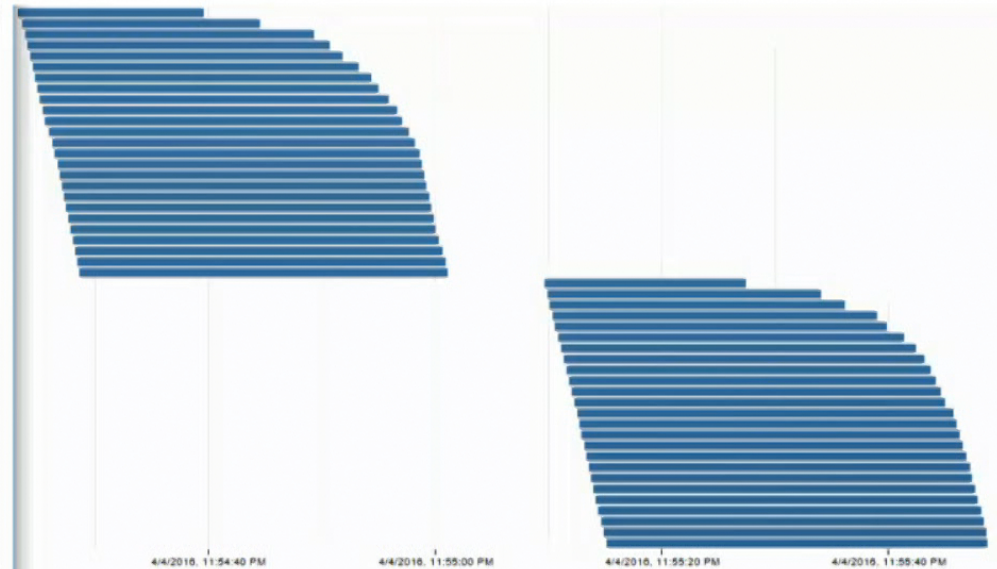
50 users currently in lobby.

50 ready users currently in lobby.

next-game

Trigger Lobby Event

User	Status
(CPKadC3pazvG4ZFs_Worker)	READY
(2abY2bnX0jSF8CE_Worker)	READY
(AaP3p1A53paKACqKq_Worker)	READY
(fXVvP3h3aJbR3p_Worker)	READY
(uQ9nCCK3p3q3CMAI_Worker)	READY
(5uuGJ3W3hG3M3a_Worker)	READY
(wmc3d3qP3e3f3s3s_Worker)	READY
(E3gC3dW3G3F3umemT3_Worker)	READY
(R3GL3w3W3Q3v3Y373Z_Worker)	READY
(y3u3d3P3J3u3W3St3G_Worker)	READY
(K3d3y3Z3D3C3u3J3Y3N_Worker)	READY
(K3E3b3D3b3G3e3R3Z3L3o3l_Worker)	READY
(p3B3y3T3D3y3W3L3E3M3u3s_Worker)	READY
(x3Y3e3a3E373B3y3f3b3e3J_Worker)	READY
(R3u3d3B3W3v3q3R3Z3g3p_Worker)	READY
(q3q3d3d3J3L3S3A3u383u3s_Worker)	READY
(Z3p3C3R3N3L3p3G3a3u3e3v3_1_Worker)	READY
(L3u3d3G3u3R3q3d3J3b3Y_Worker)	READY
(d3d3y3g3A373d3M3W3_63_Worker)	READY
(a3d3L3W3D3u3z3L3J3K3e3_Worker)	READY
(T3e3u3d3Z3Y3b3b3W3P3_Worker)	READY
(33u3G3u3Q3C3W3L3p3J_Worker)	READY
(u3e3d3u3d3v3b3D3u3d3R3_Worker)	READY
(N3D3Y3E3b3A3z3T3p3W3b3c_Worker)	READY
(R3C3e3d3Y3J3S3Q3P3ev3y_Worker)	READY
(a3d3H3G3W3M3e3f3e3D3T3W3_Worker)	READY
(x3J3W3v3q3Y3E3N3A3u3L3_Worker)	READY



Ongoing Experiments

Start Time	Duration	Treatments	Size	Users
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Completed Experiments

Start Time	Duration	Treatments	Size	Users
4/4/2016, 11:55:15 PM	0:00:33	main	2	[jw3BLSYw6toGwWeb_Worker] [qTqd8hYXZ2aZmaoK_Worker] 
4/4/2016, 11:55:14 PM	0:00:33	main	2	[8fP6mL8uicm8fUTJ_Worker] [8AL8iyf48G6M8aqq_Worker] 
4/4/2016, 11:55:14 PM	0:00:33	main	2	[Y3aZm5W52a8Py6_Worker] [M3pJhA6s1Egagq8_Worker] 
4/4/2016, 11:55:14 PM	0:00:33	main	2	[Qd8Reu8R6zA8a8uK8_Worker] [m8G5GpY8T8a8aTen_Worker] 
4/4/2016, 11:55:14 PM	0:00:33	main	2	[8e7C8d8e8f7E8d8E_Worker] [8a8e88b8c78p8eey_Worker] 
4/4/2016, 11:55:13 PM	0:00:33	main	2	[8a8e88Z78p8tW8a8s8_Worker] [8q8a8fY8d88q8A8a8s8_Worker] 
4/4/2016, 11:55:13 PM	0:00:33	main	2	[8M8G238f8b8z8w8M8c8_Worker] [88K88e8f8q8h8E8W88_Worker] 

HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)



Period
Trial 1 of 2
Remaining time [sec] 0
Please reach a decision

You are bidder 1

Your Private Value is 49

The auction has ended.

Winning price 11

Time left (Seconds) The auction has ended.

History 5 bids

Winning bidder bidder 2

You did not trade

Bidder ID	Bid Amount (POINTS)	Time of the Bid (Seconds Left)
bidder 2	26	33
bidder 4	11	39
bidder 5	5	43
bidder 4	3	45
bidder 4	2	50
bidder 1	2	55

Your earnings in this round (up to now) 0

Your total earnings 0

continue

TITLE

z-Tree: Zurich toolbox for ready-made economic experiments
U Fischbacher
Experimental economics 10 (2), 171-178, 2007

CITED BY

8068

So...

- Companies probably won't do essential research
- Academics probably won't build open-source tools

So...

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Machine Learning: A Case Study

For better or for worse.

Standard Datasets

ImageNet Challenge

IMAGENET

- 1,000 object classes (categories).
- Images:
 - 1.2 M train
 - 100k test.



2

Deep Image: Scaling up Image Recognition

Ren Wu, Shengen Yan, Yi Shan, Qingqing Dang, Gang Sun

(Submitted on 13 Jan 2015 (v1), last revised 6 Jul 2015 (this version, v5))

IMGENET Large Scale Visual Recognition Challenge 2015 (ILSVRC2015)

Delving Deep into Rectifiers: Surpassing Human-Level Performance on ImageNet Classification

[Kaiming He](#), [Xiangyu Zhang](#), [Shaoqing Ren](#), [Jian Sun](#)

(Submitted on 6 Feb 2015)

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Batch Normalization: Accelerating Deep Network Training by Reducing Internal Covariate Shift

Sergey Ioffe, Christian Szegedy

(Submitted on 11 Feb 2015 (v1), last revised 2 Mar 2015 (this version, v3))

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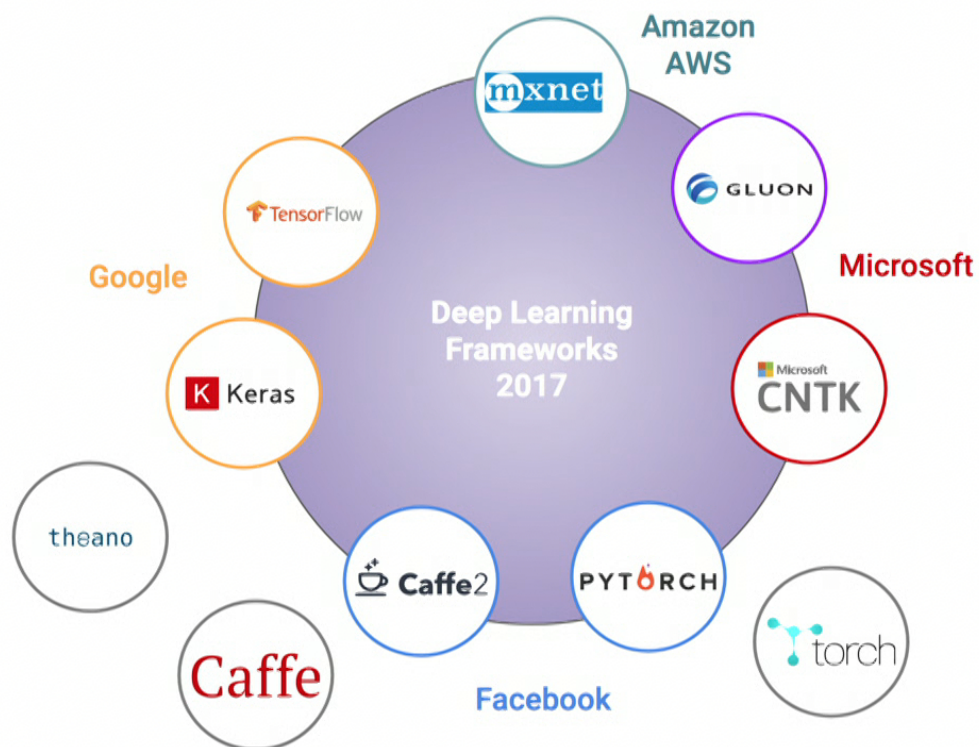
Baidu banned from ILSVRC 2015

JUNE 4, 2015 BY SATYA MALLICK — 0 COMMENTS



IMAGENET Large Scale Visual Recognition Challenge 2015 (ILSVRC2015)

Open Source Everything



Industry/Academia revolving door

Twitter acquires machine learning startup
Whetlab, will kill the service on July 15

The startup, a team of five, was only around a year old at the time of the acquisition.

Industry/Academia revolving door

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Ryan P. Adams

Professor of Computer Science

I am currently on leave at Google Brain.

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Princeton, NJ 08540-5233

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Artificial Intelligence Teams Being Acquired For \$2.5m/employee;

New Publication Methods

Machine Learning Research
Should Be Clear, Dynamic and Vivid.
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Discussion

How do we produce open research on closed systems, especially in essential topics like computational social science?

How can academics build tools of lasting value?
(Do they even need to?)