

# Crowdsourcing and AI

CUI, spring 2022

Lecture 1

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UNIGE + UNITAR + CERN

# Prologue



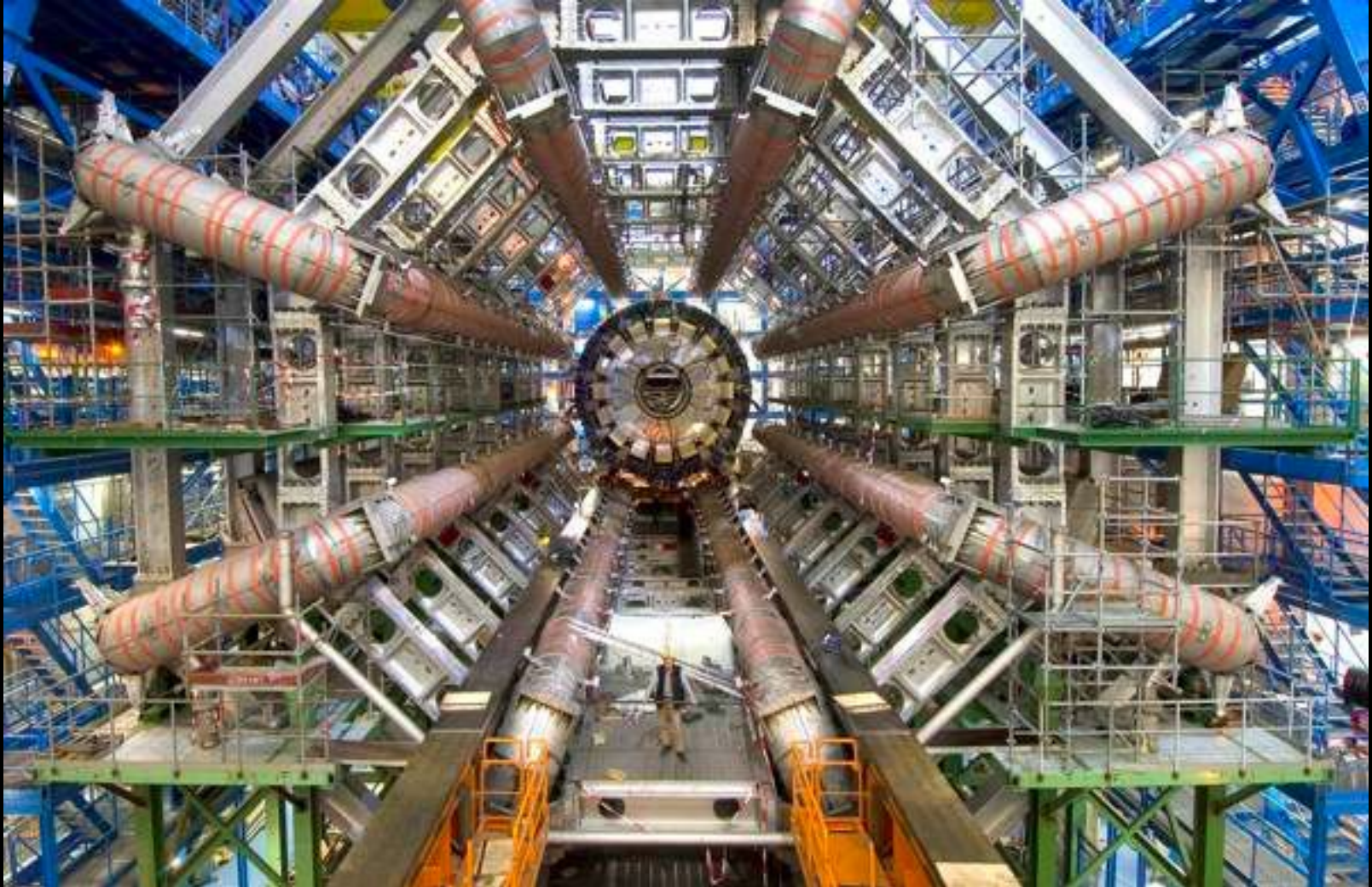
# Lecturer Background

# CERN





# The ATLAS Detector



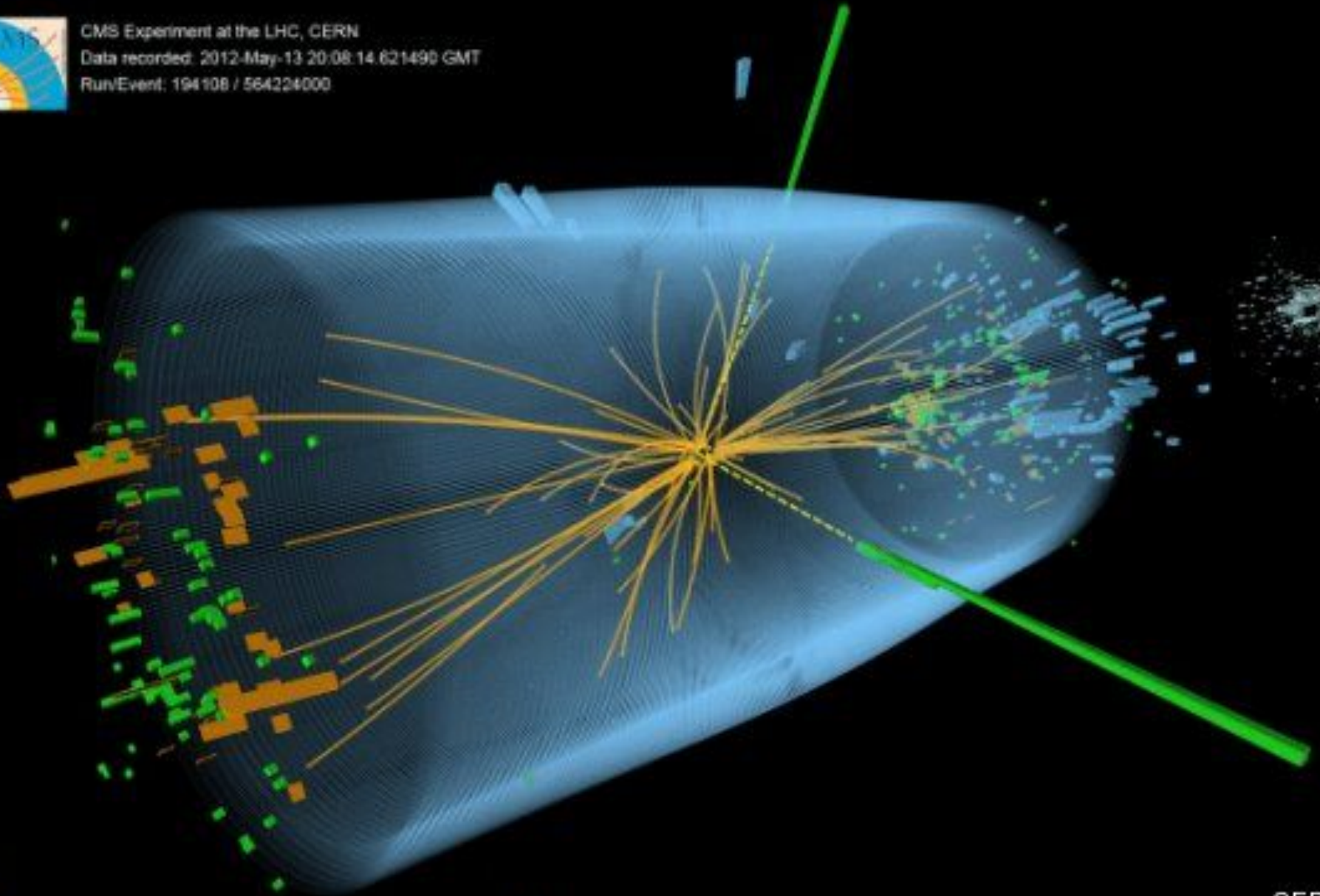
# The Higgs Boson



CMS Experiment at the LHC, CERN

Data recorded: 2012-May-13 20:08:14.621490 GMT

Run/Event: 194108 / 564234000



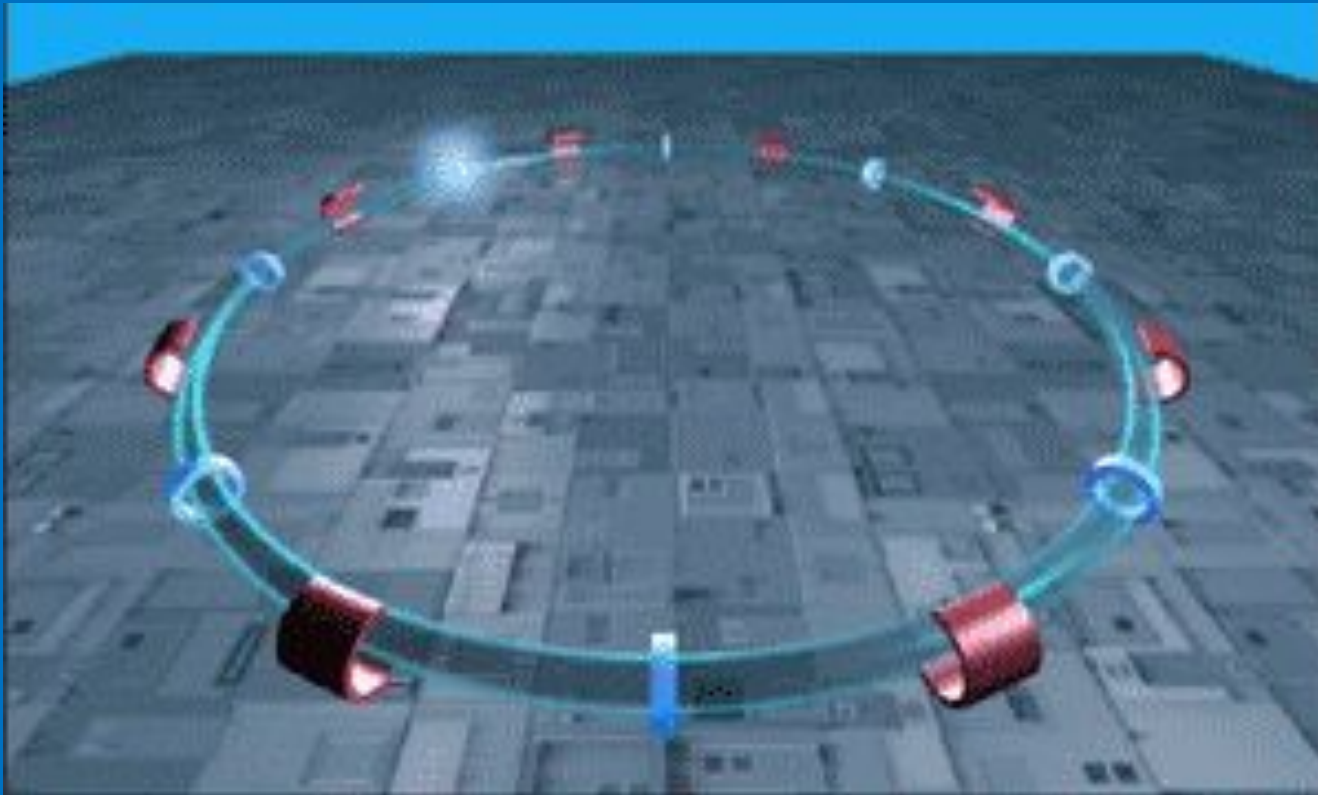


# 1999: SETI@home



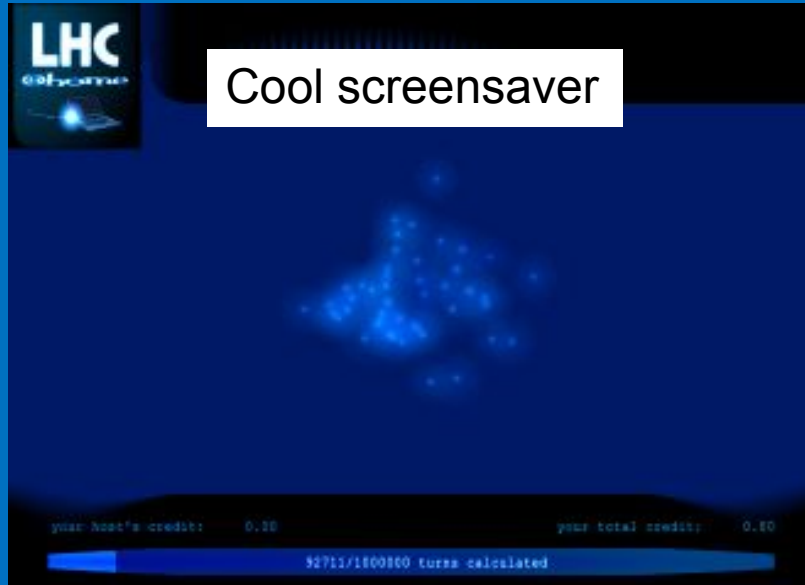


# 2004: LHC@home “Sixtrack” built on BOINC



# Why did volunteers participate?

Cool screensaver

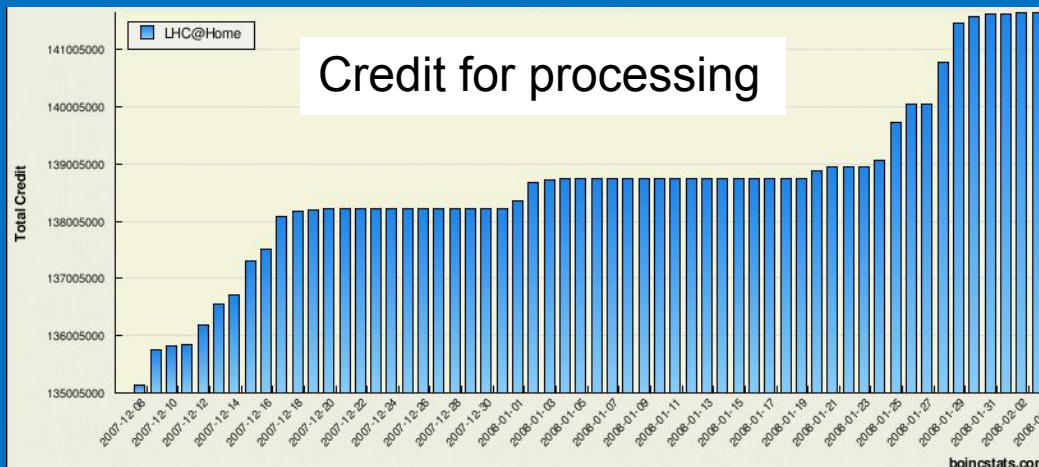


Message boards

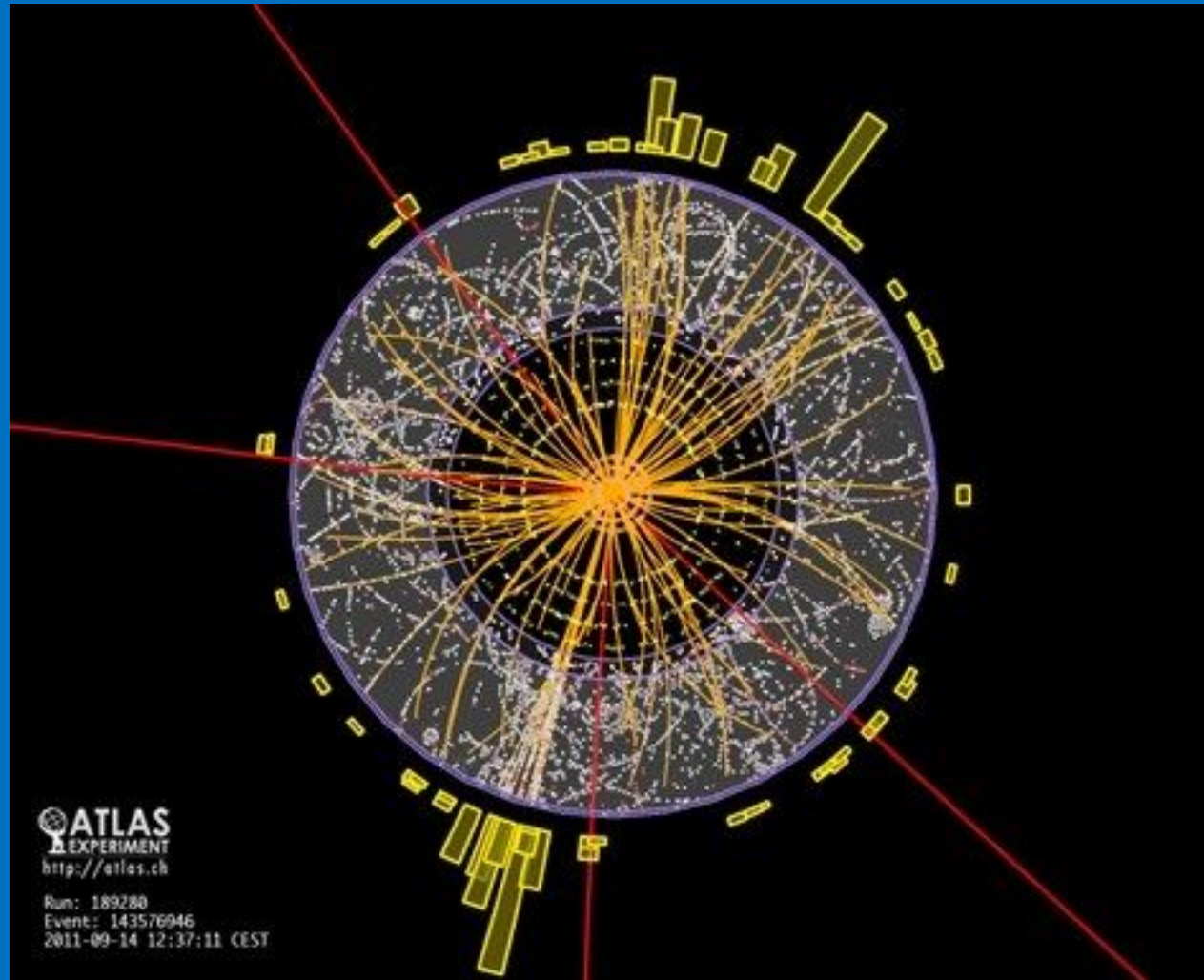
The screenshot shows a web browser window titled 'Message boards : LHC@home Science - Mozilla Firefox'. It displays a list of message board topics with their respective counts and authors.

Topic	Count	Author
*UK baffins sniff for Higgs	226	
CAST - Cern Axion Space Telescope made from LHC spare parts.	143	Alex
This website details the ATLAS detector.	178	Alex
LHC and Muon??	503	ric
:	481	PoorBoy
Does 'protwelve' WU refer to tuning of magnet twelve?	349	Alex
[R] Physics special magazine issue	112	leaden
About the status report	246	Arnaud
What exactly do we Calculate?	335	gyxvi
great link about the LHC	168	Guido.Waldermeier.Remember

Credit for processing

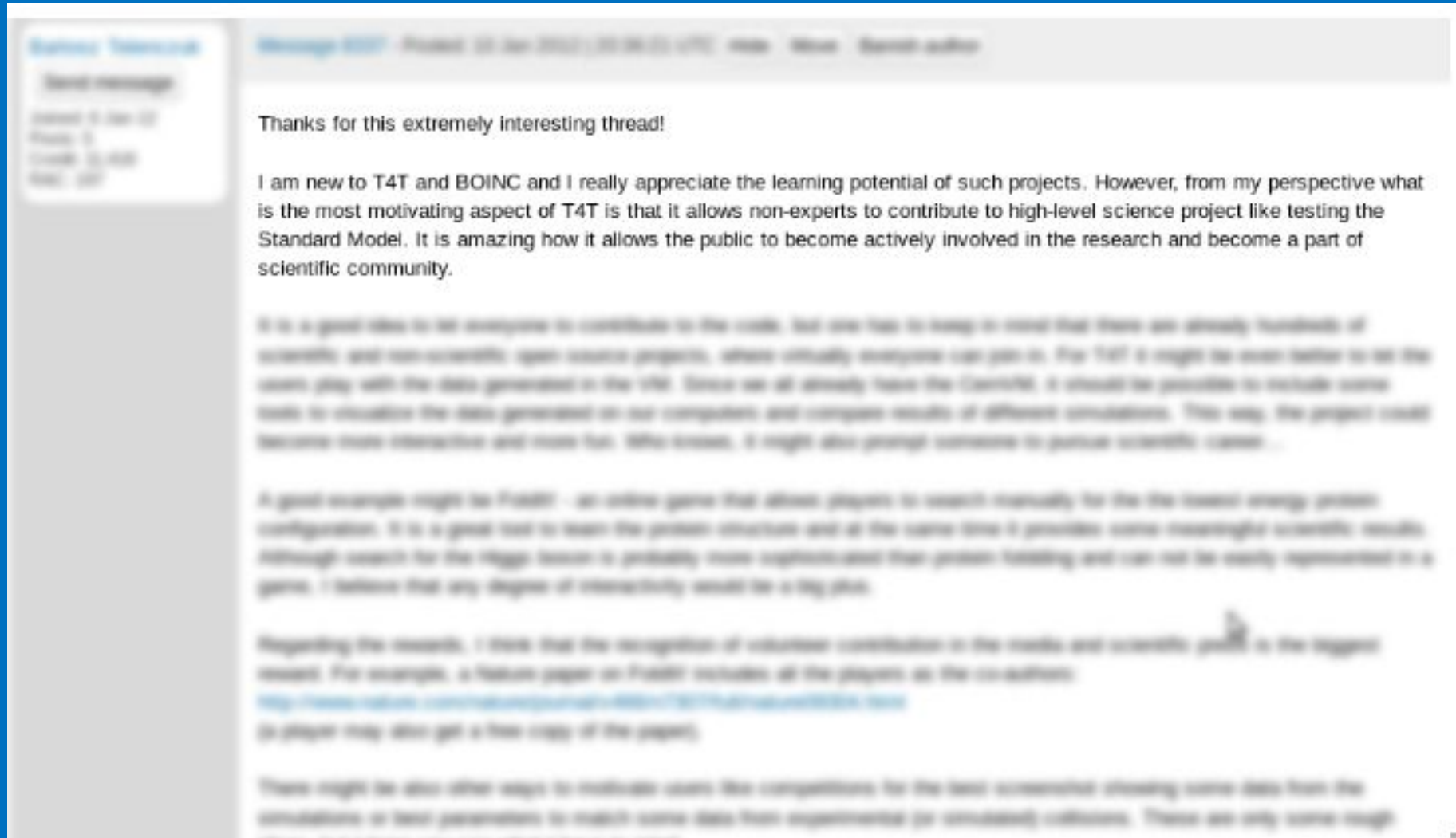


# 2011: LHC@home “Test4Theory”





## Comment by a volunteer



# Technological Context

# Crowdsourcing for Science

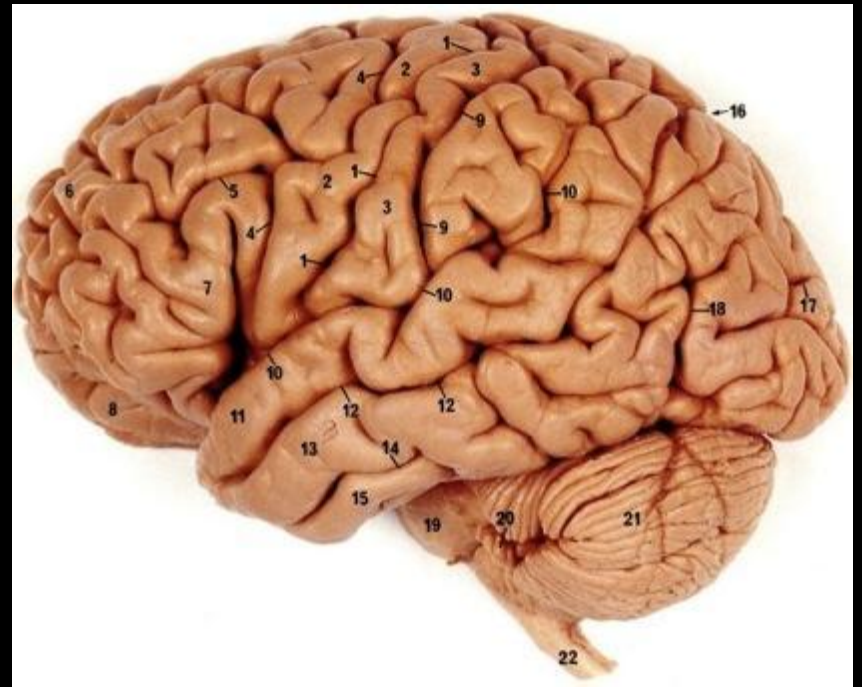
The largest scientific resource on the planet?



2bn



5bn



7bn



# Crowdsourcing for Science:

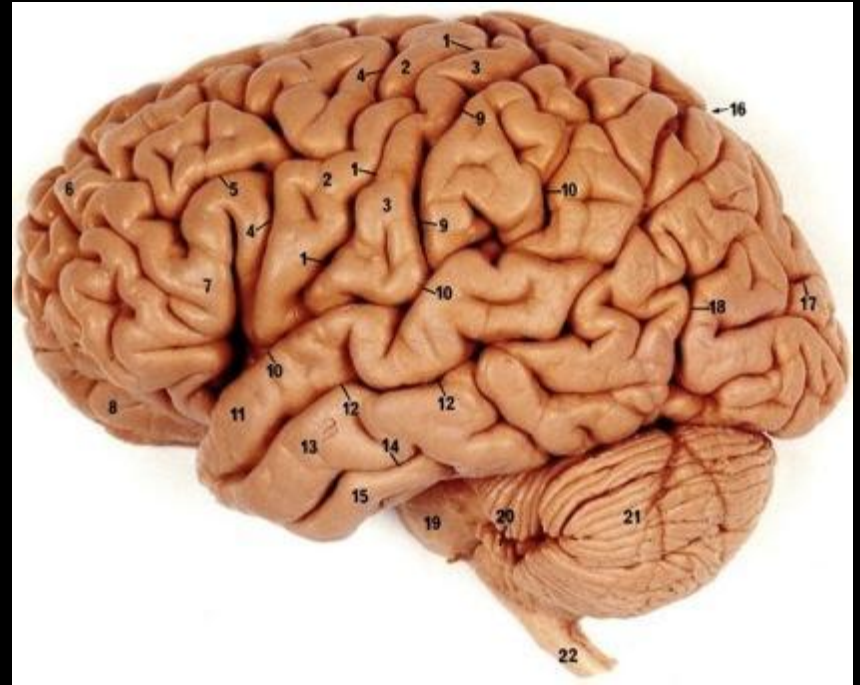
## A range of approaches



Volunteer  
Computing

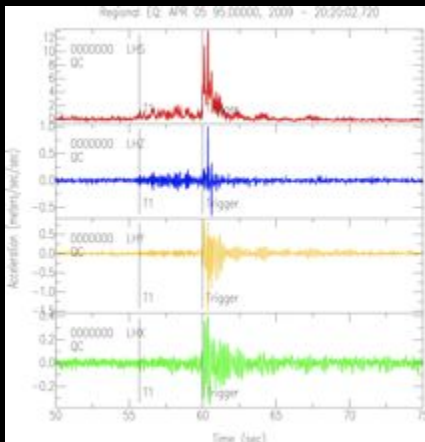


Volunteer  
Sensing



Volunteer  
Thinking

# Quake Catcher Network: volunteer seismic detection



# Epicollect: volunteer epidemiological data





# GalaxyZoo:

## Volunteer galaxy classification

### part of Zooniverse



The screenshot shows the Galaxy Zoo interface. On the left is a large image of a galaxy with a grid overlay. The grid has labels 'N' at the top, 'S' at the bottom, 'E' on the left, and 'W' on the right. A scale bar in the top left corner indicates 5". Below the image is a checkbox labeled "Show Grid Overlay on the next Image" which is checked.

Galaxy Ref.  
**587738568174207155**

Choose the Galaxy Profile  
by clicking the buttons  
below

    
CLOCK ANTI EDGE ON/  
Spiral Galaxy UNCLEAR

  
ELLIPTICAL GALAXY

   
STAR / MESSIER  
DON'T KNOW

If you find something REALLY unusual or strange and it does not look like anything in the [how to get started section](#) or in the [FAQ](#), then post it up on the [Forum](#) or drop us an email with the reference number.

# Foldit: volunteer protein folding



The screenshot displays the Foldit game interface. On the left, a 3D protein structure is shown with various colored segments (green, blue, red, yellow) and a glowing blue aura. The structure is composed of interconnected loops and helices. On the right, a dark grey panel displays the player's rank and score, along with competition leaderboards.

Rank: 41      Score: 7054  
47: Human Fyn

▼ Group Competition

#	Group Name	Score
1	Window Group	9168
2	Truman College	9166
3	Street Smarts	9164
4	The Lone Folder	9162

▼ Player Competition

#	Player Name	Current	Best
1	ccarrico	-	9168
2	charlesabrams	-	9166
3	zzaltz	-	9164
4	ferzle	-	9162
5	Ninning	-	9158
6	Thor	-	9158

► Chat

At the bottom left, a toolbar contains icons for various actions: Shake Sidechains, Wiggle Backbone, Clear Locks and Bands, Reset Puzzle, and Mouse Help. Below the toolbar are menu items: Actions, History, View, and File. At the bottom right, a 'Pull Tool' icon is visible.

# Institutional Context





University of Geneva  
UN Institute for Training and Research  
European Organization for Nuclear Research

“Rethinking Public Participation”