Connecting people and resources to accelerate discovery by empowering the science gateway community

Social Media Macroscope

Joseph T. Yun
Leader, Social Media Analytics, Tech Services (Research IT)
PhD Candidate, Illinois Informatics Institute

Science Gateways Community Institute
“But what if we want to better understand the complex systems or networks within which we operate and which have a profound, if often unperceived, impact on our lives? This is where macrosopes become such useful tools. They allow us to go beyond our focus on the single organism, the single social or natural phenomenon, or the single development in technology. Instead, macrosopes allow us to gather vast amounts of data about many kinds of organisms, environments, and technologies. And from that data, we can analyze and comprehend the way these elements co-exist, compete, or cooperate.”

Napkin Drawing

An open social media analytics environment for scientific research...
Value Proposition

The Social Media Macroscope will help researchers analyze social media data by providing an analytics platform that provides cutting-edge open computational methods research within an easy-to-use interface.
Current Market Landscape

Benefit for Researchers focused on applying computational methods to social research questions utilizing social media data

Ease of Use

Facebook, Twitter etc. Built-In Analytics
Aggregators like Crimson Hexagon
Free sites like socialmention.com
IBM Watson for Social Media
Python, R, etc.

Transparency of Methodology

Social Media Macroscope
Current Market Landscape

Benefit for Researchers focused on building new computational methods/models utilizing social media data

Breadth of Social Media Data Access

- Aggregators like Crimson Hexagon
- Free Public APIs for Social Media Data

Ability to Test & House Customized Models

- Social Media Macroscope
- Purchasing Data for GNIP and other social platforms
High Level Architecture

Web Gateway Platform

Social Media Analytics Gateway
- Public Land
  - Advertising
  - Current Trends
  - News
  - Outreach

Private Access
- AUTH
- Authenticated User Land
- Discuss
- Wiki
- Colab Space

Analysis Methods Repo
Tools
Machine learning

Data Gathering Filter Repo

Data Gathering Engines

Data Repo

Input Data Repo

Private Data Import

Analytics Engines
Machine learning

Metadata Scratchpad

Elastic computing resources

Socal Media APIs

Elastic computing resources

DB
Dedup
Block storage
Object storage
Curation/LT storage
Export
Private dataspace

Visualize
Publish

Curatation/LT storage
Export

DB
Object storage
Block storage

Social Media Analytics Gateway
Architectural Concept Draft 1.3
April 2017
Future Audience Segments

Academia
- Impact Tracking?
- Computational Methods Research
- Social Research

Government
- Homeland Security
- Emergency Response

K-12
- Data Science Education
- Employment
- Marketing

For-Profit
- Social Media Awareness Programs
- Logistics
Today

• All the pieces you will hear today are examples of what kind of research could be built into the macroscope

• EXAMPLE
  • Utku Pamuksuz and I built a hybrid (unsupervised and supervised) machine learned model for detecting brand personality for brands using social media data
  • We would house the model in the macroscope (instead of just GitHub where people need to understand coding to run our code)
  • Allows for reproducibility of research against real data (without necessarily giving access to raw data)
  • Allows for people to easily build research through using this model
The Team

• **Leadership Team Snapshot**
  • John Towns, XSEDE PI & Deputy CIO of Research IT
  • Joe Yun, Leader, Social Media Analytics
  • Kevin Chang, Computer Science
  • Jana Diesner, iSchool
  • Indiana U Observatory of Social Media Team

• **Advisor Snapshot**
  • Robert Brunner, Accountancy/iSchool
  • Numerous faculty members across many disciplines
  • NSF Science Gateways Community Institute
Connecting people and resources to accelerate discovery by empowering the science gateway community

Social Media Macroscope

Joseph T. Yun
Leader, Social Media Analytics, Tech Services (Research IT)
PhD Candidate, Illinois Informatics Institute