Introduction aux Sciences Sociales Computationnelles

Interface SHS / sciences computationnelles

Présentation du module

Une introduction

- Différentes notions
  - Un panorama transversal
- Une approche projet
  - Orientée computationnel
- L'occasion d'échanger

Qui suis-je ?

Entre les sciences sociales et les infrastructures numériques

- Formé en physique appliquée
- Thèse & recherche en sociologie
- Data scientist @ CREST

Me contacter : emilien.schultz@ensae.fr

Déroulement

- Aujourd'hui
  - Introduction aux sciences sociales computationnelles
  - Collecte de données Bluesky + [Hands on]
  - Analyse exploratoire et visualisation + [Hands on]
- Demain
  - Introduction au NLP + [Hands on]
  - Introduction à l'analyse de réseaux + [Hands on]
  - Avancer sur le projet

Le dépôt

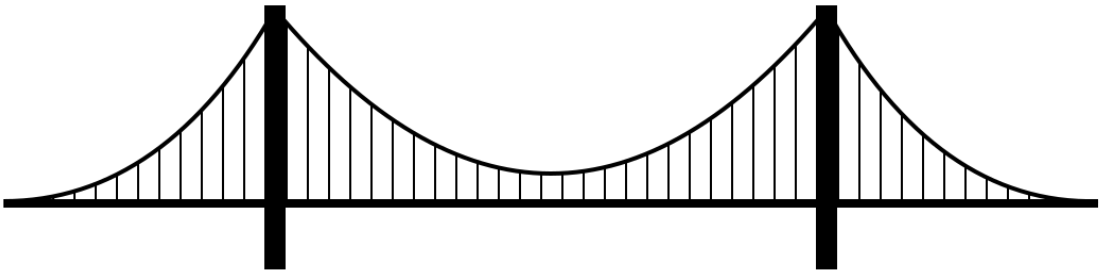
Le dépôt du cours https://github.com/emilienschultz/sscmarseille

- Les slides
- Les scripts

Les sciences sociales computationnelles

Deux polarités

- Les sciences computationnelles/informatiques
- Les sciences humaines et sociales



Que sont les SHS ?

- Différence entre sciences humaines & sociales ?
- Quelles disciplines ?
- Quelles questions les animent ?


E. Spanier lith. du Roi

Projet des sciences sociales

Rendre compte du monde social

Trois mouvements :

- Décrire le monde social
- Problématiser[1]
- Expliquer

“Nouvel” axe numérique

- Division historique en SHS
  - quali/quanti
- Recompositions
  - “Quali, quanti, ordi” (É. Ollion)

[1]« Le savant n’est pas l’homme qui fournit les vraies réponses, c’est celui qui pose les vraies questions. » Claude Lévi-Strauss, Le cru et le cuit.

La promesse des SSC

The golden age of social science

Anastasia Buyalskaya[a,1], Marcos Gallo[a], and Colin F. Camerer[a,b]

Edited by Matthew O. Jackson, Stanford University, Stanford, CA, and approved November 23, 2020 (received for review May 14, 2020)

Social science is entering a golden age, marked by the confluence of explosive growth in new data and analytic methods, interdisciplinary approaches, and a recognition that these ingredients are necessary to solve the more challenging problems facing our world. We discuss how developing a "lingua franca" can encourage more interdisciplinary research, providing two case studies (social networks and behavioral economics) to illustrate this theme. Several exemplar studies from the past 12 y are also provided. We conclude by addressing the challenges that accompany these positive trends, such as career incentives and the search for unifying frameworks, and associated best practices that can be employed in response.

interdisciplinarity | diverse teams | new data | difficult challenges

Social science is entering a golden age (1). A rise in interdisciplinary teams working together to address pressing social challenges, leveraging the explosive growth of available data and computational power, defines this moment. Each of these trends has been written about individually—the "big data revolution" has been transforming social science for several years (1), and the benefits of diverse teams are increasingly recognized and quantified (2, 3). We argue that it is the confluence of data, diverse teams, and difficult challenges which makes this a unique and exciting

We hope our perspective will encourage scientists to take advantage of new datasets and form diverse collaborations to answer pressing questions. We direct these ideas especially to funding agencies and academic institutions, to convince them to provide more funding for this type of work. Ultimately, we wish to see an acceleration in work that addresses difficult challenges. For instance, the COVID-19 pandemic illustrates how large-scale problems will only be solved by many scientists contributing what they know best.

D'autres étiquettes...

Lien entre sciences sociales et sciences informatiques

- Informatique en sciences sociales
- Humanités numériques
- Sociologie/histoire/... numérique/informatique
- Big data
- Social physics
- Humanités computationnelles
- ...

Tentative de définition

> « La notion de « computationnel » appliquée aux humanités renvoie à une utilisation poussée des algorithmes pour analyser les données des sciences humaines, qui transcende la simple numérisation des documents ou l'utilisation superficielle d'un logiciel prêt à l'emploi [...] Autrement dit, les méthodes computationnelles ne viennent pas simplement s'ajouter à la boîte à outils existante ; elles redéfinissent en profondeur les questions que les chercheurs peuvent poser et les connaissances qu'ils peuvent en tirer. » (Henriot et Armand, p. 6)

> « We define CSS as the development and application of computational methods to complex, typically large-scale, human (sometimes simulated) behavioral data » (Lazer et al., 2020, p. 1)

> « Computational social science is an interdisciplinary field that advances theories of human behavior by applying computational techniques to large datasets from social media sites, the Internet, or other digitized archives such as administrative records. » (Edelmann et al., 2020, p. 2)

Pas de définition univoque, plutôt un *air de famille*

Une évolution récente

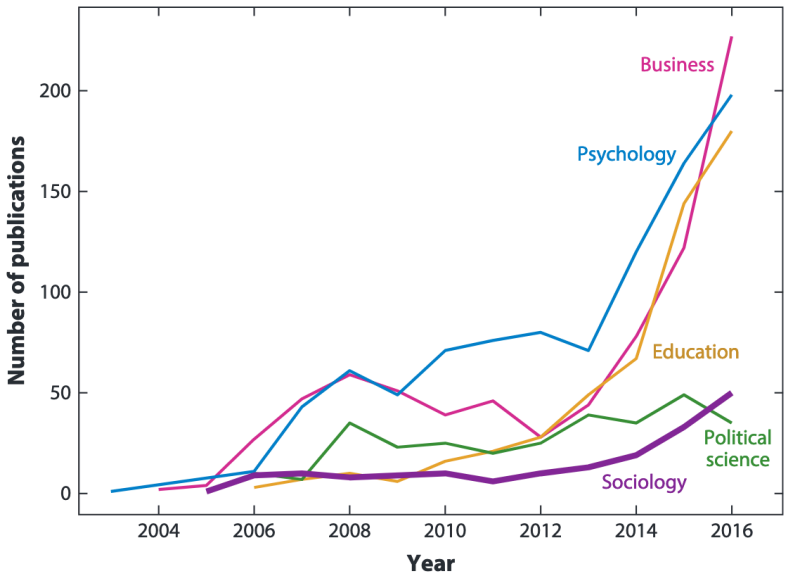
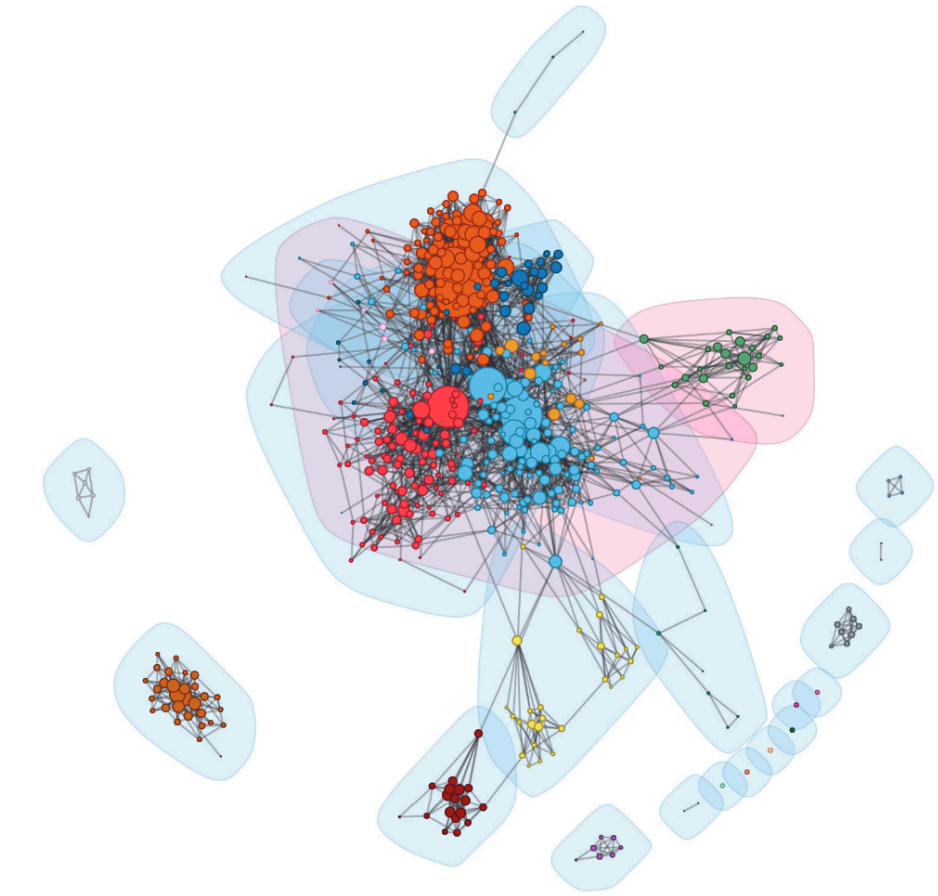


Figure 1

Number of computational social science publications by year—2003–2016—across four scholarly disciplines.

Edelmann, Achim, Tom Wolff, Danielle Montagne, et Christopher A. Bail. 2020. « Computational Social Science and Sociology ». Annual Review of Sociology 46(1): annurev-soc-121919-054621. doi:10.1146/annurev-soc-121919-054621.

Dans de nombreuses disciplines



- Communication (25)
- Sociology (24)
- Political science (22)

- Sociology (19)
- Anthropology (15)
- Management (6)

- Business (7)
- Management (1)

- Multidisciplinary psychology (1)

- Management (74)
- Business (43)
- Information science and library science (20)

- Geography (8)
- Multidisciplinary sciences (4)
- Sociology (3)

- Experimental psychology (4)
- Multidisciplinary psychology (2)
- Psychology (2)

- Business (1)
- Management (1)

- Geography (28)
- Communication (23)
- Social sciences, interdisciplinary (22)

- Experimental psychology (10)
- Developmental psychology (5)
- Educational psychology (3)

- Business (3)
- Management (3)
- Sociology (1)

- Sociology (1)

- Business and finance (20)
- Law (5)
- Business (4)

- Social psychology (5)
- Multidisciplinary psychology (2)
- Educational psychology (1)

- Social psychology (2)
- Experimental psychology (1)
- Mathematics, interdisciplinary applications (1)

- Hospitality, leisure, sport and tourism (1)

- Clinical psychology (17)
- Social sciences, interdisciplinary (14)
- Social sciences, biomedical (8)

- Applied psychology (7)
- Business (3)
- Management (3)

- Political science (2)
- International relations (1)

- Multidisciplinary psychology (1)
- Psychology (1)

- Experimental psychology (15)
- Behavioral sciences (10)
- Neurosciences (9)

- Management (3)
- Sociology (2)
- Business (1)

- Educational psychology (1)
- Social psychology (1)

- Area studies (1)
- Political science (1)

(Caption appears on following page)

Pourquoi ?

- De nouvelles méthodes permises par l'informatique
  - NLP, ABM, …
- De nouvelles données
  - Administratives, etc.
- De nouveaux objets
  - Médias sociaux

Amène des promesses :

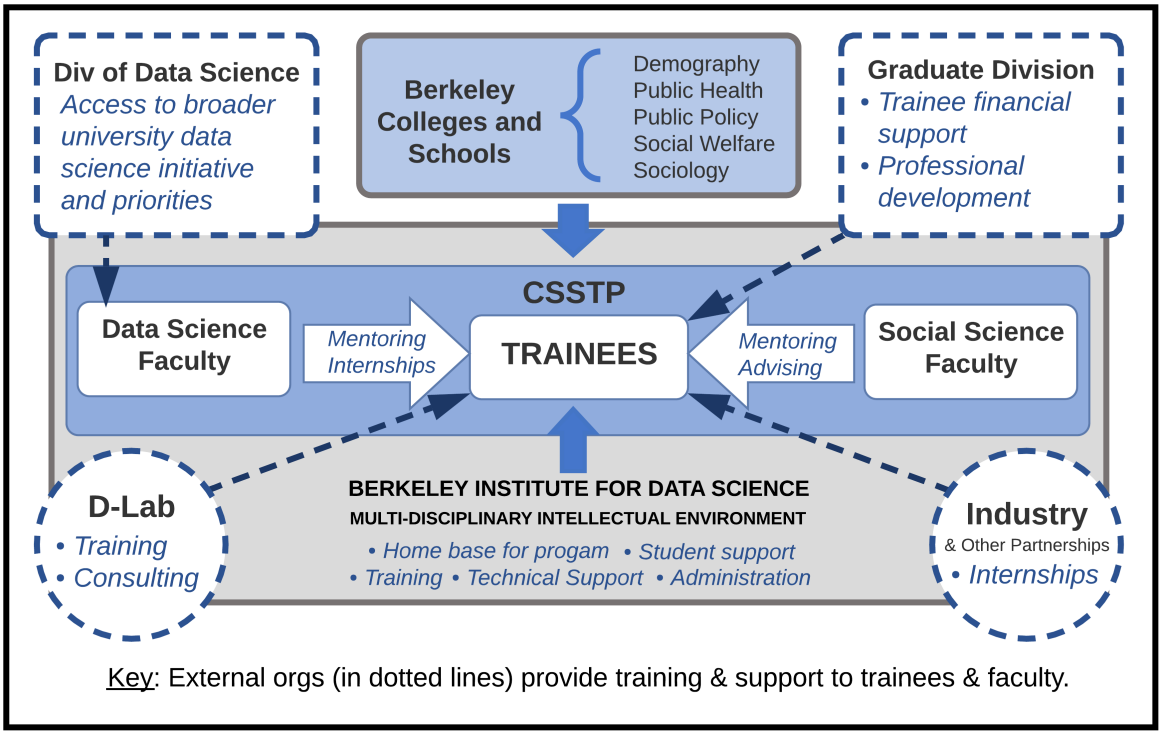
- De nouveaux résultats
- De nouvelles épistémologies (data-based science)

Besoin de nouvelles compétences

- Informatique
  - Programmation
  - Développement
- Mathématiques
- Spécialisées
  - TAL
  - ML/DL
  - Data viz

De nouveaux parcours

Computational Social Science Training Program (CSSTP) au Berkeley Institute for Data Science (BIDS)



Key: External orgs (in dotted lines) provide training & support to trainees & faculty.

Pour y faire quoi ?

Fig G. Representative examples of electives for CSSTP

Course Number	Title
EDUC 274D	Multidimensional Measurement
EDUC 275G	Hierarchical and Longitudinal Modeling
INFO 251	Applied Machine Learning
INFO 254	Data Mining and Analytics
PB HLTH 231A	Analytic Methods for Health Policy and Management
PB HLTH 240B / STAT C245B	Biostatistical Methods: Survival Analysis and Causality
PB HLTH 240C / STAT C245C	Biostatistical Methods: Comp Statistics w/ Applications in Biology & Medicine I
PB HLTH 240D / STAT C245D	Biostatistical Methods: Comp Statistics w/ Applications in Biology & Medicine II
PB HLTH 241	Statistical Analysis of Categorical Data
PB HLTH 242C / STAT C247C	Longitudinal Data Analysis
PB HLTH 244	Big Data: A Public Health Perspective
PB HLTH 250C	Advanced Epidemiologic Methods
PB HLTH 251C	Causal Inference and Meta-Analysis in Epidemiology
PB HLTH 252	Epidemiological Analysis
PB HLTH 252D	Introduction to Causal Inference
PB HLTH 252E	Advanced Topics in Causal Inference
PSYCH 206	Structural Equation Modeling
PUB POL 249	Statistics for Program Evaluation
PUB POL 275	Spatial Data and Analysis
PUB POL 288	Risk and Optimization Models for Policy
EDUC 260F / INFO C260F	Machine Learning in Education
EDUC 274A	Measurement in Education and Social Science I
EDUC 274B	Measurement in Education and Social Science II
EDUC 276A	Models and Methods of Evaluation
INFO 259	Natural Language Processing
PB HLTH 219D	Introduction to Survey Methods
PB HLTH 240A / STAT C245A	Introduction to Modern Biostatistical Theory & Practice
PUB POL 279	Research Design & Data Collection for Pub Policy Analysis
DEMOG C280/ SOCIOL C273N	Social Networks

Et d'autres

- MIASHS
- Humanités numériques
- Sociologie quantitative
- ...

Deux types de trajectoires

- **Des sciences sociales vers l'informatique**
  - Forte familiarité à certaines disciplines
  - Compétences acquises progressivement en numérique
- **Des sciences xp / exactes / ing aux SSC**
  - Plus de notions mathématiques / numériques
  - Familiarisation progressive avec les SHS

Au final, tout le monde apprend.

De nouveau profils

Dans les laboratoires

- Chercheurs spécialisés SSC
- Ingénieurs de recherche données
- Data scientist

Dans le privé, gradient :

- data analyst/scientist
- data journalist
- ingénieur NLP, etc.

Multiplication des postes

Et dans le privé

Et dans le privé

Arrivée de l'IA générative

PNAS PERSPECTIVE OPEN ACCESS

Can Generative AI improve social science?

Christopher A. Bail[a,b,c,1]

Edited by David Lazer, Northeastern University, Boston, MA; received September 7, 2023; accepted April 5, 2024, by Editorial Board Member Mark Granovetter

Generative AI that can produce realistic text, images, and other human-like outputs is currently transforming many different industries. Yet it is not yet known how such tools might influence social science research. I argue Generative AI has the potential to improve survey research, online experiments, automated content analyses, agent-based models, and other techniques commonly used to study human behavior. In the second section of this article, I discuss the many limitations of Generative AI. I examine how bias in the data used to train these tools can negatively impact social science research—as well as a range of other challenges related to ethics, replication, environmental impact, and the proliferation of low-quality research. I conclude by arguing that social scientists can address many of these limitations by creating open-source infrastructure for research on human behavior. Such infrastructure is not only necessary to ensure broad access to high-quality research tools, I argue, but also because the progress of AI will require deeper understanding of the social forces that guide human behavior.

Generative AI | computational social science | agent-based model | survey research | algorithmic bias

in different social milieux. Finally, I argue Generative AI has the potential to transform automated text analysis. Since Generative AI tools can analyze very large groups of documents in many different languages with great speed, I propose they may significantly expand the range of research questions that social scientists can study.

In the third section of this article, I turn to the various limitations and potential dangers associated with Generative AI. Much of the public discourse surrounding this new technology focuses on the possibility of a "singularity" where AI models supersede human intelligence and threaten our well-being. Many scholars believe such concerns eschew well-documented social harms that are already occurring in the short term (1). These include the tendency of Generative AI to exhibit strong bias against stigmatized groups, spread misinformation, and potentially exacerbate social inequality or climate change—among other negative outcomes. I discuss how these issues may negatively impact the quality, efficiency, interpretability, and replicability of social science research as well—and generate new questions about ethics and the protection of human subjects. I also evaluate the potential of these models to generate and disseminate "junk science" which could impede scientific inquiry for years to come. Mitigating each of these risks is challenging, I argue, because the processes used to train Generative AI are largely

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Une tension fondamentale

- Multiplicité des SHS
- Multiplicité des compétences numériques
  - DevOps
  - NLP
  - ABM
  - SIG

Au final, c'est quoi les SSC ?

Surtout que tout est informatisé

- **Boîte à outils** : un ensemble de méthodes
- **Orienté données**: l'intégration de nouvelles données peu conventionnelles
- **Interface** : lieu d'échange entre SHS et SC

Études de cas

Que font les SSC ?

- Poser des questions de sciences sociales
- Y répondre avec des données/méthodes computationnelles

Deux volets :

- recherche : nouvelles méthodes/questions
- ingénierie : mise en oeuvre/outils

Comprendre par la diversité des travaux existants (en recherche)

Humanities & Social Sciences Communications

ARTICLE

https://doi.org/10.1057/s41599-021-00815-9 OPEN

Computational appraisal of gender representativeness in popular movies

Antoine Mazières [1✉], Telmo Menezes[1] & Camille Roth[1,2]

Gender representation in mass media has long been mainly studied by qualitatively analyzing content. This article illustrates how automated computational methods may be used in this context to scale up such empirical observations and increase their resolution and significance. We specifically apply a face and gender detection algorithm on a broad set of popular movies spanning more than three decades to carry out a large-scale appraisal of the on-screen presence of women and men. Beyond the confirmation of a strong under-representation of women, we exhibit a clear temporal trend towards fairer representativeness. We further contrast our findings with respect to a movie genre, budget, and various audience-related features such as movie gross and user ratings. We lastly propose a fine description of significant asymmetries in the *mise-en-scène* and *mise-en-cadre* of characters in relation to their gender and the spatial composition of a given frame.

Référence

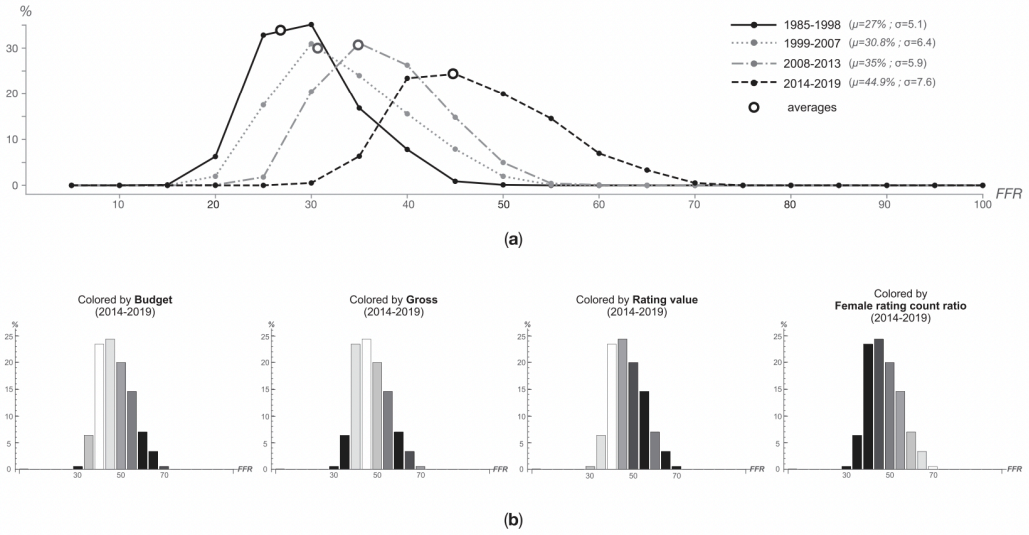
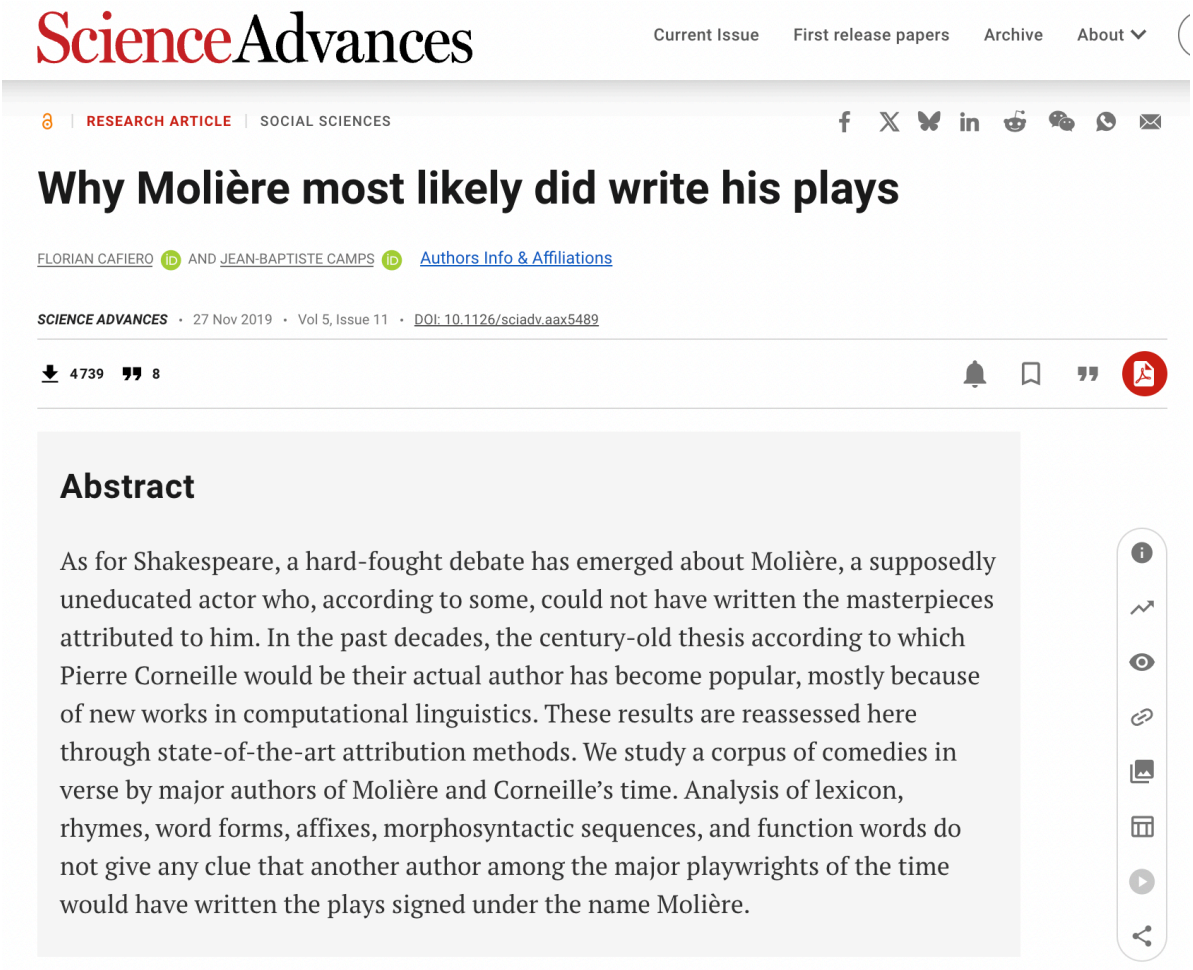


Fig. 4 Distributions of female face ratio (FFR). a Distributions of FFR for each period: Percentage of movies with a given FFR, one data point every 5%. **b** Distributions of several features over the distribution of FFR: Percentage of movies with a given FFR, colored by the given variable mean within the bin, the lighter the higher.

Project SNOOP

Stylométrie



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RESEARCH ARTICLE | SOCIAL SCIENCES

Why Molière most likely did write his plays

FLORIAN CAFIERO AND JEAN-BAPTISTE CAMPS Authors Info & Affiliations

SCIENCE ADVANCES • 27 Nov 2019 • Vol 5, Issue 11 • DOI: 10.1126/sciadv.aax5489

4739 8

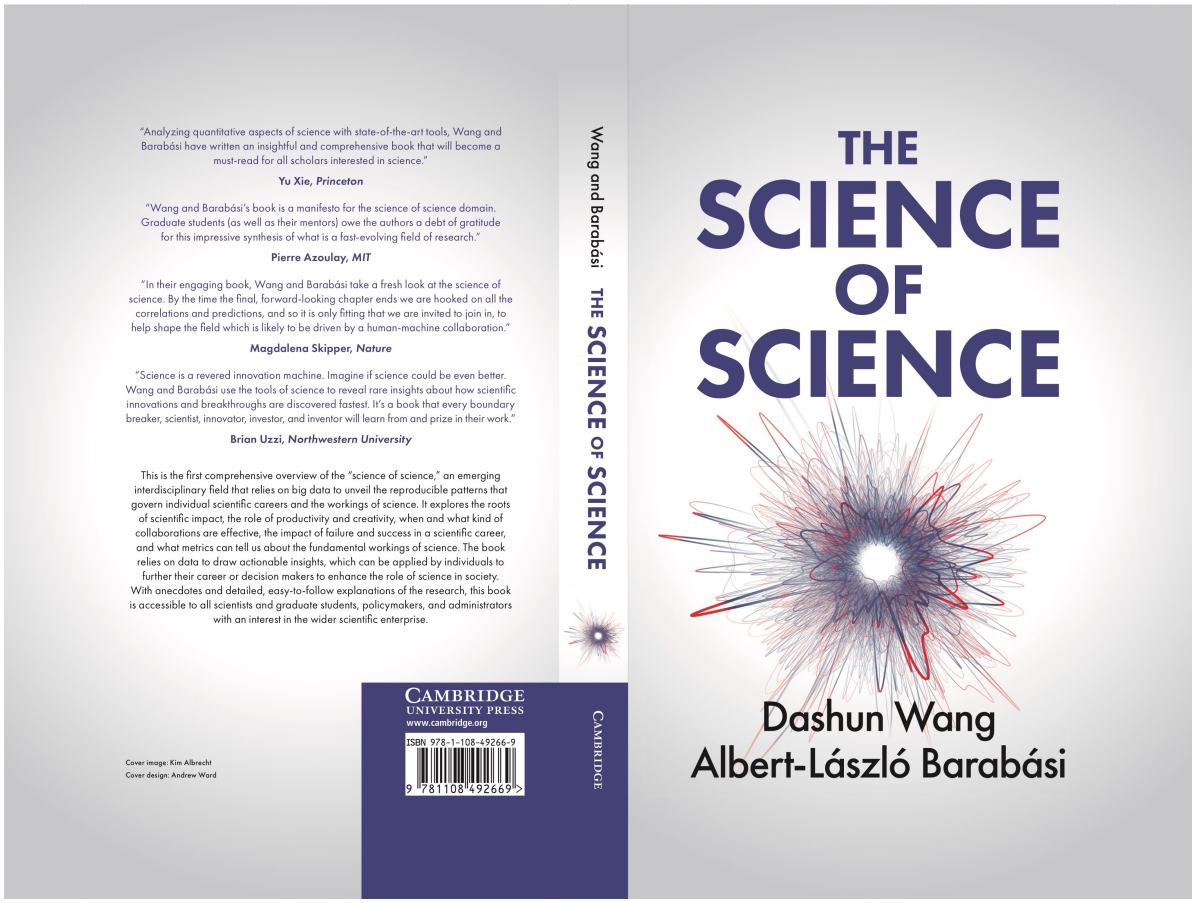
Abstract

As for Shakespeare, a hard-fought debate has emerged about Molière, a supposedly uneducated actor who, according to some, could not have written the masterpieces attributed to him. In the past decades, the century-old thesis according to which Pierre Corneille would be their actual author has become popular, mostly because of new works in computational linguistics. These results are reassessed here through state-of-the-art attribution methods. We study a corpus of comedies in verse by major authors of Molière and Corneille's time. Analysis of lexicon, rhymes, word forms, affixes, morphosyntactic sequences, and function words do not give any clue that another author among the major playwrights of the time would have written the plays signed under the name Molière.

Référence

Scientométrie

Référence



Politisation & médias sociaux

Référence

Multidimensional political polarization in online social networks

Antonio F. Peralta [1,2,*] Pedro Ramaciotti,[3] János Kertész [1,4] and Gerardo Iñiguez [1,5,6,7,†]

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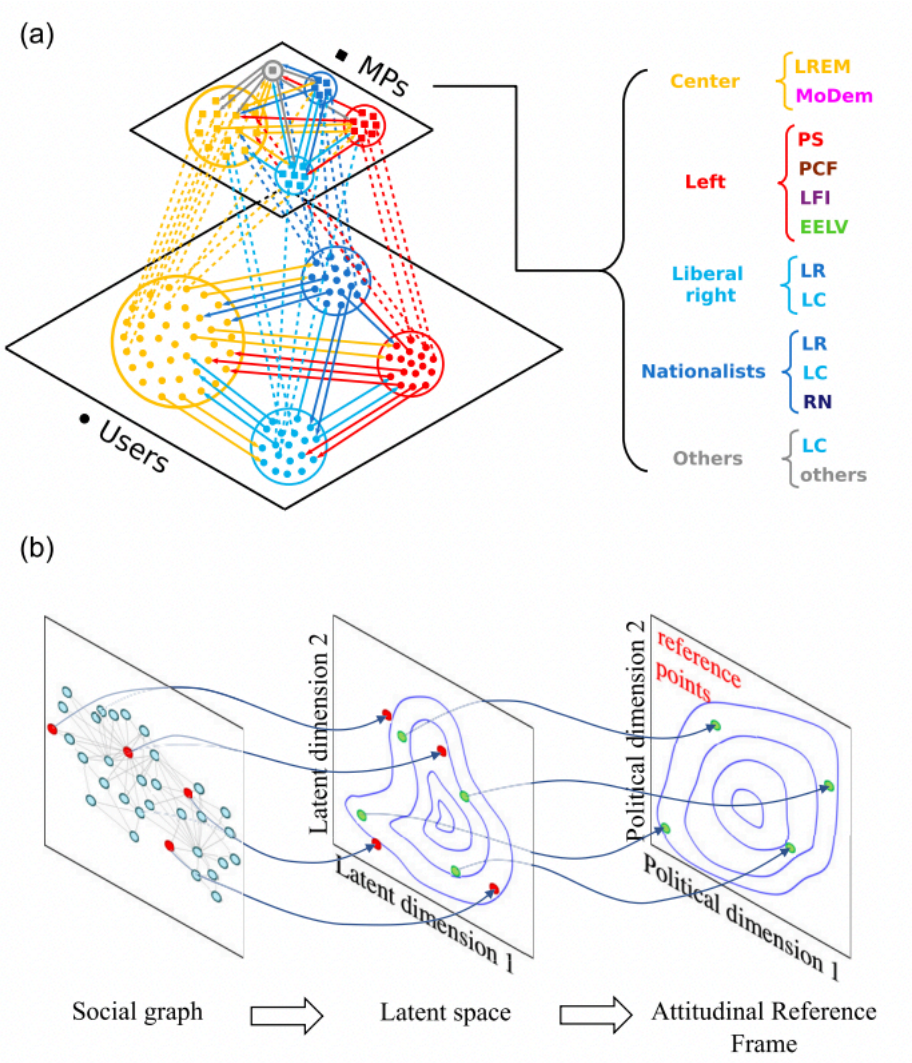
[7]*Centro de Ciencias de la Complejidad, Universidad Nacional Autonóma de México, 04510 Ciudad de México, Mexico*

(Received 21 June 2023; accepted 21 December 2023; published 16 February 2024)

Political polarization in online social platforms is a rapidly growing phenomenon worldwide. Despite their relevance to modern-day politics, the structure and dynamics of polarized states in digital spaces are still poorly understood. We analyze the community structure of a two-layer, interconnected network of French Twitter users, where one layer contains members of Parliament and the other one regular users. We obtain an optimal representation of the network in a four-dimensional political opinion space by combining network embedding methods and political survey data. We find structurally cohesive groups sharing common political attitudes and relate them to the political party landscape in France. The distribution of opinions of professional politicians is narrower than that of regular users, indicating the presence of more extreme attitudes in the general population. We find that politically extreme communities interact less with other groups as compared to more centrist groups. We apply an empirically tested social influence model to the two-layer network to pinpoint interaction mechanisms that can describe the political polarization seen in data, particularly for centrist groups. Our results shed light on the social behaviors that drive digital platforms towards polarization and uncover an informative multidimensional space to assess political attitudes online.

DOI: 10.1103/PhysRevResearch.6.013170


(a)
MPs
Users
Center
LREM
MoDem
Left
PS
PCF
LFI
EELV
Liberal right
LR
LC
Nationalists
LR
LC
RN
Others
LC
others
(b)
Latent dimension 2
Latent dimension 1
Political dimension 2
Political dimension 1
reference points
Social graph
Latent space
Attitudinal Reference Frame

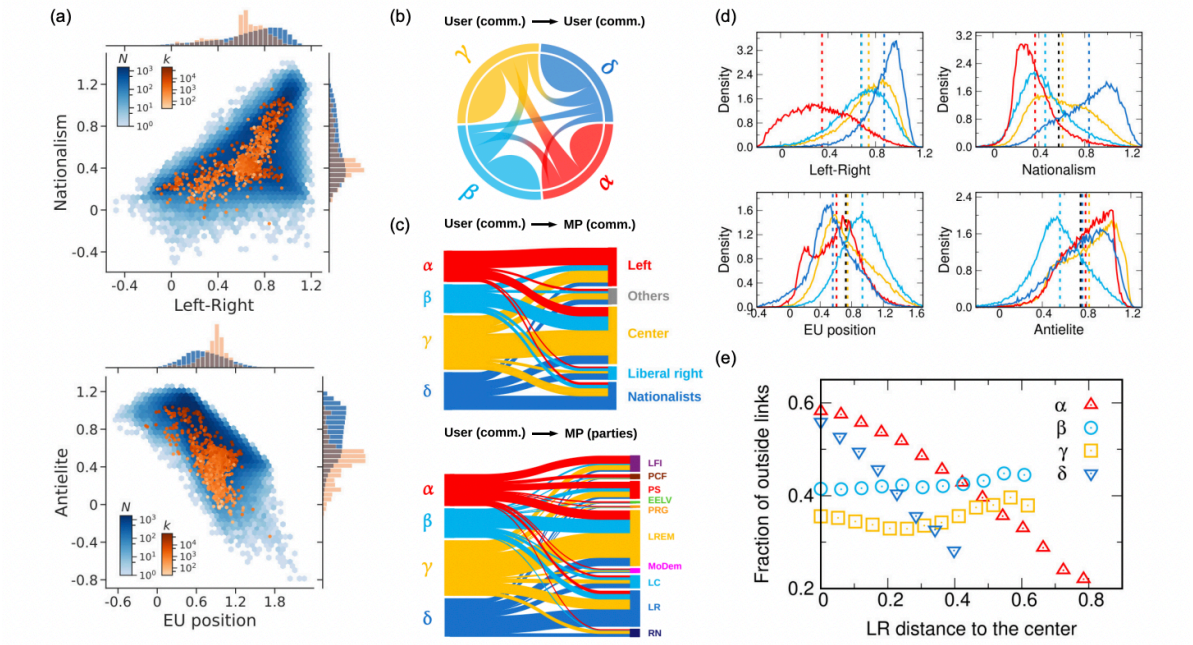


FIG. 3. Communities and ideological positions of regular users and their relation to professional politicians. (a) Number distribution of ideological positions of users (MPs), represented by blue (orange) dots in a two-dimensional opinion space for pairs of opinion variables: LR-NA (top) and EU-AE (bottom) (other pairs in Ref. [25], Sec. S1.3). Color shading for MPs is proportional to the number of followers k (users) of each MP in logarithmic scale, i.e., in-degree in the User → MP network, $k \equiv k_m^{\text{in/um}}$ (see Ref. [25], Sec. S1.1.1). Corresponding marginal probability densities of users (blue) and MPs (orange) are plotted in linear scale. (b) Communities in the user layer correspond to the best partition (minimum description length) of the planted partition model [28] with a fixed number of communities equal to four. The color of each community is chosen according to its characteristic political attitude in relation to the MP layer. The chord diagram indicates the connectivity (number of links) between and inside communities of users. (c) Sankey diagrams indicating the connectivity between user groups and both MP communities (top) and their parties (bottom). Size of flows is proportional to the number of links in the User → MP network, whose source nodes belong to a particular community of users (indicated by colors). Link colors are chosen according to user communities. (d) Probability densities of opinion variables (LR, NA, EU, and AE) of users in each community (as indicated by line color). Colored dashed lines represent the average opinion of each community, and the black dashed line is the global average. (e) Fraction of links of users (in the user layer) pointing outside of their community as a function of the distance of their opinion from the average opinion of all users. Plot corresponds to the LR dimension (for others see Ref. [25], Sec. S3.3.4). While members of β and γ connect freely to other communities despite of political differences, this function rapidly decreases with ideological distance for members of α and δ.

Appliqué à la lutte contre la désinformation

Référence

Bots and Misinformation Spread on Social Media: Implications for COVID-19

McKenzie Himelein-Wachowiak[1]; Salvatore Giorgi[1,2]; Amanda Devoto[1]; Muhammad Rahman[1]; Lyle Ungar[2]; H Andrew Schwartz[3]; David H Epstein[1]; Lorenzo Leggio[1]; Brenda Curtis[1]

Abstract

As of March 2021, the SARS-CoV-2 virus has been responsible for over 115 million cases of COVID-19 worldwide, resulting in over 2.5 million deaths. As the virus spread exponentially, so did its media coverage, resulting in a proliferation of conflicting information on social media platforms —a so-called "infodemic." In this viewpoint, we survey past literature investigating the role of automated accounts, or "bots," in spreading such misinformation, drawing connections to the COVID-19 pandemic. We also review strategies used by bots to spread (mis)information and examine the potential origins of bots. We conclude by conducting and presenting a secondary analysis of data sets of known bots in which we find that up to 66% of bots are discussing COVID-19. The proliferation of COVID-19 (mis)information by bots, coupled with human susceptibility to believing and sharing misinformation, may well impact the course of the pandemic.

J Med Internet Res 2021;23(5):e26933

doi:10.2196/26933

ML en économie

Article

Machine learning and phone data can improve targeting of humanitarian aid

https://doi.org/10.1038/s41586-022-04484-9

Received: 15 July 2021

Accepted: 25 January 2022

Published online: 16 March 2022

Open access

Check for updates

Emily Aiken[1,5], Suzanne Bellue[2], Dean Karlan[3], Chris Udry[4] & Joshua E. Blumenstock[1,5]✉

The COVID-19 pandemic has devastated many low- and middle-income countries, causing widespread food insecurity and a sharp decline in living standards[1]. In response to this crisis, governments and humanitarian organizations worldwide have distributed social assistance to more than 1.5 billion people[2]. Targeting is a central challenge in administering these programmes: it remains a difficult task to rapidly identify those with the greatest need given available data[3,4]. Here we show that data from mobile phone networks can improve the targeting of humanitarian assistance. Our approach uses traditional survey data to train machine-learning algorithms to recognize patterns of poverty in mobile phone data; the trained algorithms can then prioritize aid to the poorest mobile subscribers. We evaluate this approach by studying a flagship emergency cash transfer program in Togo, which used these algorithms to disburse millions of US dollars worth of COVID-19 relief aid. Our analysis compares outcomes—including exclusion errors, total social welfare and measures of fairness—under different targeting regimes. Relative to the geographic targeting options considered by the Government of Togo, the machine-learning approach reduces errors of exclusion by 4–21%. Relative to methods requiring a comprehensive social registry (a hypothetical exercise; no such registry exists in Togo), the machine-learning approach increases exclusion errors by 9–35%. These results highlight the potential for new data sources to complement traditional methods for targeting humanitarian assistance, particularly in crisis settings in which traditional data are missing or out of date.

Référence

LLM en sciences cognitives

Référence

PNAS RESEARCH ARTICLE | PSYCHOLOGICAL AND COGNITIVE SCIENCES OPEN ACCESS

Evaluating large language models in theory of mind tasks

Michal Kosinski [1]

Edited by Timothy Wilson, University of Virginia, Charlottesville, VA; received March 30, 2024; accepted September 23, 2024

October 29, 2024 | 121 (45) e2405460121 | https://doi.org/10.1073/pnas.2405460121

Significance

Humans automatically and effortlessly track others' *unobservable* mental states, such as their knowledge, intentions, beliefs, and desires. This ability—typically called "theory of mind" (ToM)—is fundamental to human social interactions, communication, empathy, consciousness, moral judgment, and religious beliefs. Our results show that recent large language models (LLMs) can solve false-belief tasks, typically used to evaluate ToM in humans. Regardless of how we interpret these outcomes, they signify the advent of more powerful and socially skilled AI—with profound positive and negative implications.

Eleven large language models (LLMs) were assessed using 40 bespoke false-belief tasks, considered a gold standard in testing theory of mind (ToM) in humans. Each task included a false-belief scenario, three closely matched true-belief control scenarios, and the reversed versions of all four. An LLM had to solve all eight scenarios to solve a single task. Older models solved no tasks; Generative Pre-trained Transformer (GPT)-3-davinci-003 (from November 2022) and ChatGPT-3.5-turbo (from March 2023) solved 20% of the tasks; ChatGPT-4 (from June 2023) solved 75% of the tasks, matching the performance of 6-y-old children observed in past studies. We explore the potential interpretation of these results, including the intriguing possibility that ToM-like ability, previously considered unique to humans, may have emerged as an unintended by-product of LLMs' improving language skills. Regardless of how we interpret these outcomes, they signify the advent of more powerful and socially skilled AI—with profound positive and negative implications.

Etudier des forums

Référence

New Media & Society

Impact Factor: **4.5** / 5-Year Impact Factor: **7.0**

Open access | Research article | First published online June 6, 2023

Men who hate women: The misogyny of involuntarily celibate men

Michael Halpin, Norann Richard, [...], and Finlay Maguire +2 View all authors and affiliations

Volume 27, Issue 1 | https://doi.org/10.1177/14614448231176777

Abstract

This article uses computational data and social science theories to analyze the misogynistic discourse of the involuntary celibate ("incel") community. We analyzed every comment ($N = 3{,}686{,}110$) produced over 42 months on a popular incel discussion board and found that nearly all active participants use misogynistic terms. Participants used misogynistic terms nearly one million times and at a rate 2.4 times greater than their use of neutral terms for women. The majority of participants' use of misogynistic terms does not increase or decrease with post frequency, suggesting that members arrive (rather than become) misogynistic. We discuss these findings in relation to theories of intersectionality, masculinity, and sexism. We likewise discuss potential policies for mitigating incel misogyny and similar online discourse.

Faire du NLP “simple”

Data and methods

This article examines the discussion board on incels.is, a popular English language incel website. At the time of our data collection (15 April 2021), the site had 13,700 registered members who produced nearly 6 million comments and spent more than 54,000 days on the website. These numbers do not count people who view the site without commenting; the site receives several million visits per month (Similarweb, 2021).

Procedure

We collected all posts (e.g. text posted by a user) that appeared on the incels.is discussion board (“Inceldom Discussion”) from 8 November 2017 until 16 April 2021 (N = 3,686,110). We employed custom scraping scripts[1] to extract all public post data. This script automatically traversed and downloaded the corresponding HTML for every page of posts within each thread of “Inceldom Discussion.” Individual comments and user information were then extracted from the HTML and saved as thread-specific text files. The extracted data include post text along with the associated participant user IDs, posting time, thread titles, threads, and the respective order of posts in threads. Our analyses do not include posts that were deleted before we completed our data collection and excludes text quoting other posts in the same thread.

Analytic approach

We use computational methods to collect and describe incel misogyny, while using social science theories to inform our research questions, as well as interpret and discuss our results. In this sense, we aim to leverage computational analyses, while addressing critiques that computational approaches are overly descriptive

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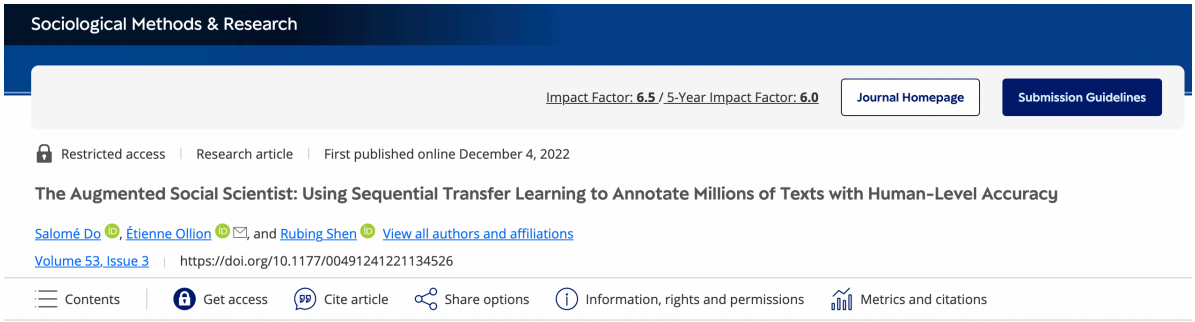
Augmenter les sciences sociales

Référence - Émission France Culture



Sociological Methods & Research

Impact Factor: 6.5 / 5-Year Impact Factor: 6.0 | Journal Homepage | Submission Guidelines

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The Augmented Social Scientist: Using Sequential Transfer Learning to Annotate Millions of Texts with Human-Level Accuracy

Salomé Do, Étienne Ollion, and Rubing Shen View all authors and affiliations

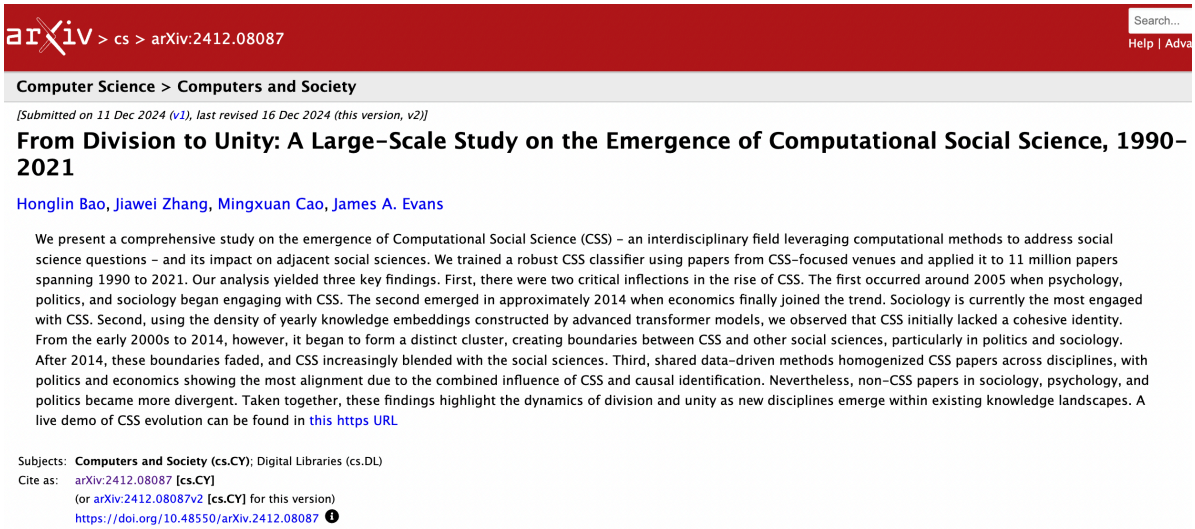
Volume 53, Issue 3 | https://doi.org/10.1177/00491241221134526

Contents | Get access | Cite article | Share options | Information, rights and permissions | Metrics and citations

Abstract

The last decade witnessed a spectacular rise in the volume of available textual data. With this new abundance came the question of how to analyze it. In the social sciences, scholars mostly resorted to two well-established approaches, human annotation on sampled data on the one hand (either performed by the researcher, or outsourced to microworkers), and quantitative methods on the other. Each approach has its own merits - a potentially very fine-grained analysis for the former, a very scalable one for the latter - but the combination of these two properties has not yielded highly accurate results so far. Leveraging recent advances in sequential transfer learning, we demonstrate via an experiment that an expert can train a precise, efficient automatic classifier in a very limited amount of time. We also show that, under certain conditions, expert-trained models produce better annotations than humans themselves. We demonstrate these points using a classic research question in the sociology of journalism, the rise of a "horse race" coverage of politics. We conclude that recent advances in transfer learning help us augment ourselves when analyzing unstructured data.

S'auto-étudier avec des classifieurs



arXiv > cs > arXiv:2412.08087

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Computer Science > Computers and Society

[Submitted on 11 Dec 2024 (v1), last revised 16 Dec 2024 (this version, v2)]

From Division to Unity: A Large-Scale Study on the Emergence of Computational Social Science, 1990-2021

Honglin Bao, Jiawei Zhang, Mingxuan Cao, James A. Evans

We present a comprehensive study on the emergence of Computational Social Science (CSS) – an interdisciplinary field leveraging computational methods to address social science questions – and its impact on adjacent social sciences. We trained a robust CSS classifier using papers from CSS-focused venues and applied it to 11 million papers spanning 1990 to 2021. Our analysis yielded three key findings. First, there were two critical inflections in the rise of CSS. The first occurred around 2005 when psychology, politics, and sociology began engaging with CSS. The second emerged in approximately 2014 when economics finally joined the trend. Sociology is currently the most engaged with CSS. Second, using the density of yearly knowledge embeddings constructed by advanced transformer models, we observed that CSS initially lacked a cohesive identity. From the early 2000s to 2014, however, it began to form a distinct cluster, creating boundaries between CSS and other social sciences, particularly in politics and sociology. After 2014, these boundaries faded, and CSS increasingly blended with the social sciences. Third, shared data-driven methods homogenized CSS papers across disciplines, with politics and economics showing the most alignment due to the combined influence of CSS and causal identification. Nevertheless, non-CSS papers in sociology, psychology, and politics became more divergent. Taken together, these findings highlight the dynamics of division and unity as new disciplines emerge within existing knowledge landscapes. A live demo of CSS evolution can be found in this https URL

Subjects: **Computers and Society (cs.CY)**; Digital Libraries (cs.DL)
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(or arXiv:2412.08087v2 **[cs.CY]** for this version)
https://doi.org/10.48550/arXiv.2412.08087

Référence

Outiller l'analyse de réseaux

OPEN ACCESS Freely available online

PLOS ONE

ForceAtlas2, a Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software

Mathieu Jacomy[1,2,3]*, Tommaso Venturini[1], Sebastien Heymann[3,4], Mathieu Bastian[3]

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Abstract

Gephi is a network visualization software used in various disciplines (social network analysis, biology, genomics…). One of its key features is the ability to display the spatialization process, aiming at transforming the network into a map, and ForceAtlas2 is its default layout algorithm. The latter is developed by the Gephi team as an all-around solution to Gephi users' typical networks (scale-free, 10 to 10,000 nodes). We present here for the first time its functioning and settings. ForceAtlas2 is a force-directed layout close to other algorithms used for network spatialization. We do not claim a theoretical advance but an attempt to integrate different techniques such as the Barnes Hut simulation, degree-dependent repulsive force, and local and global adaptive temperatures. It is designed for the Gephi user experience (it is a continuous algorithm), and we explain which constraints it implies. The algorithm benefits from much feedback and is developed in order to provide many possibilities through its settings. We lay out its complete functioning for the users who need a precise understanding of its behaviour, from the formulas to graphic illustration of the result. We propose a benchmark for our compromise between performance and quality. We also explain why we integrated its various features and discuss our design choices.

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Référence

Entre promesses et évolutions

- Beaucoup de promesses
- Mais des changements bien en cours

  - Interdisciplinarité

Des ressources Awesome CSS repo

De nouveaux enjeux éthiques

- Valeur des données & monétarisation
- Ciblage
- Accès aux données sensibles
- Risque de biais spécifiques

Validation

Projet & Validation

- Une question d'enquête
  - Données de médias sociaux (Bluesky)
- Collecte des données & constitution du corpus
- Une analyse (NLP ou réseaux)
- Une visualisation bien pensée

Seul ou à deux (= approfondir plus)

- à envoyer à emilien.schultz@ensea.fr
- avant le 10 avril

Définir une question d'enquête

- Circonscrite
  - Privilégier la description d'un phénomène
- Adaptée aux données
- Réflexive