



The ‘Problematic Paper Screener’ automatically selects suspect publications for post-publication (re)assessment

Guillaume Cabanac, Cyril Labbé, Alexander Magazinov

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Submitted on 31 Aug 2023

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May 30th, 2022
WCRI, South Africa

The Problematic Paper Screener

automatically selects suspect publications for post-
publication (re)assessment



counterfeit consciousness

man-made brainpower

artificial intelligence

sun oriented force

solar energy

pinnacle flag to clamor proportion (PSNR)

peak signal to noise ratio (PSNR)



credulous Bayes

bosom malignancy/peril

breast cancer

Thomas Bayes



Naive Bayes

Nucleic corrosive enhancement tests (NAAT)

Nucleic acid amplification tests (NAAT)

Extreme intense respiratory disorder

Severe acute respiratory syndrome (SRAS)

Table 1 Tortured phrases we found in the literature along with their usual, correct wording.

Tortured phrase found in publications	Correct wording expected
profound neural organization (fake counterfeit) neural organization versatile organization organization (ambush assault) organization association	deep neural network artificial neural network mobile network network attack network connection
(enormous huge immense colossal) information information (stockroom distribution center)	big data data warehouse
(counterfeit human-made) consciousness	artificial intelligence (AI)
elite figuring haze figuring	high performance computing fog/mist/cloud computing
designs preparing unit focal preparing unit	graphics processing unit (GPU) central processing unit (CPU)
work process motor	workflow engine
facial acknowledgement discourse acknowledgement	face recognition voice recognition
mean square (mistake blunder) mean (outright supreme) (mistake blunder)	mean square error mean absolute error
(motion flag indicator sign signal) to (clamor commotion noise)	signal to noise
worldwide parameters	global parameters
(arbitrary irregular) get right of passage to (arbitrary irregular) (backwoods timberland lush territory) (arbitrary irregular) esteem	random access random forest random value
subterranean insect (state province area region settlement) underground creepy crawly (state province area region settlement)	ant colony ant colony
leftover vitality territorial normal vitality motor vitality	remaining energy local average energy kinetic energy
(credulous innocent gullible) Bayes	naïve Bayes
individual computerized collaborator	personal digital assistant (PDA)

arXiv.org > cs > arXiv:2107.06751

Computer Science > Digital Libraries

[Submitted on 12 Jul 2021]

Tortured phrases: A dubious writing style emerging in science. Evidence of critical issues affecting established journals

Guillaume Cabanac, Cyril Labbé, Alexander Magazinov

Retraction Watch @RetractionWatch

'Tortured phrases', lost in translation: Sleuths find even more problems at journal that just flagged 400 papers

retractionwatch.com/2021/07/19/tor...

12:03 PM · Jul 19, 2021



nature @Nature

Analysis reveals that strange turns of phrase may indicate foul play in science.

'Tortured phrases' give away fabricated...

nature.com

7:12 PM · Aug 5, 2021

physics world @PhysicsWorld

Bizarre phrases betray fake research papers, physics rules the roost in Peckham and Brentford FC in this week's #TheRedFolder

Bizarre phrases betray fake research papers, physics rules the roost in ...

physicsworld.com

6:50 PM · Aug 13, 2021

NZZ NZZ Wissenschaft @NZZWissen

#fälschungen #takepapers Eine KI verändert Fachbegriffe, aus drei Zusammenfassungen wird eine vierte erstellt, Bilder werden geklaut, fertig ist die neue Fachpublikation. Tausende wissenschaftliche Veröffentlichungen werden so gefälscht - und publiziert.

Fälschungen: Forscher finden Hunderte KI-Publikationen

Die Studie klingt abstrus, publiziert wurde sie trotzdem. Mit automatisch generierten Artikeln verschaffen sich Forscher Jobs und ...

nzz.ch

10:58 AM · Sep 1, 2021

Machine Paraphrasing

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Enter Text To Rewrite:

Probabilistic text generators have been used to produce fake scientific papers for more than a decade. Such nonsensical papers are easily detected by both human and machine. Now more complex AI-powered generation techniques produce texts indistinguishable from that of humans and the generation of scientific texts from a few keywords has been documented. Our study introduces the concept of tortured phrases: unexpected weird phrases in lieu of established ones, such as 'counterfeit consciousness' instead of 'artificial intelligence.' We combed the literature for tortured phrases and study one reputable journal where these concentrated en masse. Hypothesising the use of advanced language models we ran a detector on the abstracts of recent articles of this journal and on several control sets. The pairwise comparisons reveal a

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Rewritten Text:

Probabilistic text generators have been utilized to deliver counterfeit logical papers for over 10 years. Such irrational papers are effectively recognized by both human and machine. Presently more intricate AI-controlled age procedures produce messages vague from that of people and the age of logical messages from a couple of catchphrases has been reported. Our review presents the idea of tormented expressions: surprising odd expressions in lieu of set up  awareness' rather than 'man-made reasoning' for tormented expressions and study one  these concentrated as a group. Conjecturing the u  language models we ran a locator on the digests or late articles or this diary and on a few control sets. The pairwise examinations uncover a centralization of edited



Fingerprint - Tortured Phrase	Expected Text	Nb Retrieved Papers ↓
"preformation" AND "cell" AND ("rat" OR "mouse" OR "mice") AND ("final" OR "ultimate" OR "destiny")	procedure AND ultimate/final density	6,961
"highlight extraction"	feature extraction	1,783
"driving reason"	leading cause	1,739
"as pursues"	as follows	1,588
"brilliant" AND "keen" AND "savvy" AND "shrewd"	smart (devices)	1,451
"substantial metals"	heavy metals	1,428
"created nations"	developed countries	1,383
"crude information"	raw data	1,378
"regenerative organs" AND "reproductive"	reproductive organs	1,141
"vitality utilization"	energy use	1,043
"discourse acknowledgement" OR "discourse acknowledgment"	voice recognition	1,004
"observational examination"	observational study	988
"supply route" AND artery	artery	906
"choice tree"	decision tree	877

Phrasal
search

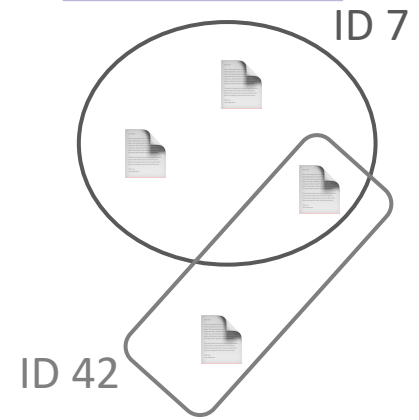
Boolean
conjunctive
operator

Nb of
retrieved
Papers



```
search publications in full_data for "{fingerprint-query}"
where year >= 2005
and type in [ "article", "chapter", "preprint", "proceeding" ]
return publications [id+year+type+doi+title+journal+proceedings_title+
publisher+book_title+open_access_categories+
times_cited+atmetric+linkout]

limit 1000
```



Tortured Phrases Detector

Matches with 2+ tortured phrases (e.g., credulous Bayes, counterfeit consciousness) only.

Cabanac, G., Labbé, C., & Magazinov, A. (2022). "Bosom peril" is not "breast cancer": How weird computer-generated phrases help researchers find scientific publishing fraud.
Bulletin of the Atomic Scientists. [Online](#)

Cabanac, G., Labbé, C., & Magazinov, A. (2021). Tortured phrases: A dubious writing style emerging in science. Evidence of critical issues affecting established journals.
 arXiv preprint, <https://arxiv.org/abs/2107.06751> (supplementary materials)
 Featured in *Nature* ([Else, 2021](#))

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Report True/False Positives, ideas, or else using the [Feedback](#) feature.

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Year	Doctype	Publisher	Venue	Title	Citations	Altmetric	Tips	Tortured Phrases	Assessor	PubPeer Users
2021	article	Institute of Advanced Engineering and Science	Indonesian Journal of Electrical Engineering and Computer Science	A comparative and comprehensive study of prediction of Parkinson's disease	0	0	20	Alzheimer's infection • Parkinson's infection • Parkinson's sickness • R2 esteem • arbitrary backwoods • backing vector machine • dimensionality decrease • fake neural • fluffy C implies • gullible Bayes • head part investigation • help vector machine • inertial estimation unit • invulnerable framew...	Cabanac	Guillaume Cabanac
2020	chapter	Springer Nature	Internet of Things Use Cases for the Healthcare Industry	AI and IoT in Healthcare	2	0	20	Alzheimer's ailment • Alzheimer's infection • Alzheimer's sickness • Parkinson's ailment • Parkinson's sickness • attractive reverberation • brilliant AND keen AND savvy AND shrewd • calculated relapse • creating nations • help vector machine • hereditary programming • information distribution cente...	Cabanac	N. H. Wise
2017	article	World Scientific Publishing	International Journal of Wavelets Multiresolution and Information Processing	Applications of wavelet transform on power engineering problems — A brief review	0	0	19	back proliferation • back spread AND neural • bolster vector machine • concealed layer • cross breed model • discrete Fourier change • fake neural • fast Fourier change • fluffy deduction • fluffy rationale • hereditary calculation • manufactured neural • molecule swarm • moving normal (ARIMA) • sel...	Cabanac	Guillaume Cabanac
2021	chapter	Wiley	Green Internet of Things and Machine Learning	Machine Learning-Enabled Techniques for Reducing Energy Consumption of IoT Devices	0	0	18	brilliant metering • brilliant AND keen AND savvy AND shrewd • counterfeit neural • field programmable entryway exhibit • irregular woodland • keen city • keen gadget • keen home • man-made brainpower • savvy metering • shrewd city • shrewd home • shrewd metering • sun oriented force • uphold vector...	Cabanac	Guillaume Cabanac

Year	Doctype	Publisher	Venue	Title	Citations	Altmetric	Tips	Tortured Phrases	Assessor
2021	proceeding	Institute of Electrical and Electronics Engineers (IEEE)	2021 International Conference on Advances in Computing, Communication, and Control (ICAC3)	HVAC Hybrid Control methods for HEE in Buildings: Overview	0	0	9	back spread AND neural • counterfeit neural • enhancement calculation AND optimiz* • fluffy rationale • hereditary calculation • profound neural organization • square blunder • warm solace • warmth move	Invitation for human assessors
2019	proceeding	Institute of Electrical and Electronics Engineers (IEEE)	2019 4th International Conference on Recent Trends on Electronics, Information, Communication & Technology (RTEICT)	Handling 3vs of Big Data Through Swarm Intelligence	1	0	7	computerized reasoning • enhancement calculation AND optimiz* • figuring asset • genuine esteemed • hereditary calculation • molecule swarm • wellness esteem	Invitation for human assessors



Microarray Gene Expression Analysis Using Fuzzy Logic (MGA-FL)

First International Conference on Sustainable Technologies for Computational Intelligence (2019) - 1 Comment
doi: 10.1007/978-981-13-1951-8_16 issn: 2194-5357 issn: 2194-5365

Daksh Khanna, Tanupriya Choudhury, A. Sai Sabitha, Nguyen Gia Nhu

#1 Elisabeth M Bik

This article costs € 27.20 / \$ 32.20 on the Springer website. I would not recommend to purchase it, however.

This paper appears to contain "Tortured Phrases": non-sensical, synthetic text generated by synonym converter tools, as described in this preprint by Cabanac, Labbé, and Magazinov, arXiv:2107.06751 - <https://arxiv.org/abs/2107.06751>. As explained in the preprint, text might have been 'synonymized' to mask plagiarism.

Parts of this paper appear to contain synonymized paragraphs from Wikipedia (https://en.wikipedia.org/wiki/DNA_microarray):

- Wikipedia: "Each DNA spot contains picomoles (10EXP-12 moles) of a specific DNA sequence, known as probes (or reporters or oligos). These can be a short section of a gene or other DNA element that are used to hybridize a cDNA or cRNA (also called anti-sense RNA) sample (called target) under high-stringency conditions. Probe-target hybridization is usually detected and quantified by detection of fluorophore-, silver-, or chemiluminescence-labeled targets to determine relative abundance of nucleic acid sequences in the target. The original nucleic acid arrays were macro arrays approximately 9 cm × 12 cm and the first computerized image based analysis was published in 1981."
- Khanna et al. (2019): "Each Deoxyribonucleic Acid spot consist of micro-moles (appx. 11 mol) of a particular Deoxyribonucleic Acid progression, justified as tests (or writers or oligos). It can be a small territory of a quality or other DNA segment which is used to hybridize a complementary DNA/complementary RNA (in like manner called antagonistic to identify Ribonucleic Acid) test (called centre) under high-stringency terms. Test object hybridization is normally recognized and acquired through distinguishing proof of "fluorophore-, silver-, or chemiluminescence"—named centres to choose relatively abundant nucleic destructive game plans for the goal. The principal nucleic destructive displays were expansive scale groups around 9 cm × 12 cm and the fun- damental modernized picture based examination was circulated in 1981."

Figure 1 looks identical to a Wikimedia file found here:

https://commons.wikimedia.org/wiki/File:Microarray_exp_horizontal.svg

Text from Section 3 appears to be a synonymized version of Fernando Díaz et al., Using Fuzzy Patterns for Gene Selection and Data Reduction on Microarray Data, IDEAL 2006, LNCS 4224, pp. 1087 – 1094, 2006, DOI: 10.1007/11875581_129. Here is an example:

tortured



1266 results

AI Techniques for COVID-19

IEEE Access (2020) - 2 Comments
doi: 10.1109/access.2020.3007939 issn: 2169-3536

Adedoyin Ahmed Hussain, Ouns Bouachir, Fadi Al-Turjman, Moayad Aloqaily

#1 N. H. Wise

This paper already has 34 citations, I guess because Covid-19 and AI are both very hot topics, but appears to have been written using a thesaurus engine to avoid plagiarism detection.

The abstract alone contains the tortured phrases 'neural systems' for 'neural networks', and 'edge significant learning', which only gives 10 results on Google, most of which are for this paper.

The first paragraph of the introduction is in unusual language and contains telling incorrect definitions of abbreviations, such as 'mad-made brainpower (AI)', and ends with 'Meanwhile, Insilico Medicine situated in Hong Kong as of late declared that it's AI calculations had planned six new atoms that could end viral replication'.

The rest of the introduction is in a similar style and contains the tortured phrases 'twofold tree' (for 'binary tree' for 'dual tree?') and 'convolutional neural system (CNN)'.

Many other sections of the paper contain tortured phrases and nonsensical sentences, suggesting much of the paper has been plagiarised.

report permalink Reply

#2 Salsola Zygyphylla

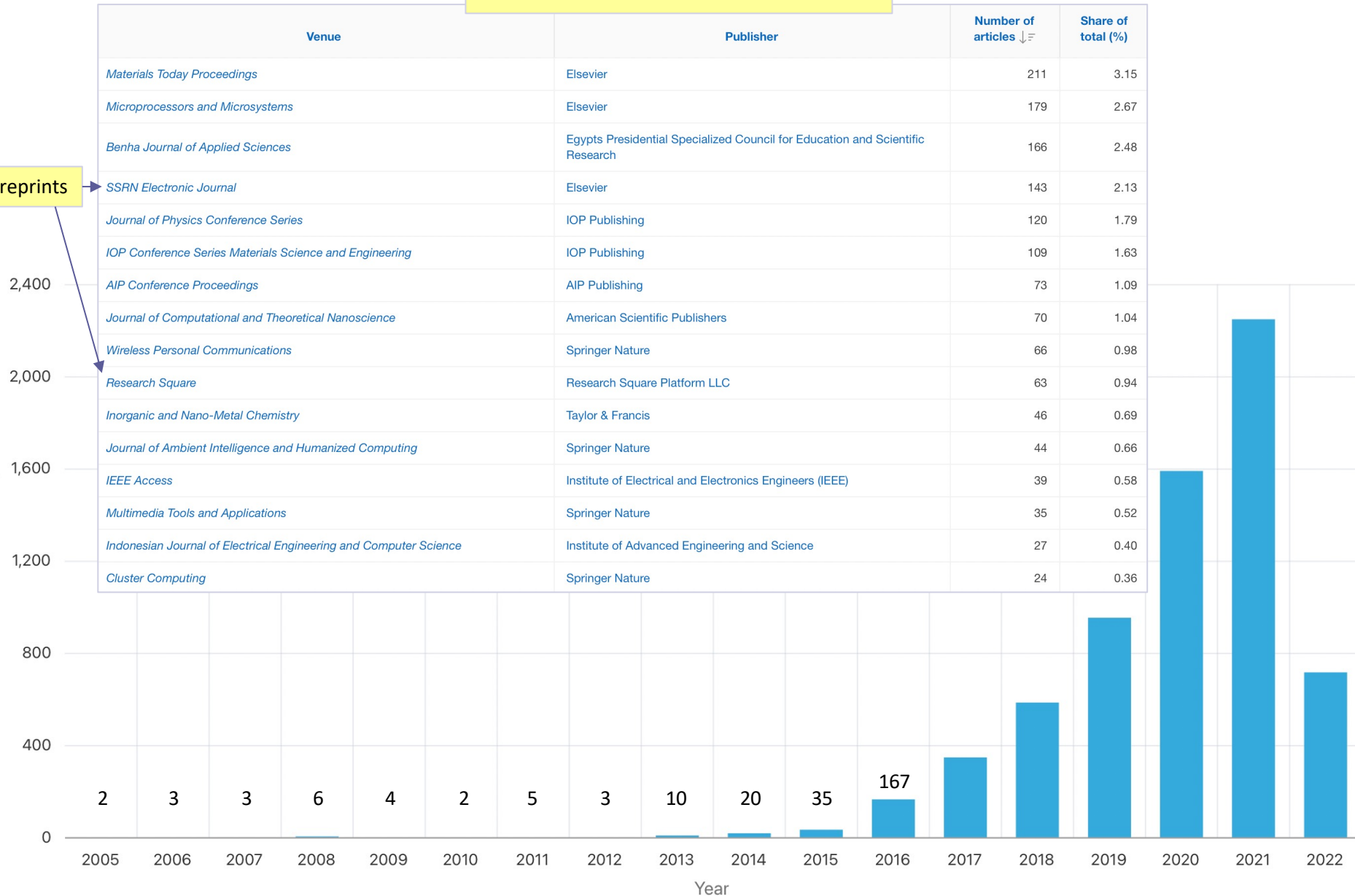


This paper contains a prime example of thesaurus gone wild: "extreme intense respiratory disorder (SARS)". Given that those who use the PubPeer browser plugin are going to be directed to this page whenever this paper turns up in a search or on a web page, it seems both fair and useful to ask the authors: What contribution to knowledge do you think you have made with this publication? The same question could fairly and usefully be asked of those who cited it.

Concentration of Tortured Phrases

Preprints

Number of Problematic Papers



Tortured Phrases Detector

Last Update: 15/02/2022 22:32

View results by publisher, venue, or year.

Matches with 2+ tortured phrases (e.g., credulous Bayes, counterfeit consciousness) only.

Cabanac, G., Labbé, C., & Magazinov, A. (2022). "Bosom peril" is not "breast cancer": How weird computer-generated phrases help researchers find scientific publishing fraud.
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► Featured in *Nature* ([Else](#), 2021)

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2021	article	Institute of Advanced Engineering and Science	<i>Indonesian Journal of Electrical Engineering and Computer Science</i>	A comparative and comprehensive study of prediction of Parkinson's disease	0	0	20	Alzheimer's infection • Parkinson's infection • Parkinson's sickness • R2 esteem • arbitrary backwoods • backing vector machine • dimensionality decrease • fake neural • fluffy C implies • gullible Bayes • head part investigation • help vector machine • inertial estimation unit • invulnerable framew...	Cabanac	Guillaume Cabanac
2020	chapter	Springer Nature	<i>Internet of Things Use Cases for the Healthcare Industry</i>	AI and IoT in Healthcare	2	0	20	Alzheimer's ailment • Alzheimer's infection • Alzheimer's sickness • Parkinson's ailment • Parkinson's sickness • attractive reverberation • brilliant AND keen AND savvy AND shrewd • calculated relapse • creating nations • help vector machine • hereditary programming • information distribution cente...	Cabanac	N. H. Wise
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Guillaume Cabanac @gcabanac · 1 Mar

The 'Problematic Paper Screener' has just turned one 🎂. It flags 5,716 articles as problematic with 7 detectors. They are cited 38k times 😞 Only 1,516 reported on @PubPeer. Let's depollute the scientific literature: 3,226 tortured papers to re-assess 🔍 irit.fr/~Guillaume.Cab...

Citation count

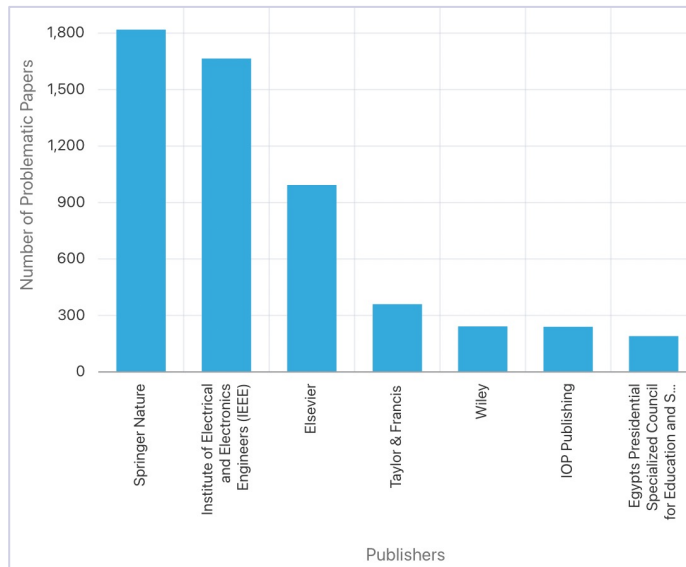
24,560

3/10,000 problematic papers published in 2021:

- 66% affiliated to India
- 8% affiliated to China

1 - 200 of 6711

Tortured Phrases	Assessor ↓	PubPeer Users
area of intrigue • attractive reverberation • blunder rate • calculated relapse • convolutional neural system • designs preparing unit • discourse acknowledgement OR discourse acknowledgment • figured tomography • fluffy C implies • genuine positive (TP) • help vector machine • highlight extraction • prescient capacity • processed tomography (CT) • profound neural system • registered tomography	Magazinov	Alexander Magazinov
arbitrary backwoods • crude information • directing convention • haze figuring • haze registering • keen matrix • malevolent hub • malignant hub • man in the center • middle of the road hub • misfortune rate • specially appointed system • steering convention • brilliant AND keen AND savvy AND shrewd	Magazinov	Alexander Magazinov
choice tree • concealed layer • fluffy rationale • heart assault • heart sickness • hereditary calculation • individuals bite the dust • learning revelation in databases • shrouded examples • shrouded layer • back engendering AND neural • back proliferation AND neural • supply route AND artery • yield layer AND neural	Magazinov	Alexander Magazinov, Hoya Camphorifolia



1 - 200 of 5063

Tortured Phrases	Assessor ↓
arbitrary woodland • backing vector machine • blunder rate • bosom disease • bosom growth • bosom malignant • differentially communicated qualities • electronic wellbeing records • gathering of patients • irregular backwoods • irregular woodland	Invitation for human assessors
crude information • direct blend • hereditary calculation • highlight extraction • man-made consciousness • mind waves • mind-PC interface • sign to commotion • upper appendage	Invitation for human assessors
bolster vector machine • choice tree • concealed Markov • discourse feeling acknowledgment • fake neural • feeling acknowledgment • head part investigation • highlight extraction • speaker autonomous	Invitation for human assessors