Welcome to the Editors’ Summit!

#FrontiersSummit
Our mission

Dr Kamila Markram
CEO & Co-founder

Dr Mirjam Eckert
Chief Publishing Officer

Daniel Petrariu
Chief Technology Officer

Chantelle Rijs
Chief Communications Officer

Dr Fred Fenter
Chief Executive Editor

Journal quality at scale

Quality through technology

Coronavirus survey: your response, fears and hopes

How we pulled together to help mitigate the pandemic
We are 227'000 Editors & Reviewers

University of California System: 3'528
Centre National de la Recherche Scientifique (CNRS): 1'944
Harvard University: 1'789
Chinese Academy of Sciences (CAS): 1'789
University of Texas System: 1'337
National Institutes of Health (NIH): 1'320
State University System of Florida: 1'134
INSERM: 1'106
Consejo Superior de Investigaciones Científicas (CSIC): 936
Helmholtz-Gemeinschaft Deutscher Forschungszentren (HZ): 930
University College London: 919
National Research Council (CNR): 850
University of São Paulo: 754
Max-Planck-Gesellschaft (MPG): 751
Sapienza University of Rome: 726
Stanford University: 724
Cornell University: 721
University of Oxford: 712
University of Toronto: 712
Institut National de la Recherche Agronomique (INRA): 698
The Ohio State University: 693
University of Pittsburgh: 680
University of Michigan: 674
Johns Hopkins University: 657
The University of Queensland: 629
University of Zurich: 628
University of Pennsylvania: 626
University of Cambridge: 625
Zhejiang University: 616
University of Naples Federico II: 607
How we support our editors, reviewers and authors during COVID-19

We launched the COVID-19 knowledge hub and 168 Research Topics

Zisis Kozlakidis
International Agency For Research On Cancer (IARC), France
Associate Editor for Infectious Diseases – Surveillance, Prevention and Treatment
How we support our editors, reviewers and authors during COVID-19

1. We launched the COVID-19 knowledge hub and 169 Research Topics
2. We fast-track COVID-19 articles in peer review.
3. To date, we waived COVID-19 articles worth ~5M USD to support the response to the pandemic.
We are the Frontons
We are 746 Frontons (as we call our employees) across 7 locations.
Our philosophy

We are in this together:
we watch out for each other, we support each other.

We make sure this pandemic brings out the very best in each of us
(support, collaborate, trust, be transparent and accountable, have empathy, have grit & resilience).

Science has never been more important than today and we are here to keep the science going.
Scientists have risen to the challenge – and delivered
Our Mission:
Make All Science Open

So we can live healthy lives on a healthy planet
Yesterday
fossil energy

Tomorrow
clean energy
<table>
<thead>
<tr>
<th>Disease</th>
<th>Cases</th>
<th>Deaths</th>
<th>Economic Loss</th>
<th>Articles</th>
<th>of which OA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COVID-19</strong></td>
<td>46.5 million</td>
<td>1.2 million</td>
<td>$2-4.1 Trillion</td>
<td>186,000</td>
<td>Most is made open</td>
</tr>
<tr>
<td><strong>Respiratory disease</strong></td>
<td>2.7 Billion</td>
<td>7.66 Million</td>
<td></td>
<td>117,358</td>
<td>21%</td>
</tr>
<tr>
<td><strong>Cancer</strong></td>
<td>100 Million</td>
<td>9.56 Million</td>
<td></td>
<td>578,330</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Cardiovascular diseases</strong></td>
<td>485 Million</td>
<td>17.79 Million</td>
<td></td>
<td>117,868</td>
<td>26%</td>
</tr>
</tbody>
</table>
Open Access
10 Million article views & downloads on Frontiers ~2K Coronavirus research articles

Data source: Frontiers (November 2020)
A Snapshot of the Global Race for Vaccines Targeting SARS-CoV-2 and the COVID-19 Pandemic

Colin D. Funk, Craig Lafrenière, and Ali Ardakani

A novel coronavirus SARS-CoV-2 causing Coronavirus disease 2019 (COVID-19) has entered the human population and has spread rapidly around the world in the first half of 2020. The virus uses its spike glycoprotein to interact with host cell angiotensin-converting enzyme 2 (ACE2) to initiate a cascade of detrimental events.

Data source: Frontiers (November 2020)
1 Billion article views & downloads

Data source: Frontiers (November 2020)
Frontiers is the 5th most cited publisher in 2019
20 largest publishers ranked on number of average citations to articles published in 2017 – 2019

American Chemical Society | 7.0
Royal Society of Chemistry | 5.5
American Physical Society | 4.2
Elsevier | 4.0
Frontiers | 3.9
Oxford University Press | 3.8
IEEE | 3.5
Wiley | 3.4
PLOS | 3.4
MDPI | 3.4
Springer Nature | 2.8
BMJ Publishing Group | 2.7
SAGE | 2.1
Emerald | 2.1
Wolters Kluwer | 2.0
IOP | 1.8
Taylor & Francis | 1.8
Cambridge University Press | 1.7
American Institute of Physics | 1.6

Average citations (3yrs)

Data Source: SCImago 2020, Publishers ranked by number of average citations generated to articles published in a 3 year window (2017-19)
Frontiers is the 12th largest publisher overall in 2019 and the 5th largest Open Access publisher

Top 20 publishers by number of articles

1. Elsevier
2. Springer Nature
3. Wiley
4. Informa
5. MDPI
6. Oxford University Press
7. Ovid Technologies
8. SAGE
9. Institute of Electrical and... (indicated as part of the Electric Record example)
10. American Chemical Society
11. Royal Society of Chemistry
12. Frontiers
13. Cambridge University Press
14. Walter de Gruyter
15. Pleiades Publishing
16. IOP Publishing
17. Schattauer
18. BMJ
19. American Physical Society
20. Emerald

Top 20 publishers by number of OA articles

1. Springer Nature
2. MDPI
3. Elsevier
4. Wiley
5. Frontiers
6. Oxford University Press
7. Informa
8. Public Library of Science
9. Hindawi
10. Universidade de Sorocaba
11. SAGE
12. Walter de Gruyter
13. Institute of Electrical and... (indicated as part of the Electric Record example)
14. EDP Sciences
15. Blue Eyes Intelligence...
16. Ovid
17. Medknow
18. Royal Society of Chemistry
19. BMJ
20. Cambridge University Press

Data Source: Scilit 2020, https://www.scilit.net/rankings
Frontiers publishes high-quality articles in leading journals in collaboration with the research community.
Since we last met in May...

30K
Additional Articles published

24K
New Editors joined

17
Additional Journals launched
The magic ingredient: 227'000 Editors & Reviewers

- University of California System
- Centre National de la Recherche Scientifique (CNRS)
- Harvard University
- Chinese Academy of Sciences (CAS)
- University of Texas System
- National Institutes of Health (NIH)
- State University System of Florida
- INSERM
- Consejo Superior de Investigaciones Científicas (CSIC)
- Helmholtz-Gemeinschaft Deutscher Forschungszentren (HZ)
- University College London
- National Research Council (CNR)
- University of São Paulo
- Max-Planck-Gesellschaft (MPG)
- Sapienza University of Rome
- Stanford University
- Cornell University
- University of Oxford
- University of Toronto
- Institut National de la Recherche Agronomique (INRA)
- The Ohio State University
- University of Pittsburgh
- University of Michigan
- Johns Hopkins University
- The University of Queensland
- University of Zurich
- University of Pennsylvania
- University of Cambridge
- Zhejiang University
- University of Naples Federico II

- 20K Chief & Associate Editors
- 94K Review Editors
- 113K Reviewers
How do you as editors contribute to our Frontiers mission?

**Journal Development**
- Launching Sections & Journals
- Expanding Editorial Boards

**Content Acquisition**
- Hosting Research Topics
- Submitting Manuscripts

**Peer Review**
- Editing Manuscripts
- Reviewing Manuscripts
Changing the publishing paradigm to *open* - one journal at a time

Global journal map featuring 35k journals from Dimensions data, positioned based on journal citation links in the years 2016 to 2020.

**Frontiers**
- Life Sciences
- Physical Sciences
- Mathematics
- Engineering
- Humanities and Social Sciences
- Health

**Elsevier**
- Life Sciences
- Physical Sciences
- Mathematics
- Engineering
- Humanities and Social Sciences
- Health

**Wiley**
- Life Sciences
- Physical Sciences
- Mathematics
- Engineering
- Humanities and Social Sciences
- Health

**Oxford University Press**

**Springer Nature**

**Taylor & Francis**
Finding solutions to important global challenges through open dissemination

Frontiers’ Sustainability portfolio is growing

Claire Kremen
Field Chief Editor
University of British Columbia, Vancouver, Canada

Mark A Adams
Field Chief Editor
Swinburne University of Technology, Hawthorn, Australia

6 Journals
3'254 Editors
804 Publications

Cumulative Number of Published Articles

Days since launch
Making an impact in your field with a dedicated journal

Mel Slater
University of Barcelona, Spain

2014
Field Chief Editor
Frontiers in Robotics and AI
Specialty Chief Editor
Virtual Environments Section: 67 Editors

2019
Field Chief Editor
Frontiers in Virtual Reality

2020
Virtual Seminar Series
14 live-streamed talks hosted by the journal
Showing leadership in your area of expertise as a Chief Editor

Alessandro Isidori
Hematology and Stem Cell Transplant Center, AORMN Hospital, Italy

2015
Review Editor
Reviewed 21 manuscripts

2018
Associate Editor
Edited 14 manuscripts

2019
Specialty Chief Editor
Frontiers in Oncology
Hematological malignancies

2020
Hosted 4 RTs
Including: COVID-19 and Hematological Malignancies
Together with his co-SCE Pierluigi Porcu and 2 co-Topic Editors

Editors (cumulative)
Articles (cumulative)
Building a network of experts to spread your reach

Frontiers in Space Technologies

Frontiers in Communications and Networks

Aerial and Space Networks

2020 Launch

262 Editors

42 Countries

P Takis Mathiopoulos
Speciality Chief Editor
National and Kapodistrian University of Athens, Greece

Sofie Pollin
Speciality Chief Editor
KU Leuven Research & Development, Belgium
Bringing visibility to societal challenges and solutions

Helen Killaspy
University College London, UK

2018
Associate Editor
Frontiers in Psychiatry

2019
Prize
2019 Outstanding Achievement to Improve Mental Health Care

2020
Research Topic
Design and implementation of rehabilitation interventions for people with complex psychosis

"Ensuring this evidence is included in policy to support ongoing investment in longer term mental health rehabilitation"
Giving the stage to specific researcher communities

Frontiers in Chemistry

Rising Stars 2019
Suprastars of Chemistry
Rising Stars Asia
Rising Stars Oceania
Rising Stars Africa
Women in Science: Chemistry
Women in Supramolecular Chemistry

Field Chief Editor
Specialty Chief Editor
Associate Editor
Associate Editor
Review Editor
Review Editor

Steve Suib
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Tony D James
University of Bath, UK

Hongyan Sun
City University of Hong Kong

Tara L Pukala
University of Adelaide, Australia

Shivani Mishra
University of South Africa

Taner Yonar
Uludağ University, Turkey
Research Topics attract high-quality articles

Source: Frontiers (Tableau), total views, downloads and citations (Scopus) received in 2019 to published articles 2018-2017
Frontiers journals show a consistent citation track record.

Data Source: Journal Citation Reports (Web of Science Group).
Journals ranked by their 2019 IF percentile.
8 Frontiers journals are citation leaders

<table>
<thead>
<tr>
<th>Neurosciences* (259 journals)</th>
<th>Geriatrics &amp; Gerontology (51 journals)</th>
<th>Immunology (158 journals)</th>
<th>Microbiology (135 journals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd: Neuron</td>
<td>10,840</td>
<td>2nd: Journal of the American Geriatrics Society</td>
<td>2,884</td>
</tr>
<tr>
<td>3rd: Neuroimaging</td>
<td>10,270</td>
<td>3rd: Neurology of Aging</td>
<td>2,765</td>
</tr>
<tr>
<td>4th: Journal of Neuroscience</td>
<td>9,696</td>
<td>4th: The Journals of Gerontology Series A</td>
<td>2,419</td>
</tr>
<tr>
<td>5th: Nature Neuroscience</td>
<td>7,065</td>
<td>5th: Aging Cell</td>
<td>2,005</td>
</tr>
<tr>
<td>6th: Molecular Neurobiology</td>
<td>6,120</td>
<td>6th: Aging</td>
<td>1,971</td>
</tr>
<tr>
<td>7th: Journal of Alzheimer’s Disease</td>
<td>5,996</td>
<td>7th: Journal of the American Medical Directors Association</td>
<td>1,965</td>
</tr>
<tr>
<td>8th: Frontiers in Neuroscience Journal-series</td>
<td>5,201</td>
<td>8th: BMC Geriatrics</td>
<td>1,880</td>
</tr>
<tr>
<td>9th: Brain</td>
<td>5,181</td>
<td>9th: Experimental Gerontology</td>
<td>1,833</td>
</tr>
<tr>
<td>10th: Molecular Psychiatry</td>
<td>5,090</td>
<td>10th: Emerging Infectious Diseases</td>
<td>1,826</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physiology (81 journals)</th>
<th>Plant Sciences (234 journals)</th>
<th>Psychology (77 journals)</th>
<th>Psychology, Multidisciplinary (138 journals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st: Frontiers in Physiology</td>
<td>9,647</td>
<td>1st: Frontiers in Human Neuroscience</td>
<td>2,990</td>
</tr>
<tr>
<td>2nd: Journal of Cellular Physiology</td>
<td>6,699</td>
<td>2nd: Psychological Medicine</td>
<td>2,831</td>
</tr>
<tr>
<td>3rd: The Journal of Physiology</td>
<td>3,647</td>
<td>3rd: Psycho-Oncology</td>
<td>1,870</td>
</tr>
<tr>
<td>4th: Journal of Applied Physiology</td>
<td>2,094</td>
<td>4th: Psychological Bulletin</td>
<td>1,668</td>
</tr>
<tr>
<td>5th: Journal of Neurophysiology</td>
<td>2,078</td>
<td>5th: International Journal of Eating Disorders</td>
<td>1,590</td>
</tr>
<tr>
<td>6th: Journal of PinWheel Research</td>
<td>2,053</td>
<td>6th: Psychophysiology</td>
<td>1,181</td>
</tr>
<tr>
<td>7th: Physiological Reviews</td>
<td>2,047</td>
<td>7th: Social Cognitive &amp; Affective Neuroscience</td>
<td>1,137</td>
</tr>
<tr>
<td>8th: AJP Heart and Circulatory Physiology</td>
<td>2,013</td>
<td>8th: International Psychogeriatrics</td>
<td>1,114</td>
</tr>
<tr>
<td>9th: International Journal of Behavioral Nutrition</td>
<td>1,974</td>
<td>9th: Depression and Anxiety</td>
<td>1,035</td>
</tr>
<tr>
<td>10th: American Journal of Physiology Renal...</td>
<td>1,704</td>
<td>10th: The Journals of Gerontology Series B</td>
<td>1,025</td>
</tr>
</tbody>
</table>

Ranking of the top 10 most-cited journals in several JCR categories (2020 update released by Web of Science Group in June 2020, based on 2019 source data). Bar plots show the total number of citations in 2019 to articles published in 2017 and 2018, with Frontiers journals in blue.
### 8 Frontiers journals are citation leaders

<table>
<thead>
<tr>
<th>Neuroscience* (259 journals)</th>
<th>Geriatrics &amp; Gerontology (51 journals)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1st Frontiers in Neuroscience journal series</td>
<td>25,070</td>
<td>1st Frontiers in Aging Neuroscience</td>
<td>3,660</td>
<td>1st Frontiers in Microbiology</td>
<td>24,981</td>
</tr>
<tr>
<td>2nd Neuron</td>
<td>10,840</td>
<td>2nd Journal of the American Geriatrics Society</td>
<td>2,884</td>
<td>2nd Critical Reviews in Microbiology</td>
<td>9,065</td>
</tr>
<tr>
<td>3rd Neuroimage</td>
<td>10,270</td>
<td>3rd Neurobiology of Aging</td>
<td>2,785</td>
<td>3rd Microbial Reviews</td>
<td>8,330</td>
</tr>
<tr>
<td>4th Journal of Neuroscience</td>
<td>9,696</td>
<td>4th The Journals of Gerontology Series A</td>
<td>2,419</td>
<td>4th Journal of Immunology</td>
<td>7,601</td>
</tr>
<tr>
<td>5th Nature Neuroscience</td>
<td>7,056</td>
<td>5th Aging Cell</td>
<td>2,005</td>
<td>5th Bacteriology</td>
<td>6,969</td>
</tr>
<tr>
<td>6th Molecular Neurobiology</td>
<td>6,120</td>
<td>6th Aging</td>
<td>1,971</td>
<td>6th Fungal Biology</td>
<td>6,118</td>
</tr>
<tr>
<td>7th Journal of Alzheimer’s Disease</td>
<td>5,396</td>
<td>7th The Journal of American Medical Directors</td>
<td>1,956</td>
<td>7th Journal of Antimicrobial Chemotherapy</td>
<td>5,129</td>
</tr>
<tr>
<td>8th Frontiers in Neurology</td>
<td>5,201</td>
<td>8th BMC Geriatrics</td>
<td>1,800</td>
<td>8th Microbiology</td>
<td>4,944</td>
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<td>5,181</td>
<td>9th Experimental Gerontology</td>
<td>1,833</td>
<td>9th Molecular Biology</td>
<td>4,178</td>
</tr>
<tr>
<td>10th Molecular Psychiatry</td>
<td>5,090</td>
<td>10th Aging Research Reviews</td>
<td>1,826</td>
<td>10th Microbial Reviews in Biotechnology</td>
<td>3,664</td>
</tr>
</tbody>
</table>

**Contributors**

- **Prof Idan Segev** - Hebrew University of Jerusalem, Israel
- **Prof Hauke R Heekeren** - Freie Universität Berlin, Germany
- **Prof Srikanth S Nagarajan** - University of California, San Francisco, USA
- **Dr Stephanie Maret** - Journal Manager
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- **Prof Srikantan Nagarajan** - University of California, San Francisco, USA
### Microbiology (135 journals)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Frontiers in Microbiology</td>
<td>15.185</td>
</tr>
<tr>
<td>2nd</td>
<td>Clinical Infectious Diseases</td>
<td>10.639</td>
</tr>
<tr>
<td>3rd</td>
<td>Antimicrobial Agents and Chemotherapy</td>
<td>6.474</td>
</tr>
<tr>
<td>4th</td>
<td>PlcP Pathogens</td>
<td>7.358</td>
</tr>
<tr>
<td>5th</td>
<td>Mbio</td>
<td>6.567</td>
</tr>
<tr>
<td>6th</td>
<td>The Journal of Infectious Diseases</td>
<td>5.499</td>
</tr>
<tr>
<td>7th</td>
<td>Journal of Antimicrobial Chemotherapy</td>
<td>5.178</td>
</tr>
<tr>
<td>8th</td>
<td>Nature Microbiology</td>
<td>4.864</td>
</tr>
<tr>
<td>9th</td>
<td>Applied and Environmental Microbiology</td>
<td>4.671</td>
</tr>
<tr>
<td>10th</td>
<td>The ISME Journal: Multidisciplinary (4 journals)</td>
<td>4.636</td>
</tr>
</tbody>
</table>

### Physiology (81 journals)

<table>
<thead>
<tr>
<th>Rank</th>
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<th>Impact Factor</th>
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<td>Journal of Pinel Research</td>
<td>2.063</td>
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<tr>
<td>7th</td>
<td>Physiological Reviews</td>
<td>2.047</td>
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<td>2.013</td>
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<td>9th</td>
<td>International Journal of Behavioral Nutrition</td>
<td>1.974</td>
</tr>
<tr>
<td>10th</td>
<td>American Journal of Physiology: Renal...</td>
<td>1.704</td>
</tr>
</tbody>
</table>

### Plant Science (234 journals)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Frontiers in Plant Science</td>
<td>17.970</td>
</tr>
<tr>
<td>2nd</td>
<td>New Plant Physiologist</td>
<td>8.197</td>
</tr>
<tr>
<td>3rd</td>
<td>Plant Physiology</td>
<td>6.350</td>
</tr>
<tr>
<td>4th</td>
<td>Journal of Experimental Botany</td>
<td>4.674</td>
</tr>
<tr>
<td>5th</td>
<td>The Plant Journal</td>
<td>4.194</td>
</tr>
<tr>
<td>6th</td>
<td>Journal of Ethnopharmacology</td>
<td>3.355</td>
</tr>
<tr>
<td>7th</td>
<td>The Plant Cell</td>
<td>3.328</td>
</tr>
<tr>
<td>8th</td>
<td>Journal of Natural Products</td>
<td>2.861</td>
</tr>
<tr>
<td>9th</td>
<td>Plant Physiology and Biochemistry</td>
<td>2.835</td>
</tr>
<tr>
<td>10th</td>
<td>Plant Cell &amp; Environment</td>
<td>2.780</td>
</tr>
</tbody>
</table>

### Immunology (158 journals)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Impact Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Frontiers in Immunology</td>
<td>24.881</td>
</tr>
<tr>
<td>2nd</td>
<td>Clinical Infectious Diseases</td>
<td>9.086</td>
</tr>
<tr>
<td>3rd</td>
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<td>Vaccine</td>
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### Psychology, Multidisciplinary (138 journals)

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<tr>
<td>2nd</td>
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<td>Psycho-Oncology</td>
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<td>Psychological Science</td>
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<td>5th</td>
<td>Psychological Bulletin</td>
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<tr>
<td>6th</td>
<td>Current Opinion in Psychology</td>
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<tr>
<td>7th</td>
<td>Perspectives on Psychological Science</td>
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<td>8th</td>
<td>Neurobiology of Learning and Memory</td>
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<td>9th</td>
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8 more journals are in the top 10

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**Ranking of the top 10 most-cited journals in several JCR categories (2020 update released by Web of Science Group in June 2020, based on 2019 source data). Bar plots show the total number of citations in 2019 to articles published in 2017 and 2018, with Frontiers journals in blue.**
Frontiers is the 5th most cited publisher in 2019
20 largest publishers ranked on number of average citations to articles published in 2017 – 2019

Data Source: Scimago 2020, Publishers ranked by number of average citations generated to articles published in a 3 year window (2017-19)
Maximizing quality with cutting-edge technology
Goals of Technology

Maximize quality
Augment human decisions
Give time back to researchers
Goals of Technology

- Maximize quality
- Augment human decisions
- Give time back to researchers
Achieving high quality in peer review at scale

- Collaboration
- Accountability
- Transparency
- Rigor
Achieving high quality with COLLABORATION

Collaboration

Authors interact directly with the reviewers
Achieving high quality with ACCOUNTABILITY

The editor and reviewers are named on the publication

Accountability

Edited by

Hauke R. Heekeren
Freie Universität Berlin, Germany

Reviewed by

Francisco Barceló
University of the Balearic Islands, Spain

Gianfranco Spalletta
Santa Lucia Foundation (IRCCS), Italy

The editor and reviewers are named on the publication.
Achieving high quality with TRANSPARENCY

Transparency

Researcher profiles linked to their editorial work
Achieving high quality with TRANSPARENCY

Transparency

Researcher profiles linked to their editorial work
Achieving high quality with TRANSPARENCY

Transparency

Researcher profiles linked to their editorial work

Computational Neuropsychology and Bayesian Inference

Thomas Parr1, 2, Geraint Rees1 and Karl J. Friston1

1Wellcome Trust Centre for Neuroimaging, Institute of Neurology, University College London, London, United Kingdom
2Institute of Cognitive Neuroscience, University College London, London, United Kingdom

Computational theories of brain function have become very influential in neuroscience. They have facilitated the growth of formal approaches to disease, particularly in psychiatric research. In this paper, we provide a narrative review of the body of computational research addressing neuropsychological syndromes, and focus on those that employ Bayesian frameworks. Bayesian approaches to understanding brain function formulate perception and action as inferential processes. These inferences combine ‘prior’ beliefs with a generative (predictive) model to explain the causes of sensations. Under this view, neuropsychological deficits can be thought of as false inferences that arise due to aberrant prior beliefs (that are poor fits to the real world). This draws upon the notion of a Bayes optimal pathology – optimal inference with suboptimal priors – and provides a means for computational phenotyping. In principle, any given neuropsychological disorder could be characterized by the set of prior beliefs that would make a patient’s behavior appear Bayes optimal. We start with an overview of some key theoretical constructs and use these to motivate a form of computational neuropsychology that relates anatomical structures in the brain to the computations they perform. Throughout, we draw upon computational accounts of neuropsychological syndromes. These are
Achieving high quality with RIGOR

Rigor

Matching the best experts to the manuscript

powered by

A I R A
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Rigor

Matching the best experts to the manuscript

powered by A I R A
Achieving high quality with RIGOR

Rigor

Matching the best experts to the manuscript

powered by A | I | R | A
Achieving high quality with RIGOR

Stringent quality checks on the manuscript and during peer review

powered by A I R A
Achieving high quality with RIGOR

Rigor

AIRA repeated pattern detection identifies potentially manipulated images

powered by

AIRA

Image integrity check
17 Nov 2020-14:26 GMT
I am checking for areas of similarity within figures. Flagged images should be checked to see if the areas of similarity are intentional.

Feature duplication detection
17 Nov 2020-14:26 GMT
Aneesh Khetani
Manuscript contains repeated patterns in images, following up

Change to AIRA’s last interpretation
16 Nov 2020-15:21 GMT
AIRA: I processed 4 images out of 4 and I detected 2 images with areas of similarity: Figure 2.TIF, Figure 4.TIF. Please confirm this similarity is expected.

Images with similarities detected:

Figure 2.TIF, Figure 4.TIF

DETAILS
Achieving high quality with RIGOR

Rigor

AIRA repeated pattern detection identifies potentially manipulated images

powered by AIARA
Achieving high quality with RIGOR

Rigor

AIRA repeated pattern detection identifies potentially manipulated images

powered by

A I R A
Goal of Technology

Maximize quality
Augment human decisions
Give time back to researchers
AIRA is famous

The New York Times

Do You Have a Conflict of Interest? This Robotic Assistant May Find It First

They can't detect all conflicts, but new computer programs serve as guard rails when scientists and publishers fail to self-police.

By Dharitri Singh Chawla
Nov. 23, 2020

What should science do about conflicts of interest? When they are identified, they become an obstacle to objectivity — a key test and a cornerstone of academia and research — and the truth behind what scientists report is called into question.

Sometimes a conflict of interest is clear cut. Researchers who fail to disclose a funding source with a business interest in the outcome are often likely to undermine the legitimacy of their findings. Additionally, when an author of a paper has worked extensively on other research with an editor of a journal, the conflict of interest can look glaringly obvious. (Such a case led one journal to retract two papers in 2007.)


IEEE SPECTRUM

Peer Review of Scholarly Research Gets an AI Boost

Open-access publisher’s new artificial intelligence assistant, AIRA, can perform up to 20 recommendations in seconds

By Parag Dhar

In the world of academics, peer review is considered the only credible validation of scholarly work. Although the process has its detractors, evaluation of academic research by a cohort of contemporaries has endured for over 350 years, with “relatively minor changes.” However, peer review may be set to undergo its biggest revolution ever—the integration of artificial intelligence.

Collaboration in action: Coronavirus response
We built a validated knowledge base on all aspects of the COVID-19 pandemic.

coronavirus.frontiersin.org

10M views
We received over 7’000 coronavirus article submissions

2,534 Rejections
2,067 Acceptances
$5M COVID waivers

Top COVID-19 Research

Studies of COVID-19’s envelope protein

27 July 2020 | A protein in the viruses causing COVID-19 and SARS is almost identical. Researchers propose testing if targeting COVID-19 with FDA-approved drugs, usually tested in mice infected with SARS, could improve the outcomes for COVID-19 patients experiencing severe respiratory symptoms. 

Depression and anxiety rise among new moms amidst the COVID-19 pandemic

30 June 2020 | Pregnant and postpartum women are already at a high risk of depression and anxiety. The coronavirus pandemic is exacerbating those struggles according to a recent study published in Frontiers in Global Women’s Health, which found that the likelihood of maternal depression and anxiety has substantially increased during the health crisis.

Association between morbidity and poverty revisited in the USA

17 June 2020 | After March, disproportionately more cases occurred in richer counties while poorer areas had higher death rates. This has been attributed to lower availability of quality healthcare as well as to testing and treatment for COVID-19, a higher disease burden of risk factors, a lower probability of working from home, and a higher probability of using public transport.

The best strategy for lifting COVID-19 lockdown: an optimization approach

10 June 2020 | Mathematical modeling shows that resuming lockdown in two steps is optimal for society as a whole, while suddenly releasing everyone to a high-risk strategy is not.

See all research
Coronavirus Research Topics
Encyclopedic coverage of all aspects of Coronavirus research

1'014'964 Views
Harnessing the power of mass media

3'699'043 Views
Solutions for COVID-19

129'257 Views
Mental health during COVID-19

388'431 Views
From pathology to therapies

481'680 Views
Psychological effects of a pandemic

133'779 Views
Implications for neurology patients
We collaborate with the WEF to amplify the scientific voice amongst business and policy leaders.
Coronavirus Funding Monitor

214
Total funding calls

1.5 Bn
Estimated funding available in USD
Paradigm of Teamwork

Seamless partnership among all roles in the cycle, powered by Frontiers

+2K articles published
6,037 reviewers
156 Reviewer Task Force
234 Specialty Sections
10M Views & Downloads
55 Journal Teams
36’283 authors
7,108 articles submitted
168 Research Topic Project
737 COVID-themed Topic Editors
Paradigm of Teamwork

Seamless partnership among all roles in the cycle, powered by Frontiers

- +2K articles published
- 6,037 reviewers
- 156 Reviewer Task Force
- 234 Specialty Sections
- 10M Views & Downloads
- 7,108 articles submitted
- 168 Research Topic Project
- 737 COVID-themed Topic Editors
- 36'283 authors
- 55 Journal Teams
- 10M Views & Downloads
A taskforce that got the job done

**Aim:**
expedite peer review for COVID-19 related articles

**Strategy:**
hand-picked group of 'top' reviewers

156 Reviewers on board

Zisis Kozlakidis
Denise Doolan
Marc Jean Struelens
William Cho
Pietro Ghezzi
Stepping up to the Coronavirus challenge

Zisis Kozlakidis
International Agency For Research On Cancer (IARC), France
Associate Editor for
Infectious Diseases – Surveillance, Prevention and Treatment
Rapid-response review taskforce of 156 researchers
Frontiers survey: The academic response to COVID-19
This year, **science** was more important than ever

1. How have you been affected by the pandemic?
2. What are your perceptions of the political response?
3. What impact has there been on funding?
4. What are your attitudes to publishing and sharing research?
5. How can you contribute to finding solutions?
6. How can we mitigate future disasters?
One of the largest academic surveys ever conducted

- 152 countries represented
- 25,307 total respondents

Thank you to all of you who participated!
The science must go on

The majority of researchers have been able to continue working

- 70% It's an inconvenience, but I am managing to perform the majority of my tasks
- 20% My role has changed completely or I am no longer able to perform my work function
- 10% My working processes are unaffected

24,894 respondents

Writing papers for publication has been the most common task during the pandemic

- 74% Writing papers for publication
- 57% Continuing with my research
- 42% Virtual teaching
- 12% Other
- 7% Key worker involved in dealing with COVID-19
- 3% Not working

24,918 respondents
Countries have different levels of satisfaction with policy makers’ use of scientific advice

I agree that policy makers have taken scientific advice into account

- Agree & strongly agree
- Neither agree nor disagree
- Disagree & strongly disagree

20,694 respondents
Countries have different levels of satisfaction with policy makers’ use of scientific advice

<table>
<thead>
<tr>
<th>Country</th>
<th>Respondents</th>
<th>Agree &amp; strongly agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree &amp; strongly disagree</th>
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I agree that policy makers have taken scientific advice into account

- Agree & strongly agree
- Neither agree nor disagree
- Disagree & strongly disagree

20,694 respondents
### Press coverage

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<tr>
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**Graphic detail**

### Daily chart

Are governments following the science on covid-19?

According to a new survey, many scientists believe they are being ignored.

The scientific method:

Policymakers have taken scientific advice into account during covid-19. % responding.

Survey of each country's scientists. May-June 2020.

- Agree or strongly agree
- Neither agree nor disagree
- Disagree or strongly disagree


The chart shows the percentage of scientists in each country who agree or strongly agree that policymakers have taken scientific advice into account during the COVID-19 pandemic.
Researchers list future pandemics and climate change as key threats which we can prepare for and mitigate with science.

What future threats could be prevented if we prepare for them properly?

- Future pandemics: 28%
- Climate change and environmental threats: 21%
- Further waves of COVID-19: 12%
- Socio-economic threats: 10%
- Threats to public health and other medical issues: 10%
- Political problems, fake news, or warfare: 7%

16,208 respondents
Researchers list future pandemics and climate change as key threats which we can prepare for and mitigate with science.
**Expert Commentators**

**Prof. Xia Li**  
Huazhong Agricultural University, Wuhan, China

"Academic institutions must implement stringent response policies, ensuring that researchers and students feel safe."

**Prof. James Wilsdon**  
Professor of Research Policy at the University of Sheffield, Director of the Research on Research Institute

"If this outbreak teaches us anything, it should be the importance of investing in preparedness and resilience."

**Prof. Martin Siegert**  
Co-Director, The Grantham Institute Imperial College London

"In the case of climate change, the cost of failing to prepare adequately will be catastrophic."

**Prof. Faith Osier**  
President, International Union of Immunological Societies

"Despite the pressure to provide answers, the scientific community must proceed as it always has – thoroughly and with rigor."

**Prof. Peter Gluckman**  
Chair, International Network for Government Science Advice

"Scientific advice will only succeed if policy makers are receptive to it."

Social media visibility

9M
Social Media Views
Read the full report

The academic response to the recent outbreak

Available to download here:

Strengthening the scientific voice: Frontiers Policy Labs
A new platform to connect scientific evidence with policy in priority areas and social challenges: COVID-19, climate change, inequality, AI, science policy, and more.

https://policylabs.frontiersin.org/
Never waste a good crisis: we must already consider and prepare for the challenges of a post-corona world.
We need a data-driven approach to rethink our world

In the first series Jean-Claude Burgelman discusses the lessons of COVID-19 for science and policy.

Jean-Claude Burgelman
Free University, Brussels

Jennifer Hansen
Microsoft

James Wilsdon
Director Research on Research Institute, Sheffield

Robert-Jan Smits
Chairman, Eindhoven University of Technology

Helga Nowotny
Former President European Research Council

Sir Peter Gluckman
Chair Int. Network for Govt. Science Advice (INGSA)

in collaboration with: KEYSTONE SYMPOSIA
Thank you