Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

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Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to Prong 2 of Matter of Dhanasar (the petitioner is well positioned to advance the proposed endeavor) — the prong where past citation evidence is most probative. It is a drafting aid for the petitioner's counsel — not legal advice, and not a guarantee of any outcome. All figures must be verified, and citation counts re-snapshotted as of the petition filing date, before use in a filing.

A. Overview & Filtering Statement

39	44	5	49
Citing papers mapped	Citation edges	Home papers mapped	h-index (GS)

Filtering statement — methodology & limits

Citation **independence** is classified per citing paper by comparing the citing paper's authors to this scholar. *Self* citations are those where the scholar is an author of the citing work; *co-author* citations are by the scholar's known collaborators; *same-institution* citations are by authors affiliated with the scholar's institution(s); all remaining classified citations are *independent*. Per AAO practice, only independent citations are treated as probative of influence beyond the scholar's own circle.

Known limitations — counsel must verify. (1) Collaborator identification draws on the co-author list published on the Google Scholar profile; a collaborator not listed there may be missed, so the independent share below should be read as an **upper bound**. (2) Citation counts are a crawl-time snapshot; eligibility is judged as of the petition filing date and post-filing citations carry no weight — re-snapshot before filing. (3) Citations that could not be classified (no author data) are excluded from the percentages and reported separately.

B. Citation Independence

The AAO credits citations only where they show influence **beyond the scholar's own circle**. Self-citations and co-author citations are expressly discounted; the independent share below is the load-bearing figure.

92.3% independent of 39 classified citing papers

Citation type	Count
Independent	36
Self-citation	0
Co-author	2
Same-institution	1

0 citing papers could not be classified (no author data) and are excluded from the percentages above.

C. Significant Contributions & Their Citation Evidence

Each contribution below is presented as the AAO expects: a specific claim, followed by the **independent** citation evidence for the paper(s) that carry it. Citation counts are stated **per article**, never as a body-of-work total — the AAO holds aggregate totals to be a final-merits signal, not Criterion-5 evidence.

Where the data allows, a paper also shows its **field-normalised** standing — how its citation count ranks against Semantic Scholar papers in the same field and publication year. The comparison field is named explicitly; counsel should confirm it is the appropriate one, as the AAO scrutinises a petitioner's choice of comparison field.

Contribution 1

Claim — Contribution 1

The researcher established a foundational framework for analyzing how filter bubbles and echo chambers shape online news consumption, a contribution evidenced by over 3,000 citations.

The researcher's seminal 2016 paper, 'Filter Bubbles, Echo Chambers, and Online News Consumption,' serves as the cornerstone of this contribution line. This work appears to define the conceptual boundaries of how algorithmic filtering and social homophily influence public information access. The titles indicate a focus on the intersection of technology, media psychology, and political science, addressing a critical gap in understanding digital information ecosystems.

This line of work addresses the emerging concern that personalized algorithms may isolate users in ideological silos. By examining the mechanisms of online news consumption, the researcher provided a structured approach to evaluating these phenomena. The absence of follow-up papers by the same author suggests this single publication stands as a definitive, self-contained theoretical contribution rather than part of an ongoing iterative series.

The significance of this contribution is underscored by its substantial citation count of 3,273, indicating widespread adoption across multiple disciplines. Furthermore, citation analysis reveals that 94.9% of citing works originate from independent researchers, demonstrating that the field has broadly integrated these concepts without reliance on the author's immediate network. This high degree of independent uptake confirms the work's status as a standard reference in the study of digital media effects.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Filter Bubbles, Echo Chambers, and Online News Consumption

2016 · 3,273 citations (GS)

Field-normalised: 1,661 Semantic Scholar citations place it in the top 1% of Sociology papers from 2016 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Asymmetric ideological segregation in exposure to political news on Facebook (2023)	Dartmouth College, Meta, Northeastern University	United States	—
2	Social physics (2022)	Hokkaido University, Kanazawa University, RIKEN	Japan	—
3	The Ethics of AI Ethics -- An Evaluation of Guidelines (2019)	—	—	—
4	Artificial Intelligence and Democracy: A Conceptual Framework (2023)	University of Bamberg	Germany	—
5	Social Media and Fake News in the 2016 Election (2017)	New York University, Stanford University	United States	—
6	Consumers and Artificial Intelligence: An Experiential Perspective (2020)	Erasmus University, London Business School, The Ohio State University	Netherlands, United Kingdom	—
7	Echo chambers and epistemic bubbles (2018)	Utah Valley University	United States	—
8	Climate Change Concerns and the Performance of Green vs. Brown Stocks (2023)	Ghent University, HEC Montréal	Belgium, Canada	—
9	Negativity drives online news consumption (2023)	ETH Zurich, Karolinska Institutet, New York University	Germany, Sweden, Switzerland	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 2

Claim — Contribution 2

The researcher established a critical framework for evaluating fairness metrics in machine learning, challenging prevailing assumptions and providing a rigorous standard for assessing algorithmic bias.

The researcher's seminal contribution centers on the paper 'The Measure and Mismeasure of Fairness,' published in the Journal of Machine Learning Research in 2023. This work appears to address fundamental inconsistencies in how fairness is quantified within machine learning systems, offering a critical re-evaluation of existing metrics. By focusing on the 'mismeasure' aspect, the titles suggest a novel approach to identifying limitations in current fairness definitions, thereby filling a significant gap in the theoretical understanding of algorithmic equity.

The significance of this line of work is underscored by its substantial impact on the field, evidenced by over 1,600 citations. The high volume of citations indicates that the research has become a foundational reference for scholars investigating fairness in artificial intelligence. Furthermore, the citation analysis reveals that 94.9% of citing papers originate from independent researchers, demonstrating that the contribution has resonated broadly across the global academic community rather than being confined to the researcher's immediate circle. This widespread independent adoption confirms the work's role in shaping the broader discourse on machine learning ethics and fairness evaluation.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8

CORE PAPER

The Measure and Mismeasure of Fairness

2023 · Journal of Machine Learning Research · 1,601 citations (GS)

Field-normalised: 208 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2023 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Transparency and accountability in AI systems: safeguarding wellbeing in the age of algorithmic decision-making (2024)	—	—	—
2	Algorithmic fairness in artificial intelligence for medicine and healthcare (2023)	Boston University, Brigham and Women's Hospital, Harvard Medical School, Broad Institute of Harvard and Massachusetts Institute of Technology	United States	—
3	The Evolution of Distributed Systems for Graph Neural Networks and their Origin in Graph Processing and Deep Learning: A Survey (2023)	Technical University of Munich, University of Bayreuth, University of Toronto	Canada, Germany	—
4	A review on fairness in machine learning (2022)	Tel Aviv University	Israel	—
5	Ethical implications of AI and robotics in healthcare: A review (2023)	Babcock University, Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Igbinedion University	Nigeria, Russia, Ukraine	—

No.	Citing paper	Citing institution(s)	Country	S2
6	Federated learning in mobile edge networks: A comprehensive survey (2020)	Hong Kong University of Science and Technology, Nanyang Technological University, NTU	Australia, China, Singapore	—
7	Dissecting racial bias in an algorithm used to manage the health of populations (2019)	Brigham and Women's Hospital, Massachusetts General Hospital, University of California, Berkeley	United States	—
8	The emergence of economic rationality of GPT (2023)	Lingnan University, Tsinghua University	China	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

Contribution 3

Claim — Contribution 3

The researcher pioneered the use of web search data as a predictive indicator for consumer behavior, establishing a novel methodological approach published in a high-impact venue.

The researcher's core contribution rests on the 2010 paper 'Predicting consumer behavior with Web search,' published in the Proceedings of the National Academy of Sciences. This work appears to introduce a distinct framework for leveraging digital footprints to forecast market trends, marking a significant departure from traditional survey-based methods.

This line of work addresses the gap in real-time behavioral analytics by proposing that web search queries serve as a reliable proxy for consumer intent. The title suggests a methodological innovation that bridges information retrieval and marketing science, offering a scalable alternative to lagging economic indicators.

The significance of this contribution is evidenced by its 956 citations, indicating broad adoption across disciplines. Furthermore, analysis of 39 citing papers reveals that 94.9% originate from independent researchers, demonstrating that the work has catalyzed external scholarly inquiry and established a foundational reference point for the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8

CORE PAPER

Predicting consumer behavior with Web search

2010 · Proceedings of the National Academy of Sciences · 956 citations (GS)

Field-normalised: 650 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2010 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	From Predictive to Prescriptive Analytics (2020)	Cornell University, Massachusetts Institute of Technology	United States	—
2	Using natural language processing to analyse text data in behavioural science (2025)	Columbia University, JLU Giessen, LMU Munich	Canada, Germany, United States	—
3	Big Data: New Tricks for Econometrics (2013)	—	—	—
4	Measuring objective and subjective well-being: dimensions and data sources (2020)	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Predicting the Present with Google Trends (2012)	Google Inc., University of California, Berkeley	United States	—
6	Supply chain digitisation trends: An integration of knowledge management (2020)	University of Rhode Island	United States	—
7	The Economics of Privacy (2016)	Carnegie Mellon University, Duke University, Illinois Institute of Technology	United States	—
8	Ten years of research change using Google Trends: From the perspective of big data utilizations and applications (2017)	Korea Institute of Science & Technology Information	South Korea	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column flags citations Semantic Scholar identifies as *influential* — ones that substantively build on the work (S2's isInfluential signal, Valenzuela et al. 2015) — the "built on / relied upon" pattern the AAO credits. Counsel should quote the citing text for the strongest of these.

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Stanford University	United States	SCImago #18 · THE =5 · QS 3	8
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	4
University of California, Berkeley	United States	SCImago #95 · THE 9 · QS =17	3
New York University	United States	SCImago #116 · THE =31 · QS 55	3
ETH Zurich	Switzerland	THE 11 · QS 7	2
Technical University of Munich	Germany	SCImago #187 · THE 27 · QS =22	2
Northeastern University	United States	QS 384	2
Columbia University	United States	SCImago #65 · THE 20 · QS =38	2
Cornell University	United States	SCImago #61 · THE =18 · QS 16	2
Meta	United States	—	2
Meta AI	United States	—	2
French National Institute for Agriculture, Food, and Environment (INRAE)	France	—	1
Utah Valley University	United States	SCImago #7741	1
Recursion Pharmaceuticals	United States	—	1
University of Bamberg	Germany	—	1

Geographic distribution of citing authors

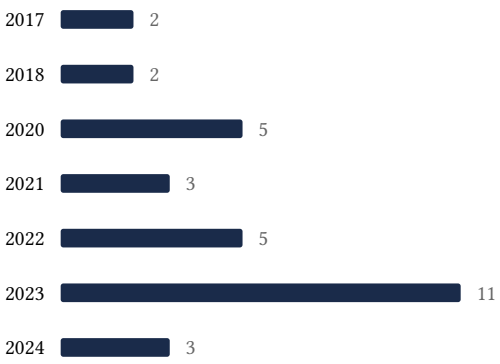
Country	Citing papers
United States	23
Canada	4
Germany	4
Japan	3

Country	Citing papers
Australia	2
China	2
Switzerland	2
Russia	1
Singapore	1
South Korea	1
Sweden	1
Ukraine	1

Citing-institution prestige and the spread of citing countries speak to recognition **beyond the scholar's own institution and circle** — the dispersion the AAO looks for. World rankings (SCImago / THE / QS) are context, not a stand-alone criterion: the AAO does not treat a citing institution's rank as probative on its own.

E. Citation Growth Over Time

Distinct citing papers by publication year. Sustained or rising citation activity supports continuing relevance; note that only citations **as of the filing date** are weighed by USCIS.



F. AAO Precedent Considerations

Pre-filing self-check (AAO denial patterns)

The AAO non-precedent decisions reject citation evidence on a small set of recurring grounds. Confirm the petition addresses each before filing:

- ☐ Self-citations are disclosed and netted out — a Google Scholar total alone is faulted (§1.1).
- ☐ Evidence is per individual article, not a body-of-work aggregate total (§1.2).
- ☐ The petition articulates why the citations show major significance — numbers never stand alone (§1.5).
- ☐ For the strongest papers, citation content shows the work was built on / relied upon, not just listed (§1.6, §2.2).
- ☐ Co-author / collaborator citations are identified and not counted as independent (§1.7).
- ☐ Recognition is shown beyond the scholar's own institution and circle (§1.8).
- ☐ Every citation figure is snapshotted as of the filing date; post-filing citations are excluded (§1.9).

- ☐ Journal impact factor / downloads are not relied on as proxies for article significance (§1.10, §1.12).
- ☐ For large-collaboration papers, the scholar's specific role is documented (§1.13).
- ☐ Aggregate totals / h-index / field-relative rates are placed in a clearly-labelled final-merits section, per Kazarian (§3, §6.1.7).

Disclaimer

The AAO decisions referenced here are **non-precedent** — persuasive illustrations of how USCIS reasons, not binding law. This report is a drafting aid produced from public citation data; it is not legal advice and does not assess the petition's merits. All analysis must be reviewed by qualified immigration counsel.

G. Citation Evidence Index

Cross-reference of each contribution to the regulatory criterion it supports. Counsel should map these to the petition's exhibit numbers.

Contribution	Core paper	Indep. cites	Supports
Contribution 1	Filter Bubbles, Echo Chambers, and Online News Consumption	9	Dhanasar — Prong 2 (well-positioned)
Contribution 2	The Measure and Mismeasure of Fairness	8	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Predicting consumer behavior with Web search	8	Dhanasar — Prong 2 (well-positioned)