Citation Evidence Report

EB-2 NIW Petition — National Interest Waiver

Matter of Dhanasar · Prong 2 (well-positioned)

Manoel Horta Ribeiro

Princeton University

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

13	13	2	28
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 13 classified citing papers

Citation type	Count
Independent	12
Self-citation	0
Co-author	0
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 developed a deep neural network framework for the automatic diagnosis of 12-lead ECGs, establishing a seminal benchmark in AI-driven cardiology.

The researcher's primary contribution is the development of a deep neural network for the automatic diagnosis of 12-lead ECGs, as detailed in a 2020 paper published in Nature Communications. This work stands as a core achievement in the field, with no subsequent follow-up papers by the same author listed in this specific line of inquiry.

This line of work appears to address the challenge of automating cardiac diagnosis through advanced machine learning techniques. By applying deep neural networks to standard 12-lead ECG data, the research suggests a novel approach to interpreting complex cardiac signals, potentially reducing reliance on manual expert analysis.

The significance of this contribution is evidenced by its high citation count of 1,342, indicating substantial uptake by the scientific community. Furthermore, analysis of citing papers reveals that 92.3% originate from independent researchers, demonstrating that the work has influenced scholars outside the researcher's immediate institution and collaboration network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Automatic diagnosis of the 12-lead ECG using a deep neural network

2020 · Nature Communications · 1,342 citations (GS)

Field-normalised: 932 Semantic Scholar citations place it in the top 1% of Medicine papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	2D Materials in Flexible Electronics: Recent Advances and Future Prospectives (2023)	Yonsei University	South Korea	—
2	Use of Artificial Intelligence in Improving Outcomes in Heart Disease: A Scientific Statement From the American Heart Association (2024)	Advocate Health Care, American Heart Association, Cleveland Clinic	Canada, France, United Kingdom	**Methodology**
3	Artificial intelligence-enhanced electrocardiography in cardiovascular disease management (2021)	Mayo Clinic	United States	**Methodology**
4	An on-chip photonic deep neural network for image classification (2022)	University of Pennsylvania	—	—
5	Stretchable surface electromyography electrode array patch for tendon location and muscle injury prevention (2023)	Southern University of Science and Technology, University of Leeds	China, United Kingdom	—
6	Deep Learning-Based ECG Arrhythmia Classification: A Systematic Review (2023)	China University of Geosciences, MAHSA University, Universiti Kebangsaan Malaysia	China, Malaysia	Background
7	Artificial intelligence-enhanced electrocardiography for accurate diagnosis and management of cardiovascular diseases (2024)	Mayo Clinic	United States	—
8	Soft bioelectronics for the management of cardiovascular diseases (2024)	Seoul National University	South Korea	**Influential**

No.	Citing paper	Citing institution(s)	Country	S2
9	Multistain deep learning for prediction of prognosis and therapy response in colorectal cancer (2023)	Friedrich-Alexander-Universität Erlangen-Nürnberg, Johannes Gutenberg University Mainz, Marien Hospital Mainz	Germany, United Kingdom	Background
10	An Electrocardiogram Foundation Model Built on over 10 Million Recordings (2025)	Beth Israel Deaconess Medical Center, Emory University School of Medicine, Harvard Medical School	China, United Kingdom, United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

Citing-text excerpts — how the field used this work

METHODOLOGY Use of Artificial Intelligence in Improving Outcomes in Heart Disease: A Scientific Statement From the American Heart Association

"25 For issues pertaining to data privacy, and ethical and legal challenges, techniques such as "federated learning" may accelerate algorithm development by enabling a col-laborator to download a developed AI/ML tool for use on their local data."

METHODOLOGY Artificial intelligence-enhanced electrocardiography in cardiovascular disease management

"For instance, using 2 million labelled single-lead ECG traces collected in the Clinical Outcomes in Digital Electrocardiology study, one group used a CNN to identify six types of abnormalities on the 12-lead ECG 9 ."

Contribution 2

Claim — Contribution 2

The researcher advanced the auditing of radicalization pathways on YouTube, establishing a foundational framework for analyzing algorithmic influence on extremist content dissemination.

The researcher's contribution centers on the seminal 2020 paper 'Auditing radicalization pathways on YouTube,' published in the Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency. This work stands as the core of this research line, with no subsequent follow-up papers by the same author identified in the provided data.

This line of work appears to address the critical need for systematic methods to evaluate how online platforms facilitate radicalization. By focusing on auditing pathways, the research suggests a novel approach to understanding the structural and algorithmic factors that guide users toward extremist content, filling a gap in the empirical assessment of platform accountability.

The significance of this contribution is evidenced by its substantial citation count of 891, indicating widespread recognition within the field. Furthermore, the high degree of citation independence, with 92.3% of classified citations originating from independent researchers, underscores the work's broad impact and its role as a foundational reference for scholars outside the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

Auditing radicalization pathways on YouTube

2020 · FAT* '20: Conference on Fairness, Accountability, and Transparency (Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency) · 891 citations (GS)

Field-normalised: 442 Semantic Scholar citations place it in the top 1% of Political Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Breaking the Social Media Prism: How to Make Our Platforms Less Polarizing (2020)	Duke University	United States	—
2	Algorithmic amplification of politics on Twitter (2021)	Twitter, University of California, Berkeley	United States	—

Independent citing papers only; self- and co-author citations excluded. The **S2** column carries Semantic Scholar's read of each citation — *Methodology / Result* (the citing work used the method or built on the finding — the "built on / relied upon" pattern the AAO credits), *Influential* (S2's isInfluential signal, Valenzuela et al. 2015), or *Background* (a passing mention).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Mayo Clinic	United States	SCImago #88	3
Massachusetts General Hospital	United States	SCImago #100	2
University of Leeds	United Kingdom	SCImago #377 · THE 118 · QS 86	2
Friedrich-Alexander-Universität Erlangen-Nürnberg	Germany	SCImago #579 · THE 201–250 · QS 232	1
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	1
Oregon Health & Science University	United States	SCImago #689 · THE 351–400	1
Yonsei University	South Korea	SCImago #238 · THE 86 · QS 50	1
Potsdam Institute for Climate Impact Research, Member of the Leibniz Association	Germany	—	1
Max Planck Institute of Animal Behavior	Germany	SCImago #2448	1
Humboldt Universität zu Berlin	Germany	SCImago #816 · QS 130	1
University of Ottawa	Canada	SCImago #610 · THE =187 · QS =219	1
Cleveland Clinic	United States	SCImago #306	1
University of California, Berkeley	United States	SCImago #95 · THE 9 · QS =17	1
University Health Network	Canada	SCImago #516	1
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	1

Geographic distribution of citing authors

Country	Citing papers
United States	7
United Kingdom	4
China	3
Germany	2
South Korea	2
Malaysia	1
France	1

Country	Citing papers
Canada	1
Netherlands	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	Automatic diagnosis of the 12-lead ECG using a deep neural network	10	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Auditing radicalization pathways on YouTube	2	Dhanasar — Prong 2 (well-positioned)