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

21	21	5	17
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.

100.0% independent of 21 classified citing papers

Citation type	Count
Independent	21
Self-citation	0
Co-author	0
Same-institution	0

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 pioneered scalable fabrication methods for intrinsically stretchable transistor arrays, establishing a foundational platform for advanced skin electronics.

The researcher's primary contribution centers on the development of scalable fabrication techniques for intrinsically stretchable transistor arrays, as detailed in the 2018 paper titled 'Skin electronics from scalable fabrication of an intrinsically stretchable transistor array.' This work serves as the cornerstone of their research line in this domain.

This line of work appears to address the critical challenge of manufacturing flexible electronic components that can seamlessly integrate with human skin. By focusing on intrinsic stretchability and scalable fabrication, the research suggests a novel approach to overcoming the limitations of rigid or non-scalable electronic materials in wearable technology applications.

The significance of this contribution is evidenced by its substantial impact, with the core paper accumulating 2353 citations. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating broad adoption and validation of the methodology by the wider scientific community outside the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10

CORE PAPER

Skin electronics from scalable fabrication of an intrinsically stretchable transistor array

2018 · 2,353 citations (GS)

Field-normalised: 1,857 Semantic Scholar citations place it in the top 1% of Engineering papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Polymer Semiconductors: Synthesis, Processing, and Applications. (2023)	Peking University	China	—
2	Skin-Interfaced Wearable Sweat Sensors for Precision Medicine (2023)	California Institute of Technology	United States	—
3	Materials-Driven Soft Wearable Bioelectronics for Connected Healthcare (2024)	Monash University	Australia	—
4	Technology Roadmap for Flexible Sensors (2023)	The University of Texas at Austin, Tsinghua University, University of Houston	China, South Korea, United States	—
5	Porous Conductive Textiles for Wearable Electronics (2024)	The Hong Kong Polytechnic University	China, P. R. China	—
6	Soft Sensors and Actuators for Wearable Human–Machine Interfaces (2024)	Ulsan National Institute of Science and Technology (UNIST)	South Korea	—
7	Skin-inspired soft bioelectronic materials, devices and systems (2024)	Harvard University, Stanford University, University of California San Diego	United States	—
8	High-speed and large-scale intrinsically stretchable integrated circuits (2024)	Stanford University	United States	—
9	Neuromorphic sensorimotor loop embodied by monolithically integrated, low-voltage, soft e-skin. (2023)	Gyeongsang National University, Stanford University	South Korea, United States	—

No.	Citing paper	Citing institution(s)	Country	S2
10	A three-dimensionally architected electronic skin mimicking human mechanosensation. (2024)	Tsinghua University	China	—

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).

Contribution 2

Claim — Contribution 2

The researcher developed microfluidic lab-on-a-chip designs for pathogen detection, establishing a foundational framework for point-of-care diagnostics as evidenced by a seminal 2012 paper with 623 citations.

CLAIM: The researcher's contribution centers on the development of microfluidic designs and techniques utilizing lab-on-a-chip devices for pathogen detection, specifically aimed at advancing point-of-care diagnostics. This work is anchored by a seminal 2012 publication that has accumulated 623 citations, indicating its status as a key reference in the field.

ORIGINALITY: The titles suggest this line of work addresses the critical need for efficient, portable diagnostic tools by integrating microfluidic engineering with pathogen detection methodologies. By focusing on lab-on-a-chip devices, the research appears to have introduced or significantly advanced techniques that enable rapid, on-site analysis, distinguishing itself through its application to point-of-care settings.

SIGNIFICANCE: The substantial citation count of 623 underscores the work's impact and utility within the scientific community. Furthermore, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, demonstrating that the contribution has been widely adopted and built upon by the broader field rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

Microfluidic designs and techniques using lab-on-a-chip devices for pathogen detection for point-of-care diagnostics

2012 · 623 citations (GS)

Field-normalised: 443 Semantic Scholar citations place it in the top 1% of Engineering papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Diagnosing COVID-19: The Disease and Tools for Detection. (2020)	University of Toronto	Canada	Background
2	Intelligent Food Packaging: A Review of Smart Sensing Technologies for Monitoring Food Quality. (2019)	University of Toronto	Canada	—
3	Portable solutions for plant pathogen diagnostics: development, usage, and future potential. (2025)	Sardarkrushinagar Dantiwada Agricultural University, University of Lucknow	India	—
4	Triboelectric Nanogenerator-Based Sensor Systems for Chemical or Biological Detection. (2021)	China University of Geosciences, Ulsan National Insti-	China, South Korea	—

No.	Citing paper	Citing institution(s)	Country	S2
		tute of Science and Technology (UNIST)		

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).

Contribution 3

Claim — Contribution 3

The researcher pioneered bioinspired flexible organic artificial afferent nerves, establishing a foundational framework for soft electronic interfaces that has garnered substantial independent scholarly attention.

The researcher's primary contribution centers on the development of bioinspired flexible organic artificial afferent nerves, as detailed in a seminal 2018 publication. This work represents a distinct line of inquiry focused on creating soft, organic electronic systems that mimic biological sensory functions, standing as a standalone achievement without subsequent follow-up papers by the same author in this specific dataset.

This line of work appears to address the challenge of integrating electronic devices with biological tissues by leveraging organic materials and bioinspired design principles. The title suggests a novel approach to creating afferent-like neural interfaces that are flexible and compatible with organic systems, distinguishing it from rigid, inorganic electronic counterparts prevalent at the time.

The significance of this contribution is evidenced by its high citation count of 1,484, indicating broad recognition within the scientific community. Notably, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, underscoring the work's widespread adoption and influence beyond the researcher's immediate institutional or collaborative network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 4

CORE PAPER

A bioinspired flexible organic artificial afferent nerve

2018 · 1,484 citations (GS)

Field-normalised: 1,228 Semantic Scholar citations place it in the top 1% of Engineering papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Artificial Intelligence Meets Flexible Sensors: Emerging Smart Flexible Sensing Systems Driven by Machine Learning and Artificial Synapses (2023)	Taiyuan University of Technology, Tsinghua University	China	—
2	Self-Powered Sensing in Wearable Electronics─A Paradigm Shift Technology (2023)	Beijing Institute of Nanoenergy and Nanosystems	China	—
3	Toward an AI Era: Advances in Electronic Skins (2024)	National University of Singapore	Singapore	—
4	Bioinspired iontronic synapse fibers for ultralow-power multiplexing neuromorphic sensorimotor textiles. (2024)	Nanyang Technological University, Shandong University, Suzhou Institute of Nano-	China, Singapore	—

No.	Citing paper	Citing institution(s)	Country	S2
		Tech and Nano-Bionics, Chinese Academy of Sciences		

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
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	3
Stanford University	United States	SCImago #18 · THE =5 · QS 3	3
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	2
Seoul National University	South Korea	SCImago #135 · THE =58 · QS =38	2
Ulsan National Institute of Science and Technology (UNIST)	South Korea	SCImago #1215 · THE 201–250 · QS =310	2
Nanyang Technological University	Singapore	SCImago #137	1
Northwestern Polytechnical University	China	SCImago #203 · THE 251–300 · QS =499	1
The Hong Kong Polytechnic University	P. R. China	SCImago #256 · THE 80 · QS 54	1
University of Houston	United States	SCImago #893 · THE 401–500 · QS =556	1
Monash University	Australia	THE =58 · QS =36	1
Harvard University	United States	SCImago #4 · THE =5 · QS 5	1
Gyeongsang National University	South Korea	SCImago #2728 · THE 1201–1500	1
Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences	China	SCImago #947	1
Sardarkrushinagar Dantiwada Agricultural University	India	—	1
University of California San Diego	United States	SCImago #120 · THE 47 · QS 66	1

Geographic distribution of citing authors

Country	Citing papers
China	9
South Korea	6
United States	5
Singapore	2
Canada	2
P. R. China	1
India	1

Country	Citing papers
Australia	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	Skin electronics from scalable fabrication of an intrinsically stretchable transistor array	10	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Microfluidic designs and techniques using lab-on-a-chip devices for pathogen detection for point-of-care diagnostics	4	Dhanasar — Prong 2 (well-positioned)
Contribution 3	A bioinspired flexible organic artificial afferent nerve	4	Dhanasar — Prong 2 (well-positioned)