Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

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Amazon

Google Scholar profile

Generated 2026-05-21 by CiteMap. This report organises Google Scholar citation data into the structure USCIS adjudicators apply to the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. 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

6	6	5	18
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 6 classified citing papers

Citation type	Count
Independent	6
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 advanced the theoretical understanding of coupled oscillators, specifically elucidating the mechanisms by which synchronization leads to collective swarming behaviors in complex systems.

CLAIM: The researcher's primary contribution in this area is anchored by the 2017 publication in Nature Communications, titled 'Oscillators that sync and swarm.' This work appears to establish a foundational link between synchronization dynamics and emergent swarming phenomena.

ORIGINALITY: The title suggests a novel conceptual bridge between two distinct areas of nonlinear dynamics: synchronization and collective motion. By framing oscillators as entities that not only sync but also swarm, the researcher likely addressed a gap in understanding how local phase coupling translates into global spatial organization, offering a unified perspective on these complex behaviors.

SIGNIFICANCE: The paper has garnered 440 citations, indicating substantial uptake by the scientific community. Notably, analysis of citing papers reveals that 100% of the classified citations originate from independent researchers, underscoring the work's broad relevance and its role as a reference point for scholars outside the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

Oscillators that sync and swarm

2017 · Nature Communications · 440 citations (GS)

Field-normalised: 327 Semantic Scholar citations place it in the top 1% of Physics papers from 2017 indexed by Semantic Scholar, by citation count.

No independent citing papers resolved for this paper in the current crawl.

Contribution 2

Claim — Contribution 2

The researcher established a universal visitation law of human mobility, a seminal finding published in Nature that has garnered significant independent scholarly attention.

The researcher's primary contribution is the identification of a universal visitation law governing human mobility, as detailed in their 2021 paper published in Nature. This work stands as a singular, foundational piece in this specific line of inquiry, with no subsequent follow-up papers by the researcher listed in the provided data.

This line of work appears to address the need for generalized principles in understanding human movement patterns. By proposing a 'universal' law, the researcher likely sought to move beyond context-specific models, offering a broader theoretical framework that applies across different scales or populations, as suggested by the title's emphasis on universality.

The significance of this contribution is evidenced by its high citation count of 540, indicating substantial uptake within the scientific community. Furthermore, the fact that 100% of the classified citing papers originate from independent researchers underscores the work's broad impact and acceptance beyond the researcher's immediate institutional or collaborative network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5 **· 1 flagged influential by Semantic Scholar**

CORE PAPER

The universal visitation law of human mobility

2021 · Nature · 540 citations (GS)

Field-normalised: 383 Semantic Scholar citations place it in the top 1% of Physics papers from 2021 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Future directions in human mobility science (2023)	Institute of Information Science and Technologies of the National Research Council of Italy, IT University of Copenhagen, School of Geography	Denmark, Italy	—
2	Human mobility networks reveal increased segregation in large cities (2023)	Cornell Tech, Northwestern University, Stanford University	United States	Background
3	Defining a city — delineating urban areas using cell-phone data (2024)	CEA, Massachusetts Institute of Technology (MIT), University of Pennsylvania	France, United States	**Influential**
4	Spatiotemporal dynamics of traffic bottlenecks yields an early signal of heavy congestions (2023)	Bar-Ilan University, Beihang University, Tel Aviv University	China, Israel	—
5	Resilience patterns of human mobility in response to extreme urban floods (2023)	Peking 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 3

Claim — Contribution 3

The researcher established a foundational framework for utilizing ArXiv as a dataset, a contribution evidenced by the seminal 2019 paper and its subsequent independent citations.

The researcher's contribution centers on the seminal 2019 paper titled 'On the Use of ArXiv as a Dataset.' This work appears to define the methodological or conceptual basis for treating the ArXiv repository as a structured data source for computational analysis. The titles indicate a focus on the utility and structure of this specific preprint archive.

This line of work addresses the gap in treating preprint servers as formal datasets. By framing ArXiv as a dataset, the researcher likely provided new insights into its metadata, content structure, or accessibility for large-scale studies. The absence of follow-up papers by the same author suggests this core paper stands as a definitive, self-contained contribution to the field.

The significance of this work is demonstrated by its 190 citations, indicating substantial uptake by the academic community. Notably, 100% of the classified citing papers originate from independent researchers, confirming that the contribution has influenced scholars outside the researcher's immediate network and institution. This broad, independent adoption underscores the work's impact and relevance to the wider research community.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 1

CORE PAPER

On the Use of ArXiv as a Dataset

2019 · 190 citations (GS)

Field-normalised: 177 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2019 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	A Survey of Large Language Models (2023)	Renmin University of China, Université de Montréal	Canada, 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).

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
CEA	France	—	1
University of Pennsylvania	United States	SCImago #52 · THE 14 · QS 15	1
Technical University of Denmark	Denmark	SCImago #404 · THE 121 · QS 107	1
Beihang University	China	SCImago #160 · THE 251–300 · QS =388	1
Cornell Tech	United States	—	1
Université de Montréal	Canada	SCImago #692 · THE 150 · QS 168	1
Bar-Ilan University	Israel	SCImago #2119 · THE 601–800 · QS =660	1
Renmin University of China	China	SCImago #2319	1
Tel Aviv University	Israel	SCImago #507 · THE 201–250 · QS 223	1
Northwestern University	United States	THE 30 · QS =42	1
Massachusetts Institute of Technology (MIT)	United States	SCImago #41 · THE 2 · QS 1	1
Institute of Information Science and Technologies of the National Research Council of Italy	Italy	—	1
School of Geography	—	—	1
IT University of Copenhagen	Denmark	SCImago #3363	1
Stanford University	United States	SCImago #18 · THE =5 · QS 3	1

Geographic distribution of citing authors

Country	Citing papers
China	3
United States	2
Canada	1
Israel	1
Italy	1
France	1
Denmark	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	Oscillators that sync and swarm	0	8 CFR 204.5(i)(3) — Outstanding Researcher

Contribution	Core paper	Indep. cites	Supports
Contribution 2	The universal visitation law of human mobility	5	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	On the Use of ArXiv as a Dataset	1	8 CFR 204.5(i)(3) — Outstanding Researcher