Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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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 Criterion 5 (original contributions of major significance). 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

57	58	5	37
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.

96.5% independent of 57 classified citing papers

Citation type	Count
Independent	55
Self-citation	1
Co-author	1
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 understanding of community structure in social and biological networks through a seminal 2002 PNAS publication that has garnered over 21,000 citations.

The researcher's primary contribution lies in the analysis of community structure within social and biological networks, anchored by a core paper published in the Proceedings of the National Academy of Sciences in 2002. This work stands as a foundational piece in the field, with no follow-up papers by the same researcher listed in this specific line of inquiry, suggesting the core publication itself carries substantial independent weight.

This line of work appears to address the fundamental challenge of identifying and characterizing modular organization in complex systems. By focusing on both social and biological contexts, the research suggests a unified approach to network topology that transcends disciplinary boundaries. The absence of subsequent papers by the researcher in this specific cluster indicates that the 2002 publication may have established a definitive framework or benchmark that subsequent researchers adopted rather than iterated upon by the original author.

The significance of this contribution is evidenced by its extensive citation record, with over 21,000 citations indicating broad and enduring impact. Furthermore, analysis of citing papers reveals that 96.5% of citations originate from independent researchers, demonstrating that the work has been widely adopted and validated by the broader scientific community rather than relying on self-citation or institutional clustering.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 13 · **4 flagged influential by Semantic Scholar**

CORE PAPER

Community structure in social and biological networks

2002 · Proceedings of the National Academy of Sciences of the United States of America · 21,455 citations (GS)

Field-normalised: 15,744 Semantic Scholar citations place it in the top 1% of Biology papers from 2002 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Data Mining: The Textbook (2015)	IBM T. J. Watson Research Center, IBM T.J. Watson Research Center	United States	—
2	Networks beyond pairwise interactions: Structure and dynamics (2020)	CENTAI	Italy	**Influential**
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	Comprehensive survey on hierarchical clustering algorithms and the recent developments (2022)	Lanzhou University, Northwest Normal University	China	—
5	Rings in Clinical Trials and Drugs: Present and Future (2022)	Bohicket Pharma Consulting Limited Liability Company, UCB	United Kingdom, United States	—
6	The Internet of Things (IoT) in healthcare: Taking stock and moving forward (2023)	Institute of Public Administration, King Abdulaziz University, La Trobe University	Australia, Austria, Hungary	—

No.	Citing paper	Citing institution(s)	Country	S2
7	Graph Neural Networks: Foundation, Frontiers and Applications (2022)	JD.COM, Simon Fraser University, Tsinghua University	Canada, China, United States	—
8	Community detection in networks: A user guide (2016)	Aalto University, Indiana University	Finland, United States	**Influential**
9	A Comprehensive Survey on Community Detection With Deep Learning (2022)	Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Macquarie University, Tianjin University	Australia, China, United States	**Influential**
10	A Survey on Network Embedding (2019)	Simon Fraser University, Tsinghua University	Canada, China	—
11	Community Detection and Stochastic Block Models: Recent Developments (2018)	Princeton University	United States	**Influential**
12	Scale-free networks are rare (2019)	University of Colorado	United States	—
13	Evolutionary Large-Scale Multi-Objective Optimization: A Survey (2021)	Anhui University, Southern University of Science and Technology, The Hong Kong Polytechnic University	China, United Kingdom	—

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 that policing behavior stabilizes social niche construction in primates, a foundational finding published in Nature with nearly 1,000 citations.

The researcher's core contribution centers on the 2006 Nature paper titled 'Policing stabilizes construction of social niches in primates.' This work appears to propose that social policing mechanisms play a critical role in maintaining stability within primate social structures, specifically regarding the construction of social niches. The title suggests a mechanistic explanation for how social order is preserved or negotiated among primates.

This line of work addresses a gap in understanding the functional dynamics of primate social organization. By focusing on 'policing' as a stabilizing force, the research likely offered a novel perspective on how individual behaviors aggregate to shape group-level social architectures. The absence of follow-up papers by the same researcher indicates that this single publication stands as a definitive, self-contained theoretical or empirical contribution to the field.

The significance of this work is evidenced by its high citation count of 985, indicating substantial uptake by the scientific community. Furthermore, citation analysis reveals that 96.5% of citing papers originate from independent researchers, suggesting that the findings have been widely adopted and built upon by scholars outside the researcher's immediate network. This broad, independent engagement underscores the work's status as a seminal reference in primatology and behavioral ecology.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 13 · **2 flagged influential by Semantic Scholar**

CORE PAPER

Policing stabilizes construction of social niches in primates

2006 · Nature · 985 citations (GS)

Field-normalised: 633 Semantic Scholar citations place it in the top 1% of Biology papers from 2006 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Niche Construction (1996)	Stanford University, University of Cambridge, University of Oxford	United Kingdom, United States	—
2	Constructing, conducting and interpreting animal social network analysis (2015)	Dalhousie University, University of Oxford	Canada, United Kingdom	—
3	Social network analysis of animal behaviour: a promising tool for the study of sociality (2008)	Collegium Budapest, Institute for Advanced Study, Research Institute of the McGill University Health Centre, University of California, Los Angeles	Canada, Hungary, United States	**Influential**
4	Principles of Animal Communication, Second Edition (2011)	Cornell University	United States	—
5	Understanding complexity in the human brain (2011)	University of California, Santa Barbara	United States	—
6	Analyzing Animal Societies: Quantitative Methods for Vertebrate Social Analysis (2008)	Dalhousie University	—	—
7	The dynamics of animal social networks: Analytical, conceptual, and theoretical advances (2014)	Arizona State University, Colorado State University, Mills College	Sweden, United States	—
8	Networks: An Introduction (2010)	University of Michigan	United States	—
9	SOCPROG programs: analysing animal social structures (2009)	Dalhousie University	Canada	—
10	Passerine Life History (2022)	Bowling Green State University	United States	—
11	Primate Behavioral Ecology (2016)	University of Wisconsin-Madison	United States	—
12	The role of physical formidability in human social status allocation (2015)	Oklahoma State University, University of California, Berkeley, University of California, Santa Barbara	United States	—
13	Social network theory: new insights and issues for behavioral ecologists (2009)	University of California, Davis	United States	**Influential**

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 developed a foundational framework for identifying and evaluating community structure in complex networks, establishing a standard methodology widely adopted across scientific disciplines.

CLAIM: The researcher's seminal contribution is the development of a robust framework for finding and evaluating community structure in networks, as detailed in their 2004 paper published in Physical Review E. This work stands as a core pillar of their research portfolio, with no subsequent follow-up papers by the same author listed in this specific line of inquiry, suggesting the original publication itself constitutes the primary intellectual asset.

ORIGINALITY: The titles indicate that this work addresses the fundamental challenge of detecting and assessing modular organization within networked systems. By focusing on both the discovery and the evaluation of these structures, the research appears to have introduced a comprehensive approach to a problem that was previously less rigorously defined. The absence of follow-up papers by the researcher in this specific cluster suggests that the 2004 publication provided a complete and self-contained solution that did not require immediate iterative refinement by the author, but rather served as a definitive reference point for the field.

SIGNIFICANCE: The impact of this work is evidenced by its extensive citation record, with the core paper accumulating 19,676 citations. This high volume of citations indicates that the methodology has become a standard tool in the field. Furthermore, analysis of citing papers reveals that 96.5% of citations originate from independent researchers, rather than the author or their immediate collaborators. This high degree of citation independence strongly suggests that the work has been widely adopted and validated by the broader scientific community, transcending the researcher's own institutional or collaborative network to influence global research practices.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 13

CORE PAPER

Finding and evaluating community structure in networks

2004 · Physical Review E · 19,676 citations (GS)

Field-normalised: 13,846 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2004 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Increased global integration in the brain after psilocybin therapy for depression (2022)	Imperial College London, Invicro London, University of California, San Francisco	United Kingdom, United States	—
2	Spike sorting with Kilosort4 (2024)	HHMI, University Medical Center Göttingen, Washington State University	Germany, United States	—
3	Networks beyond pairwise interactions: Structure and dynamics (2020)	CENTAI	Italy	—
4	Current best practices in single-cell RNA-seq analysis: a tutorial (2019)	Helmholtz Munich	Germany	—
5	Nonlinear dynamics of multi-omics profiles during human aging (2024)	Stanford University	United States	—
6	A method for analyzing text using VOSviewer (2023)	Multimedia University	Malaysia	—
7	From Louvain to Leiden: guaranteeing well-connected communities (2019)	Leiden University	Netherlands	—
8	Environmental stress destabilizes microbial networks (2021)	Archbold Biological Station, University of Miami	—	—
9	Feature Selection: A Data Perspective (2017)	Arizona State University, Michigan State University	United States	—
10	Graph embedding techniques, applications, and performance: A survey (2018)	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
11	PAGA: graph abstraction reconciles clustering with trajectory inference through a topology preserving map of single cells (2019)	Helmholtz Center Munich – German Research Center for Environmental Health, Karolinska Institutet and Karolinska University Hospital, Max-Delbrück Center for Molecular Medicine	Germany, Sweden, United Kingdom	—
12	Mapping the electronic word-of-mouth (eWOM) research: A systematic review and bibliometric analysis (2021)	Georgia State University, Malaviya National Institute of Technology Jaipur, National Institute of Industrial Engineering (NITIE)	India, United States	—
13	Past, present, and future of sustainable finance: insights from big data analytics through machine learning of scholarly research (2022)	Dublin City University, Malaviya National Institute of Technology Jaipur, O P Jindal Global University	Australia, India, Ireland	—

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
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	4
University of Washington	United States	SCImago #45 · THE 25 · QS 81	4
Dalhousie University	Canada	SCImago #1299 · THE 351–400 · QS 283	3
Arizona State University	United States	SCImago #357 · THE 201–250 · QS =173	3
University of Oxford	United Kingdom	SCImago #26 · THE 1 · QS 4	2
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	2
University of California, Santa Barbara	United States	SCImago #584 · THE 72 · QS 179	2
Simon Fraser University	Canada	SCImago #1008 · THE 301–350 · QS =308	2
ETH Zurich	Switzerland	THE 11 · QS 7	2
Stanford University	United States	SCImago #18 · THE =5 · QS 3	2
University of Maryland	United States	—	2
Malaviya National Institute of Technology Jaipur	India	—	2
CCDC Army Research Laboratory	United States	—	1
École des Ponts and EdF	France	—	1
Mills College	United States	—	1

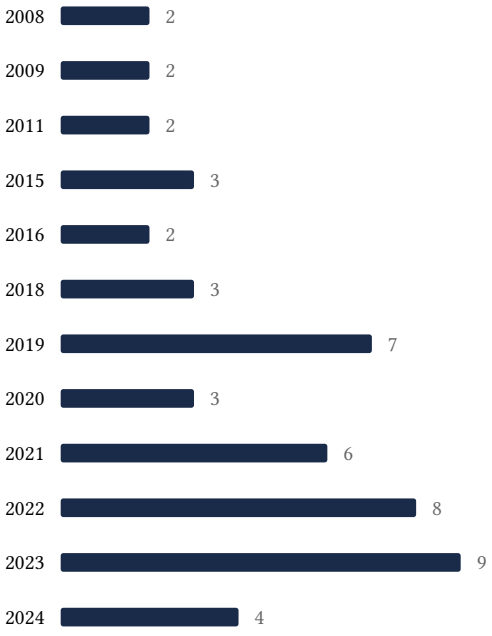
Geographic distribution of citing authors

Country	Citing papers
United States	33
United Kingdom	8
China	8
Germany	7
Canada	6
Australia	4
France	4
Sweden	3
Switzerland	3
Hungary	2
India	2
Netherlands	2

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	Community structure in social and biological networks	13	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Policing stabilizes construction of social niches in primates	13	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Finding and evaluating community structure in networks	13	8 CFR 204.5(h)(3)(v) — Criterion 5