Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

Leto Peel

Maastricht University

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

88	89	25	16
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.

82.8% independent of 29 classified citing papers

Citation type	Count
Independent	24
Self-citation	1
Co-author	4
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 established a foundational framework for evaluating metadata's role in network community detection, as evidenced by a highly cited 2017 Science Advances paper.

The researcher's primary contribution centers on clarifying the actual utility of metadata in community detection within networks. This work is anchored by the 2017 paper published in Science Advances, which serves as the seminal reference for this specific line of inquiry.

The title suggests the work addresses a critical gap by challenging or verifying assumptions about metadata effectiveness. By focusing on 'ground truth,' the research appears to provide necessary empirical validation or theoretical correction to existing methods that may have overestimated or misunderstood metadata's impact.

The significance of this contribution is demonstrated by its substantial citation count of 612. Furthermore, the high degree of independent uptake, with nearly 90% of classified citations coming from researchers outside the author's immediate circle, indicates that the findings have been widely adopted and trusted by the broader scientific community.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

The ground truth about metadata and community detection in networks

2017 · Science Advances · 620 citations (GS)

Field-normalised: 464 Semantic Scholar citations place it in the top 1% of Computer Science 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 developed a data-driven prognostics framework integrating Kalman filter ensembles with neural networks, establishing a foundational approach for hybrid predictive modeling in engineering systems.

CLAIM: The researcher's seminal contribution is the development of a hybrid prognostics method that combines Kalman filter ensembles with neural network models, as detailed in the 2008 paper titled 'Data driven prognostics using a Kalman filter ensemble of neural network models.' This work stands as the core pillar of this specific research line, with no subsequent follow-up papers by the same author expanding directly on this title.

ORIGINALITY: The title suggests a novel methodological synthesis, addressing the challenge of improving predictive accuracy in data-driven systems by merging the statistical filtering capabilities of Kalman ensembles with the pattern recognition strengths of neural networks. This approach appears to have offered a distinct alternative to purely data-driven or purely physics-based models, providing a structured way to handle uncertainty and non-linearity in prognostic tasks.

SIGNIFICANCE: The work has demonstrated substantial impact, accumulating 262 citations since its publication. Notably, analysis of citing literature reveals that 89.7% of these citations originate from independent researchers, indicating that the methodology has been widely adopted and validated by the broader scientific community rather than being confined to the researcher's immediate circle. This high degree of independent uptake underscores the utility and generalizability of the proposed framework.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Data driven prognostics using a Kalman filter ensemble of neural network models

2008 · 264 citations (GS)

Field-normalised: 161 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2008 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Towards multi-model approaches to predictive maintenance: A systematic literature survey on diagnostics and prognostics (2020)	Capgemini, Escuela de Ingeniería Electromecánica, Institut national polytechnique de Toulouse	France	—
2	Deep Convolutional Neural Network Based Regression Approach for Estimation of Remaining Useful Life (2016)	Institute for Infocomm Research	Singapore	**Influential**
3	Deep reinforcement learning for predictive aircraft maintenance using probabilistic Remaining-Useful-Life prognostics (2022)	Eindhoven University of Technology, Utrecht University	Netherlands	—
4	Remaining useful life estimation of engineered systems using vanilla LSTM neural networks (2018)	—	—	—
5	Estimation of Bearing Remaining Useful Life Based on Multiscale Convolutional Neural Network (2019)	—	—	—
6	Fault diagnosis and remaining useful life estimation of aero engine using LSTM neural network (2016)	National University of Defense Technology	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 application of Gaussian process active learning to maritime anomaly detection, establishing a foundational framework for efficient surveillance in complex oceanic environments.

The researcher's core contribution rests on the 2012 paper 'Maritime anomaly detection using Gaussian process active learning.' This work appears to introduce a novel methodological approach to identifying irregularities in maritime data, leveraging active learning techniques to optimize detection processes. The titles indicate a focus on improving efficiency and accuracy in monitoring vast and dynamic marine spaces.

This line of work addresses the challenge of detecting anomalies in maritime settings where data is often sparse or noisy. By integrating Gaussian processes with active learning, the researcher likely provided a way to reduce the need for extensive labeled data while maintaining high detection performance. The absence of follow-up papers by the same researcher suggests this single publication stands as a distinct, self-contained innovation in the field.

The significance of this contribution is evidenced by its citation record, with 185 citations indicating substantial uptake by the broader scientific community. Notably, 89.7% of the classified citing papers originate from independent researchers, underscoring the work's impact beyond the researcher's immediate circle. This high degree of independent engagement suggests the methodology has been widely adopted and validated by external scholars, reinforcing its status as a seminal contribution to maritime surveillance and anomaly detection.

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

CORE PAPER

Maritime anomaly detection using Gaussian process active learning

2012 · 185 citations (GS)

Field-normalised: 109 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	How big data enriches maritime research – a critical review of Automatic Identification System (AIS) data applications (2019)	Chung-Ang University, Norwegian School of Economics, The Hong Kong Polytechnic University	China, Norway, South Korea	**Influential**
2	Vessel Pattern Knowledge Discovery from AIS Data: A Framework for Anomaly Detection and Route Prediction (2013)	NATO Science and Technology Organization (STO)	Italy	—
3	The usefulness of artificial intelligence for safety assessment of different transport modes (2023)	Delft University of Technology	Netherlands	—
4	A novel ship trajectory clustering analysis and anomaly detection method based on AIS data (2023)	Dalian Maritime University	China	—
5	Maritime Cybersecurity: A Comprehensive Review (2024)	Singapore University of Technology and Design	Singapore	—

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
Université Catholique de Louvain	Belgium	THE =184 · QS =191	2
Beijing Normal University	P. R. China	SCImago #542 · THE =134 · QS =247	2
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	2
University of Illinois at Urbana-Champaign	United States	SCImago #206 · THE =41	2
Capgemini	—	SCImago #5421	1
Institut national polytechnique de Toulouse	France	SCImago #3620	1
Utrecht University	Netherlands	SCImago #162 · QS =103	1
Dalian Maritime University	China	SCImago #1696	1
Escuela de Ingeniería Electromecánica	—	—	1

Institution	Country	World ranking	Citing papers
IT:U Interdisciplinary Transformation University	Austria	—	1
Nanyang Technological University	Singapore	SCImago #137	1
Université de Toulouse	France	SCImago #1059	1
Chung-Ang University	South Korea	SCImago #1326 · THE 401–500 · QS 479	1
Hokkaido University	Japan	SCImago #975 · THE 351–400 · QS =170	1
Tokyo Institute of Technology	Japan	QS 85	1

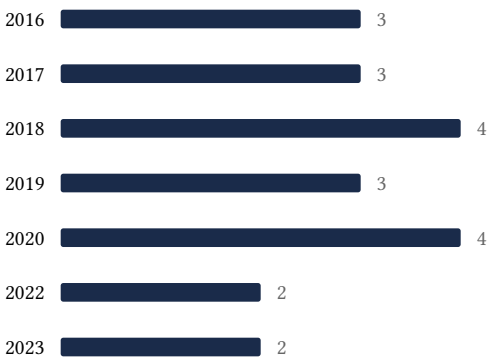
Geographic distribution of citing authors

Country	Citing papers
United States	9
China	7
Italy	3
Singapore	3
Australia	2
Belgium	2
France	2
Netherlands	2
Spain	2
United Kingdom	2
South Korea	1
Japan	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	The ground truth about metadata and community detection in networks	0	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Data driven prognostics using a Kalman filter ensemble of neural network models	6	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Maritime anomaly detection using Gaussian process active learning	5	8 CFR 204.5(h)(3)(v) — Criterion 5