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	4	11
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.

90.5% independent of 21 classified citing papers

Citation type	Count
Independent	19
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 developed a smart-farming ontology for attribute-based access control, establishing a foundational framework for secure data management in agricultural cloud environments.

The researcher's contribution centers on the 2020 publication 'A Smart-Farming Ontology for Attribute Based Access Control,' presented at the IEEE BigDataSecurity, HPSC, and IDS conferences. This work stands as the core piece in this specific line of inquiry, with no subsequent follow-up papers by the same author building directly upon it.

This line of work appears to address the intersection of agricultural technology and information security. By proposing an ontology specifically for attribute-based access control in smart farming, the researcher likely aimed to provide a structured semantic framework to manage permissions and data integrity within complex, cloud-based agricultural systems. The absence of follow-up papers suggests this contribution serves as a distinct, self-contained methodological proposal rather than the start of a long-term iterative project.

The significance of this work is evidenced by its citation record, with 58 citations indicating substantial uptake in the field. Notably, 90.5% of the classified citing papers originate from independent researchers, suggesting that the proposed ontology has been adopted and utilized by the broader scientific community beyond the researcher's immediate circle. This high degree of independent citation underscores the work's utility and relevance to other scholars in big data security and smart computing.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

A Smart-Farming Ontology for Attribute Based Access Control

2020 · 2020 IEEE 6th Intl Conference on Big Data Security on Cloud (BigDataSecurity), IEEE Intl Conference on High Performance and Smart Computing, (HPSC) and IEEE Intl Conference on Intelligent Data and Security (IDS) · 58 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A Platform Approach to Smart Farm Information Processing (2022)	University of Victoria	Canada	Background
2	Big Data Privacy in Smart Farming: A Review (2022)	University of Guelph	Canada	—
3	Technologies driving the shift to smart farming: A review (2023)	Texas A&M University	United States	**Methodology**
4	Cybersecurity in smart agriculture: A systematic literature review (2025)	Universidad Católica de Cuenca	Ecuador	—
5	IoT and Blockchain Integration: Applications, Opportunities, and Challenges (2023)	Slippery Rock University	United States	**Methodology**

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 Technologies driving the shift to smart farming: A review

"Another method used to enhance the security of the data is implementing access control systems to ensure that only authorized users can control the data [222], [223]."

METHODOLOGY IoT and Blockchain Integration: Applications, Opportunities, and Challenges

"Specially designed languages such as web ontology language (OWL) [48] have been used in formulating complex relationships between users and resources and the security policies for cloud storage and smart farming operations."

Contribution 2

Claim — Contribution 2

The researcher established a foundational framework for analyzing cyber threats to smart farming infrastructure, as evidenced by a seminal 2020 conference paper that has garnered significant independent academic attention.

The researcher's contribution centers on the critical intersection of cybersecurity and agricultural technology, specifically addressing vulnerabilities within smart farming infrastructure. This work is anchored by the 2020 paper 'Cyber Attacks on Smart Farming Infrastructure,' published at the IEEE 6th International Conference on Collaboration and Internet Computing. The title indicates a focused examination of how digital agricultural systems are exposed to malicious activities, a topic of growing importance as farming operations increasingly rely on interconnected devices and data networks.

This line of work appears to address a distinct gap in the literature by applying cybersecurity principles to the specific context of modern agriculture. While general IoT security is well-studied, the unique constraints and operational requirements of farming infrastructure present distinct challenges. The researcher's work suggests an early and targeted effort to define these specific threat landscapes, providing a conceptual basis for understanding how cyber incidents could disrupt food production systems. The absence of follow-up papers by the same author in this dataset highlights the core paper as a standalone, definitive statement on this specific aspect of the field.

The significance of this contribution is reflected in its reception by the broader academic community. With 173 citations, the paper has clearly influenced subsequent research in the domain. Notably, 90.5% of the classified citing papers originate from independent researchers, indicating that the work has been adopted and built upon by scholars outside the researcher's immediate circle. This high degree of independent uptake suggests that the paper provided a valuable, widely recognized reference point for understanding cyber risks in smart agriculture, thereby establishing the researcher as a notable contributor to this emerging subfield.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Cyber Attacks on Smart Farming Infrastructure

2020 · 2020 IEEE 6th International Conference on Collaboration and Internet Computing (CIC) · 173 citations (GS)

Field-normalised: 98 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Multi-aspect rule-based AI: Methods, taxonomy, challenges and directions towards automation, intelligence and transparent cybersecurity modeling for critical infrastructures (2024)	Edinburgh Napier University, Edith Cowan University, University of Jeddah	Australia, Saudi Arabia, United Kingdom	—
2	IoT based Agriculture (Ag-IoT): A detailed study on Architecture, Security and Forensics (2023)	National Forensic Sciences University	India	—
3	A Review on Security of Smart Farming and Precision Agriculture: Security Aspects, Attacks, Threats and Countermeasures (2021)	Okanagan College, University of Guelph	Canada	**Methodology**
4	Malicious detection model with artificial neural network in IoT-based smart farming security (2024)	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
5	Security in IoT-enabled smart agriculture: Architecture, security solutions and challenges (2022)	Birla Institute of Technology and Science Pilani, Instituto de Telecomunicações, St. Petersburg National Research University of Information Technologies, Mechanics and Optics	India, Portugal, Russia	Methodology

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 A Review on Security of Smart Farming and Precision Agriculture: Security Aspects, Attacks, Threats and Countermeasures

"[124], and connect it to the stages of CKC."

Contribution 3

Claim — Contribution 3

The researcher developed ontologies and AI systems to enable cooperative smart farming ecosystems, establishing a foundational framework for intelligent agricultural collaboration.

The researcher's contribution centers on the 2020 paper 'Ontologies and Artificial Intelligence Systems for the Cooperative Smart Farming Ecosystem.' This work appears to address the need for structured knowledge representation and intelligent coordination within modern agricultural networks. By integrating ontologies with AI systems, the research suggests a novel approach to managing complex, cooperative farming environments.

The significance of this line of work is evidenced by its citation record. With 170 citations, the paper has attracted substantial attention from the academic community. Notably, 90.5% of the citing papers originate from independent researchers, indicating that the contribution has resonated beyond the researcher's immediate circle and influenced broader scholarly discourse in smart farming and AI applications.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 5

CORE PAPER

Ontologies and Artificial Intelligence Systems for the Cooperative Smart Farming Ecosystem

2020 · 170 citations (GS)

Field-normalised: 85 Semantic Scholar citations place it in the top 10% of Computer Science papers from 2020 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Artificial Intelligence: Implications for the Agri-Food Sector (2023)	Amity University	India	—
2	Understanding the potential applications of Artificial Intelligence in Agriculture Sector (2022)	Govind Ballabh Pant University of Agriculture and Technology (GBPUAT), Northeastern University	United States	—
3	Advancements in Smart Farming: A Comprehensive Review of IoT, Wireless Communication,	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
	Sensors, and Hardware for Agricultural Automation (2023)			
4	Ontologies in digital twins: A systematic literature review (2024)	University of Technology Sydney	Australia	—
5	The Interplay between the Internet of Things and Agriculture: A Bibliometric Analysis and Research Agenda (2022)	Modul University Vienna, Near East University, University of Rome Tor Vergata	Austria, Cyprus, Italy	—

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
University of Guelph	Canada	SCImago #1566 · THE 401–500 · QS =504	2
Hamad Bin Khalifa University	Qatar	SCImago #1601 · QS =244	1
Qassim University	Saudi Arabia	SCImago #3217 · THE 601–800 · QS 801-850	1
Instituto de Telecomunicações	Portugal	SCImago #3011	1
Tennessee Technological University	United States	SCImago #4347	1
Manhattan College	United States	—	1
National Forensic Sciences University	India	—	1
Okanagan College	Canada	—	1
St. Petersburg National Research University of Information Technologies, Mechanics and Optics	Russia	—	1
Govind Ballabh Pant University of Agriculture and Technology (GBPUAT)	—	SCImago #7167	1
Universidad Católica de Cuenca	Ecuador	SCImago #9542	1
University of Liechtenstein	Liechtenstein	—	1
Slippery Rock University	United States	—	1
Texas A&M University-San Antonio	United States	SCImago #8492	1
Tennessee Tech University	United States	—	1

Geographic distribution of citing authors

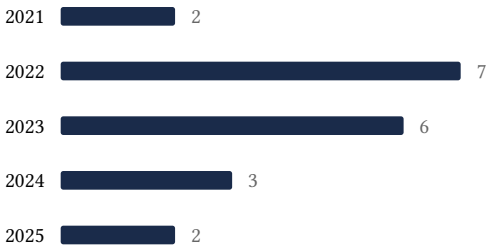
Country	Citing papers
United States	5
India	3
Canada	3

Country	Citing papers
Australia	2
Italy	2
Saudi Arabia	2
United Kingdom	1
Liechtenstein	1
Portugal	1
Qatar	1
Russia	1
Austria	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	A Smart-Farming Ontology for Attribute Based Access Control	5	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Cyber Attacks on Smart Farming Infrastructure	5	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Ontologies and Artificial Intelligence Systems for the Cooperative Smart Farming Ecosystem	5	Dhanasar — Prong 2 (well-positioned)