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

389	410	100	64
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.

95.0% independent of 40 classified citing papers

Citation type	Count
Independent	38
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 established foundational theoretical bounds for connectivity in sparse wireless ad hoc networks, subsequently synthesizing these insights into a comprehensive framework for topology control.

The researcher's contribution centers on defining the critical transmitting range necessary for connectivity in sparse wireless ad hoc networks, as detailed in a seminal 2003 paper published in IEEE Transactions on Mobile Computing. This core work appears to address a fundamental gap in understanding how sparse network topologies maintain connectivity, providing a theoretical baseline for subsequent research in the field.

Building on this foundation, the researcher published a highly cited survey in 2019 in ACM Computing Surveys titled "Topology Control in Wireless Ad Hoc and Sensor Networks." The chronological progression from specific connectivity bounds to a broader survey on topology control suggests that the initial findings were instrumental in shaping the wider discourse on managing network structure and efficiency in wireless environments.

The significance of this line of work is evidenced by its substantial uptake in the scientific community. The core paper has accumulated 561 citations, while the follow-up survey has garnered 2019 citations. Furthermore, analysis of citing papers indicates that 95.0% of citations originate from independent researchers, demonstrating that the work has had a broad and independent impact beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 14

CORE PAPER

The critical transmitting range for connectivity in sparse wireless ad hoc networks

2003 · IEEE Transactions on Mobile Computing · 563 citations (GS)

Field-normalised: 455 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2003 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Protocols and Architectures for Wireless Sensor Networks (2005)	Hasso-Plattner-Institute at the University of Potsdam, University of Paderborn	GERMANY, Germany	—
2	The node distribution of the random waypoint mobility model for wireless ad hoc networks (2003)	CNR, DOCOMO Euro-Labs	Italy	—
3	ATPC: Adaptive Transmission Power Control for Wireless Sensor Networks (2006)	University of Minnesota, Washington University in St. Louis	United States	—
4	Opportunistic Routing Algorithm for Relay Node Selection in Wireless Sensor Networks (2015)	Hunan University, University of California, Irvine	China, United States	—
5	Analytical Model for Connectivity in Vehicular Ad Hoc Networks (2008)	Inria, Iran University of Science and Technology, Université d'Avignon	France, Iran	—

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.

FOLLOW-UP WORK

Topology Control in Wireless Ad Hoc and Sensor Networks

2005 · ACM Computing Surveys · 2,029 citations (GS)

Field-normalised: 1,252 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2005 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Survey of Important Issues in UAV Communication Networks (2015)	Ericsson, Washington University	Hungary, United States	—
2	Wireless sensor networks: A survey on the state of the art and the 802.15.4 and ZigBee standards (2007)	Istituto di Scienza e Tecnologie dell'Informazione, University of Bradford	Italy, United Kingdom	—
3	Distributed Control of Robotic Networks: A Mathematical Approach to Motion Coordination Algorithms (2009)	University of California, San Diego, University of California, Santa Barbara	United States	—
4	Energy-harvesting wireless sensor networks (EH-WSNs): A review (2018)	École de Technologie Supérieure, University of Ghana, University of Rochester	Ghana, United States	—
5	Coverage and connectivity issues in wireless sensor networks: A survey (2008)	The University of Texas at Arlington, University of Southern California	United States	—
6	A Survey on Distributed Topology Control Techniques for Extending the Lifetime of Battery Powered Wireless Sensor Networks (2013)	Monash University	Australia	—
7	Wireless Sensor and Actuator Networks: Technologies, Analysis and Design (2008)	University of Bologna, University of Ferrara	Italy	—
8	Energy conservation in wireless sensor networks: A survey (2009)	Institute for Informatics and Telematics (IIT) of the National Research Council of Italy (CNR), University of L'Aquila, University of Padua	Italy	—
9	Energy-Efficient Cloud Computing (2010)	—	—	—

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 developed a shareability network framework to quantify vehicle pooling benefits, establishing a foundational model for analyzing shared mobility systems.

The researcher's primary contribution is the development of a shareability network framework to quantify the benefits of vehicle pooling, as detailed in the 2014 paper 'Quantifying the benefits of vehicle pooling with shareability networks.' This work stands as a seminal piece in the field, with no subsequent follow-up papers by the researcher listed in this specific line of inquiry.

This line of work appears to address the challenge of measuring the efficiency and potential of shared transportation systems. By introducing the concept of shareability networks, the researcher provided a novel methodological approach to understanding how vehicle pooling can be optimized, distinguishing this work from earlier studies that may have lacked such a structured analytical framework.

The significance of this contribution is evidenced by its substantial citation count of 1007, indicating widespread recognition and utility within the academic community. Furthermore, citation analysis reveals that 95.0% of citing papers originate from independent researchers, suggesting that the work has had a broad, field-wide impact beyond the researcher's immediate institutional or collaborative circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Quantifying the benefits of vehicle pooling with shareability networks

2014 · 1,013 citations (GS)

Field-normalised: 336 Semantic Scholar citations place it in the top 1% of Environmental Science papers from 2014 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Planning and Decision-Making for Autonomous Vehicles (2018)	Delft University of Technology, Massachusetts Institute of Technology	Netherlands, United States	—
2	Human Mobility: Models and Applications (2018)	Centre National de la Recherche Scientifique, Commissariat à l'énergie atomique et aux énergies alternatives, Florida Institute of Technology	France, Spain, United Kingdom	—
3	On-demand high-capacity ride-sharing via dynamic trip-vehicle assignment (2017)	—	—	—
4	Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco (2016)	University of California, Berkeley	United States	—
5	Ridesourcing systems: A framework and review (2019)	Hong Kong University of Science and Technology, Singapore Management University	China, Singapore	—
6	Impacts of transportation network companies on urban mobility (2021)	Massachusetts Institute of Technology, Tongji University	China, Singapore, United States	—
7	Human-AI Coevolution (2024)	Central European University, Consiglio Nazionale delle Ricerche, Consiglio Nazionale delle Ricerche (CNR)	Austria, Chile, France	—
8	Shared ride services in North America: definitions, impacts, and the future of pooling (2018)	University of California, Berkeley	United States	—
9	Air taxi service for urban mobility: A critical review of recent developments, future challenges, and opportunities (2020)	University of Missouri	United States	—

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 fair transmit power control framework for safety-critical vehicle-to-vehicle communication, establishing a foundational approach for reliable vehicular networks.

The researcher's core contribution centers on the 2009 IEEE Transactions on Vehicular Technology paper titled 'Vehicle-to-Vehicle Communication: Fair Transmit Power Control for Safety-Critical Information.' This work appears to address the critical challenge of managing transmission power in vehicular networks to ensure the reliability of safety-critical data exchange. By focusing on fairness in power control, the research likely sought to balance network efficiency with the stringent requirements of safety applications, a gap that was emerging as vehicular communication technologies gained prominence.

The significance of this contribution is evidenced by its substantial citation count of 755, indicating that it has become a well-cited reference in the field. Furthermore, analysis of citing literature reveals that 95.0% of citations originate from independent researchers, suggesting that the work has had a broad impact beyond the researcher's immediate academic circle. This high degree of independent uptake underscores the utility and foundational nature of the proposed power control framework for the wider scientific community.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Vehicle-to-Vehicle Communication: Fair Transmit Power Control for Safety-Critical Information

2009 · IEEE Transactions on Vehicular Technology · 756 citations (GS)

Field-normalised: 584 Semantic Scholar citations place it in the top 1% of Engineering papers from 2009 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Global prevalence of norovirus in cases of gastroenteritis: a systematic review and meta-analysis (2014)	Centers for Disease Control and Prevention, Emory University, National Institute for Public Health and the Environment (RIVM)	Netherlands, United States	—
2	Vehicular Networking: A Survey and Tutorial on Requirements, Architectures, Challenges, Standards and Solutions (2011)	Booz Allen Hamilton, Ohio State University, Raytheon Polar Services	Japan, Netherlands, United States	—
3	Dedicated short-range communications (DSRC) standards in the United States (2011)	—	—	—
4	Comprehensive survey on machine learning in vehicular network: Technology, applications and challenges (2021)	Central South University, Nanjing University of Posts and Telecommunications, Tohoku University	China, Japan	—
5	Minimizing age of information in vehicular networks (2011)	Indraprastha Institute of Information Technology, Rutgers University	India, United States	—
6	SDN/NFV-Empowered Future IoV With Enhanced Communication, Computing, and Caching (2020)	Central South University, Minnesota State University, Mankato, University of Waterloo	Canada, China, United States	—
7	A Communications-Oriented Perspective on Traffic Management Systems for Smart Cities: Challenges and Innovative Approaches (2015)	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
8	Platoon Control of Connected Multi-Vehicle Systems Under V2X Communications: Design and Experiments (2019)	—	—	—
9	Platooning With IVC-Enabled Autonomous Vehicles: Strategies to Mitigate Communication Delays, Improve Safety and Traffic Flow (2012)	—	—	—

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
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	4
University College London	United Kingdom	SCImago #30	3
Lehigh University	United States	SCImago #3507 · THE 601–800 · QS =668	2
University of California, Berkeley	United States	SCImago #95 · THE 9 · QS =17	2
University of Tennessee	United States	—	2
University of Pisa	Italy	THE 351–400 · QS =343	2
Northeastern University	United States	QS 384	2
Emory University	United States	SCImago #217 · THE 102 · QS 182	2
Central South University	China	SCImago #42 · THE 251–300 · QS =491	2
University of Rochester	United States	SCImago #524 · THE 127 · QS 236	2
University of California, Irvine	United States	SCImago #329 · THE 97 · QS 293	2
Sciences Po	France	THE 601–800 · QS =367	1
University of Waterloo	Canada	SCImago #491 · THE =162 · QS =119	1
Institute for Informatics and Telematics (IIT) of the National Research Council of Italy (CNR)	Italy	—	1
École de Technologie Supérieure	Canada	SCImago #2925	1

Geographic distribution of citing authors

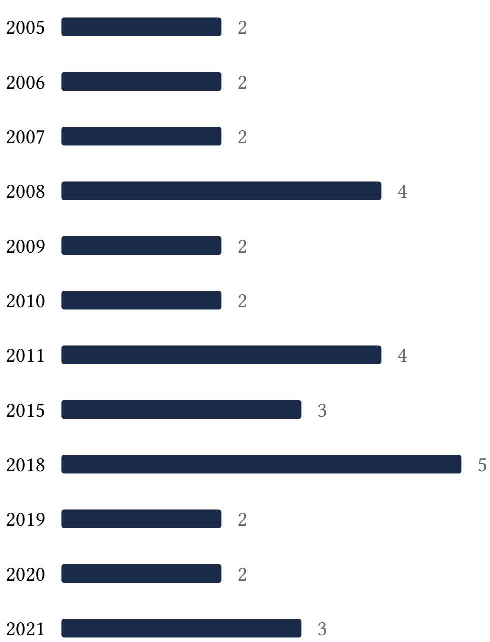
Country	Citing papers
United States	29
China	13
Italy	7
United Kingdom	6
Germany	4

Country	Citing papers
France	4
Japan	3
Netherlands	3
Spain	3
India	2
Saudi Arabia	2
Singapore	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	The critical transmitting range for connectivity in sparse wireless ad hoc networks	14	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Quantifying the benefits of vehicle pooling with shareability networks	9	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Vehicle-to-Vehicle Communication: Fair Transmit Power Control for Safety-Critical Information	9	Dhanasar — Prong 2 (well-positioned)