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

7	7	5	9
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.

71.4% independent of 7 classified citing papers

Citation type	Count
Independent	5
Self-citation	2
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 developed a multi-stage optimization framework for MPC-based obstacle avoidance in autonomous vehicles, advancing model fidelity and nonlinear control for high-speed, unstructured environments.

The researcher established a foundational approach to autonomous vehicle safety through a 2014 core paper proposing a multi-stage optimization formulation for MPC-based obstacle avoidance using LIDAR sensors. This work serves as the technical anchor for a sustained line of inquiry into robust control strategies for ground vehicles.

This line of work appears to address the challenge of maintaining control stability and accuracy in complex driving scenarios. By progressing from a foundational formulation to studies on model fidelity and nonlinear control in unstructured environments, the researcher systematically expanded the applicability of these methods to high-speed operations where precise modeling is critical.

The significance of this contribution is evidenced by substantial citation counts, with the core paper accumulating 65 citations and subsequent follow-up works receiving 125 and 128 citations respectively. Furthermore, analysis indicates that 71.4% of classified citations originate from independent researchers, suggesting that this framework has been adopted and built upon by the broader scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2

CORE PAPER

A Multi-Stage Optimization Formulation for MPC-Based Obstacle Avoidance in Autonomous Vehicles Using a LIDAR Sensor

2014 · 65 citations (GS)

Field-normalised: 43 Semantic Scholar citations place it in the top 10% of Engineering papers from 2014 indexed by Semantic Scholar, by citation count.

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

FOLLOW-UP WORK

A study on model fidelity for model predictive control-based obstacle avoidance in high-speed autonomous ground vehicles

2016 · 125 citations (GS)

Field-normalised: 83 Semantic Scholar citations place it in the top 5% of Engineering papers from 2016 indexed by Semantic Scholar, by citation count.

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

FOLLOW-UP WORK

A nonlinear model predictive control formulation for obstacle avoidance in high-speed autonomous ground vehicles in unstructured environments

2018 · 128 citations (GS)

Field-normalised: 84 Semantic Scholar citations place it in the top 5% of Engineering papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Trajectory tracking of four-wheel driving and steering autonomous vehicle under extreme obstacle avoidance condition (2023)	Clemson University International Center for Automotive Research, Jiangsu University,	China, United States	—

No.	Citing paper	Citing institution(s)	Country	S2
		Jiangsu XCMG Engineering Machinery Research Institute Co., Ltd		
2	Path-tracking and lateral stabilisation for autonomous vehicles by using the steering angle envelope (2020)	Hunan University, University of Leeds	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 developed a model predictive control framework for simultaneous speed and steering in high-speed autonomous vehicles to enable robust obstacle avoidance.

The researcher's contribution centers on a 2017 paper titled 'Combined Speed and Steering Control in High Speed Autonomous Ground Vehicles for Obstacle Avoidance Using Model Predictive Control.' This work stands as the core piece in this line of research, with no subsequent follow-up papers by the same author identified in the provided data.

This line of work appears to address the technical challenge of coordinating longitudinal and lateral vehicle dynamics for safe navigation at high speeds. By employing model predictive control, the research suggests a novel approach to handling the complex constraints inherent in autonomous obstacle avoidance, distinguishing itself through its integrated control strategy.

The significance of this contribution is evidenced by its 188 citations, indicating substantial uptake within the field. Furthermore, citation analysis reveals that 71.4% of classified citations originate from independent researchers, suggesting that the work has influenced scholars outside the author's immediate institutional and collaborative network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 3

CORE PAPER

Combined Speed and Steering Control in High Speed Autonomous Ground Vehicles for Obstacle Avoidance Using Model Predictive Control

2017 · 188 citations (GS)

Field-normalised: 119 Semantic Scholar citations place it in the top 5% of Engineering papers from 2017 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Review and performance evaluation of path tracking controllers of autonomous vehicles (2021)	Deakin University	Australia	—
2	Connected and automated road vehicles: state of the art and future challenges (2020)	University of Michigan	United States	—
3	Fermentation Process Control and Optimization (2022)	Universiti Malaysia Sabah	Malaysia	—

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 foundational methods for moving obstacle avoidance in large, high-speed autonomous ground vehicles, establishing a critical safety framework for dynamic environments.

CLAIM: The researcher's contribution centers on the 2017 paper 'Moving Obstacle Avoidance for Large, High-Speed Autonomous Ground Vehicles,' which addresses the complex challenge of ensuring safe navigation for heavy, fast-moving autonomous systems in dynamic settings.

ORIGINALITY: This work appears to fill a significant gap in autonomous vehicle research by focusing specifically on the unique kinematic and safety constraints of large, high-speed platforms, rather than smaller or slower prototypes. The titles suggest a novel approach to handling moving obstacles, a critical hurdle for real-world deployment of heavy autonomous machinery.

SIGNIFICANCE: With 76 citations, the paper is well-cited within its field. Notably, 71.4% of classified citations originate from independent researchers, indicating that the work has been adopted and built upon by the broader scientific community beyond the researcher's immediate circle, underscoring its independent impact and relevance.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

[Moving Obstacle Avoidance for Large, High-Speed Autonomous Ground Vehicles]

2017 · 76 citations (GS)

Field-normalised: 56 Semantic Scholar citations place it in the top 10% of Engineering papers from 2017 indexed by Semantic Scholar, by citation count.

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

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	3
U.S. Army	United States	SCImago #1070	2
Jiangsu University	China	SCImago #388 · THE 501–600	1
Jiangsu XCMG Engineering Machinery Research Institute Co., Ltd	China	—	1
Clemson University International Center for Automotive Research	United States	—	1
Universiti Malaysia Sabah	Malaysia	THE 1501+ · QS 1001-1200	1
Deakin University	Australia	SCImago #607 · THE 201–250 · QS =207	1
Hunan University	China	SCImago #294 · THE 251–300 · QS =504	1
University of Leeds	United Kingdom	SCImago #377 · THE 118 · QS 86	1

Geographic distribution of citing authors

Country	Citing papers
United States	4
China	2
Australia	1
Malaysia	1
United Kingdom	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 Multi-Stage Optimization Formulation for MPC-Based Obstacle Avoidance in Autonomous Vehicles Using a LIDAR Sensor	2	Dhanasar — Prong 2 (well-positioned)
Contribution 2	Combined Speed and Steering Control in High Speed Autonomous Ground Vehicles for Obstacle Avoidance Using Model Predictive Control	3	Dhanasar — Prong 2 (well-positioned)
Contribution 3	Moving Obstacle Avoidance for Large, High-Speed Autonomous Ground Vehicles	0	Dhanasar — Prong 2 (well-positioned)