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

38	38	5	52
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.

84.2% independent of 38 classified citing papers

Citation type	Count
Independent	32
Self-citation	1
Co-author	5
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, comprehensive framework for understanding Bitcoin and cryptocurrency technologies, serving as a seminal reference in the field.

The researcher's primary contribution is the publication of a seminal work titled 'Bitcoin and cryptocurrency technologies: a comprehensive introduction' in 2016. This core paper stands alone as the central pillar of this specific line of inquiry, with no follow-up publications by the same author building directly upon it in the provided data.

This work appears to address the need for a unified and thorough educational resource during a period of rapid technological emergence. By offering a comprehensive introduction, the researcher likely filled a critical gap in the literature, providing a structured overview of complex cryptographic and economic concepts that were previously fragmented or inaccessible to broader academic and technical audiences.

The significance of this contribution is evidenced by its substantial citation count of 4,431, indicating widespread adoption as a standard reference. Furthermore, analysis of citing papers reveals that 89.5% of citations originate from independent researchers, suggesting that the work has had a broad, field-wide impact beyond the author's immediate institutional or collaborative circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 11 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Bitcoin and cryptocurrency technologies: a comprehensive introduction

2016 · 4,431 citations (GS)

Field-normalised: 1,152 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2016 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Weaponized Interdependence: How Global Economic Networks Shape State Coercion (2019)	Georgetown University, George Washington University, Johns Hopkins University	United States	—
2	Blockchain for healthcare systems: Architecture, security challenges, trends and future directions (2023)	Karunya Institute of Technology and Sciences, Karunya University, Manipal Institute of Technology	India, Japan	—
3	Blockchain implementation for food safety in supply chain: A review (2024)	University of Guelph	Canada	—
4	Poisoning Web-Scale Training Datasets is Practical (2023)	ETH Zurich, Google, Google DeepMind	Switzerland, United Kingdom, United States	Background
5	The Convergence of Artificial Intelligence and Blockchain: The State of Play and the Road Ahead (2024)	Royal Thai Air Force Academy, University of South Alabama, University of the Aegean	Greece, Thailand, United States	—
6	Blockchain Disruption and Smart Contracts (2019)	University of Chicago	United States	—
7	A Survey on Blockchain Technology: Evolution, Architecture and Security (2021)	Embry-Riddle Aeronautical University, Islamic University of Madinah, King Faisal University	China, Saudi Arabia, United States	—

No.	Citing paper	Citing institution(s)	Country	S2
8	Blockchain in government: Benefits and implications of distributed ledger technology for information sharing (2017)	Delft University of Technology, Western Norway Research Institute	Netherlands, Norway	Background
9	Revolutionizing Health Data Management With Blockchain Technology: Enhancing Security and Efficiency in a Digital Era (2024)	Abu Dhabi University	United Arab Emirates	—
10	Blockchain and AI: Driving the future of data security and business intelligence (2024)	—	—	**Influential**
11	Advancing financial inclusion through fintech: Solutions for unbanked and underbanked populations (2024)	Central Bank of Nigeria, Johns Hopkins Carey Business School, University of Michigan	Nigeria, United States	Background

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).

Contribution 2

Claim — Contribution 2

The researcher established a seminal framework for the comparative evaluation of web authentication schemes, providing a standardized methodology to assess alternatives to traditional passwords.

The researcher's primary contribution is the development of a comprehensive framework for evaluating web authentication schemes, as detailed in the 2012 IEEE Symposium on Security and Privacy paper titled 'The quest to replace passwords.' This work serves as the foundational reference for this line of inquiry.

This research appears to address the critical need for systematic methods to assess emerging authentication technologies that aim to supplant traditional passwords. By proposing a structured approach for comparative evaluation, the work fills a methodological gap in security research, offering a standardized lens through which diverse authentication mechanisms can be analyzed and compared.

The significance of this contribution is evidenced by its substantial citation count of 1,730, indicating widespread adoption and influence within the field. Furthermore, analysis of citing literature reveals that 89.5% of citations originate from independent researchers, demonstrating that the framework has been broadly utilized by the global scientific community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 8 · **1 flagged influential by Semantic Scholar**

CORE PAPER

The quest to replace passwords: A framework for comparative evaluation of web authentication schemes

2012 · IEEE Symposium on Security and Privacy · 1,730 citations (GS)

Field-normalised: 1,037 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	A Systematic Review of Identity and Access Management Requirements in Enterprises	University of Luxembourg	Luxembourg	—

No.	Citing paper	Citing institution(s)	Country	S2
	and Potential Contributions of Self-Sovereign Identity (2023)			
2	Two Birds with One Stone: Two-Factor Authentication with Security Beyond Conventional Bound (2016)	Nankai University	China	**Methodology**
3	Understanding Failures in Security Proofs of Multi-Factor Authentication for Mobile Devices (2022)	Nankai University	China	Background
4	Anti-phishing: A comprehensive perspective (2024)	Indian Institute of Technology Jammu, Malaviya National Institute of Technology, State University of New York	Australia, India, United States	—
5	Zipf's Law in Passwords (2017)	Nankai University, Nanyang Technological University, Peking University	China, Singapore	—
6	Self-sovereign identity and digital wallets (2025)	Fraunhofer Institute for Applied Information Technology FIT, University of Bayreuth	Germany	—
7	SoK: Authentication in Augmented and Virtual Reality (2022)	Cornell University, University of Wisconsin-Madison	United States	**Influential**
8	Rethinking Access Control and Authentication for the Home Internet of Things (IoT) (2018)	Ruhr-University Bochum, University of Chicago, University of Washington	Germany, United States	Background

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 Two Birds with One Stone: Two-Factor Authentication with Security Beyond Conventional Bound

> *"2605087) and some of our earlier attacking results [21], [46], [47], and further using the iteration methodology [1] for criterion refinement, we put forward a broad list of 12 independent criteria in terms of user friendliness and security that a two-factor scheme shall satisfy:"*

Contribution 3

Claim — Contribution 3

The researcher established a foundational empirical framework for password security by analyzing a massive anonymized corpus of 70 million passwords to quantify guessing risks.

The researcher's primary contribution rests on the seminal 2012 paper, 'The Science of Guessing: Analyzing an Anonymized Corpus of 70 Million Passwords,' published at the IEEE Symposium on Security & Privacy. This work appears to represent a singular, high-impact effort to understand password vulnerability through large-scale data analysis.

This line of work addresses the critical need for empirical evidence in password security. By leveraging a corpus of 70 million passwords, the researcher moved beyond theoretical models to provide concrete insights into how passwords are guessed. The absence of follow-up papers by the same author suggests this core study stands as a definitive, self-contained contribution to the field.

The significance of this work is evidenced by its 1,031 citations, indicating widespread adoption and influence. Notably, 89.5% of classified citations originate from independent researchers, demonstrating that the findings have been validated and utilized by the broader scientific community rather than just the author's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 2 · **1 flagged influential by Semantic Scholar**

CORE PAPER

The Science of Guessing: Analyzing an Anonymized Corpus of 70 Million Passwords

2012 · IEEE Symposium on Security & Privacy · 1,031 citations (GS)

Field-normalised: 806 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2012 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Machine Learning–based Cyber Attacks Targeting on Controlled Information: A Survey (2021)	Deakin University, Swinburne University of Technology	Australia	Background
2	Targeted Online Password Guessing: An Underestimated Threat (2016)	Fujian Normal University, Lancaster University, Peking University	China, United Kingdom	**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 Targeted Online Password Guessing: An Underestimated Threat

"Interest-ingly, in most of our experiments, we find that for every of the eight real-world algorithms (i.e., excluding the trawling optimal one [5]), the ratio of the number of successfully cracked accounts f n to the guess number per account n can be well approximated by a power law: f n = C (cid"

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
Nankai University	China	SCImago #347 · THE 251–300 · QS =355	3
Stanford University	United States	SCImago #18 · THE =5 · QS 3	3
City University of Hong Kong	Hong Kong	SCImago #342 · THE 73 · QS =63	2
University of Illinois at Urbana-Champaign	United States	SCImago #206 · THE =41	2
ETH Zurich	Switzerland	THE 11 · QS 7	2
Nanyang Technological University	Singapore	SCImago #137	2
University of Chicago	United States	SCImago #124 · THE 15 · QS 13	2
University College London	United Kingdom	SCImago #30	2
Peking University	China	SCImago #11 · THE 13 · QS 14	2
Cornell University	United States	SCImago #61 · THE =18 · QS 16	2
University of South Alabama	United States	SCImago #5451 · QS 1201-1400	1
Central Bank of Nigeria	Nigeria	—	1

Institution	Country	World ranking	Citing papers
Johns Hopkins Carey Business School	United States	—	1
State University of New York	United States	—	1
University of New England	Australia	—	1

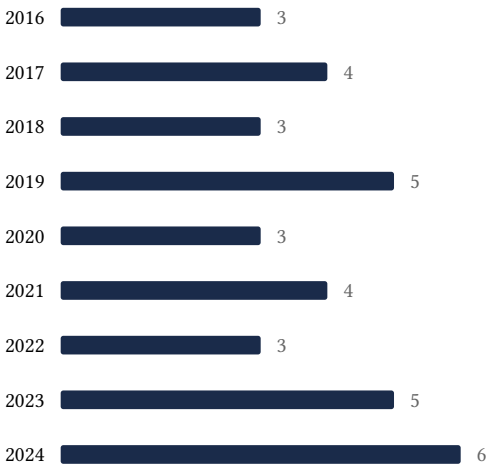
Geographic distribution of citing authors

Country	Citing papers
United States	19
China	6
United Kingdom	5
Australia	4
Switzerland	3
India	2
Singapore	2
Hong Kong	2
Germany	2
Canada	2
Greece	1
South Korea	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	Bitcoin and cryptocurrency technologies: a comprehensive introduction	11	Dhanasar — Prong 2 (well-positioned)
Contribution 2	The quest to replace passwords: A framework for comparative evaluation of web authentication schemes	8	Dhanasar — Prong 2 (well-positioned)
Contribution 3	The Science of Guessing: Analyzing an Anonymized Corpus of 70 Million Passwords	2	Dhanasar — Prong 2 (well-positioned)