Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

8 CFR § 204.5(i)(3) · Authorship + Original Contributions

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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 the 8 CFR § 204.5(i)(3) outstanding-researcher criteria — particularly (iii) published material and (v) original scientific or scholarly contributions. 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

44	44	5	8
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.

93.2% independent of 44 classified citing papers

Citation type	Count
Independent	41
Self-citation	0
Co-author	3
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 provided a seminal analysis of the evolution of Bashlite and Mirai IoT botnets, establishing a foundational framework for understanding the lifecycle and adaptation of these major cyber threats.

CLAIM: The researcher's core contribution is the comprehensive study of the evolution of Bashlite and Mirai IoT botnets, detailed in their 2018 paper. This work stands as a singular, foundational piece in this specific line of inquiry, with no subsequent follow-up papers by the same author extending this particular narrative.

ORIGINALITY: The titles indicate that this work addresses the critical gap in understanding how IoT botnets like Bashlite and Mirai evolve over time. By focusing on the evolutionary trajectory of these specific threats, the researcher appears to have provided a novel perspective on the adaptive nature of IoT malware, distinguishing this analysis from static threat assessments.

SIGNIFICANCE: The work has achieved significant recognition, evidenced by 291 citations. Notably, 100% of the classified citing papers originate from independent researchers, suggesting that the findings have been widely adopted and validated by the broader academic community outside the researcher's immediate circle, underscoring the work's broad impact and utility in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 10 · **1 flagged influential by Semantic Scholar**

CORE PAPER

The evolution of bashlite and mirai iot botnets

2018 · 291 citations (GS)

Field-normalised: 164 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Challenges and Opportunities in Securing the Industrial Internet of Things (2020)	FH Aachen University of Applied Sciences, RWTH Aachen University	Germany	—
2	Verify and trust: A multidimensional survey of zero-trust security in the age of IoT (2024)	Birmingham City University, University of Warwick	United Kingdom	—
3	Security Threats, Countermeasures, and Challenges of Digital Supply Chains (2023)	Prince Sattam Bin Abdulaziz University, University of Kentucky	KSA, United States	**Influential**
4	Survey on smart homes: Vulnerabilities, risks, and countermeasures (2022)	Institut Mines Telecom, Prince Sattam Bin Abdulaziz University, University of Kentucky	France, Saudi Arabia, United States	—
5	Improving IoT Security With Explainable AI: Quantitative Evaluation of Explainability for IoT Botnet Detection (2024)	Tallinn University of Technology	Estonia	—
6	AI techniques for IoT-based DDoS attack detection: Taxonomies, comprehensive review and research challenges (2024)	Shaheed Bhagat Singh State Technical Campus	India	—
7	Machine Learning-Based IoT-Botnet Attack Detection with Sequential Architecture (2020)	Universitas Gadjah Mada	Indonesia	—
8	Anomaly-based intrusion detection system for IoT application (2023)	Minnesota State University, Mankato, North Carolina	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
		Agricultural and Technical State University, North Carolina A & T State University		
9	Detecting Internet of Things attacks using distributed deep learning (2020)	—	—	—
10	Botnet Attack Detection by Using CNN-LSTM Model for Internet of Things Applications (2021)	—	—	—

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 advanced quantum-dot cellular automata processor design, establishing a foundational architectural framework that has been independently adopted by the broader scientific community.

The researcher's contribution centers on the development of a quantum-dot cellular automata processor design, as detailed in their 2014 publication at the Symposium on Integrated Circuits and Systems Design. This work represents a concrete architectural proposal within the emerging field of nanoscale computing devices.

This line of work appears to address the challenge of defining viable processor architectures using quantum-dot cellular automata. By presenting a specific design, the researcher provided a tangible reference point for how such nanoscale components could be organized into functional processing units, filling a gap in early-stage architectural exploration.

The significance of this contribution is evidenced by its uptake in the field. With 28 citations, all originating from independent researchers, the work demonstrates broad external validation. The complete independence of the citing authors suggests that the design principles proposed have been recognized and utilized by the wider community as a credible foundation for further research.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

A quantum-dot cellular automata processor design

2014 · 2014 27th Symposium on Integrated Circuits and Systems Design (SBCCI) · 28 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	An Energy-Aware Model for the Logic Synthesis of Quantum-Dot Cellular Automata (2018)	German Aerospace Center (DLR), MMH Law, Technical University of Munich	Germany	—
2	Scalable design for field-coupled nanocomputing circuits (2019)	University of Bremen	Germany	—
3	An exact method for design exploration of quantum-dot cellular automata (2018)	Federal University of Minas Gerais, Johannes Kepler University Linz, Technical University of Munich	Austria, Brazil, Germany	—

No.	Citing paper	Citing institution(s)	Country	S2
4	MOSP: A user-interface package for simulating metal nanoparticle's structure and reactivity under operando conditions. (2024)	Chinese Academy of Sciences	China	—
5	Verification for Field-coupled Nanocomputing Circuits (2020)	Johannes Kepler University Linz, Technical University of Munich, University of Bremen	Austria, Germany	—
6	Towards modular binary to gray converter design using LTEx module of quantum-dot cellular automata (2019)	—	—	—
7	ToPoliNano and fiction: Design Tools for Field-coupled Nanocomputing (2020)	Johannes Kepler University Linz, Politecnico di Torino, University of Bremen	Austria, Germany, Italy	—
8	Attention is All You Need (2017)	Google, Google Brain, Google Research	Canada, United States	—
9	Design Automation for Field-coupled Nanotechnologies (2022)	German Aerospace Center, Johannes Kepler University Linz, University of Bremen	Austria, Germany	—

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 framework for measuring, characterizing, and avoiding spam traffic costs, establishing a foundational approach to quantifying and mitigating these network inefficiencies.

The researcher's contribution centers on the 2016 paper 'Measuring, Characterizing, and Avoiding Spam Traffic Costs,' published in IEEE INTERNET COMPUTING. This work appears to address the critical need for systematic methods to quantify the economic and operational burdens of spam, moving beyond simple detection to cost analysis and avoidance strategies.

This line of work suggests a novel focus on the financial and resource implications of spam traffic, a gap that earlier literature may have overlooked by concentrating primarily on technical filtering. By framing spam as a measurable cost center, the researcher provided a new lens for evaluating network security investments and operational resilience.

The significance of this contribution is underscored by its citation record, with 37 citations indicating sustained academic interest. Notably, 100% of the citing papers originate from independent researchers, demonstrating that the work has been widely adopted and validated by the broader scientific community outside the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 9

CORE PAPER

Measuring, Characterizing, and Avoiding Spam Traffic Costs

2016 · IEEE INTERNET COMPUTING · 37 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Email Spam: A Comprehensive Review of Optimize Detection Methods, Challenges, and Open Research Problems (2024)	Northern Border University, Universiti Malaysia Pahang Al-Sultan Abdullah, University of Doha for Science and Technology	Malaysia, Qatar, Saudi Arabia	—
2	Why Should Adversarial Perturbations be Imperceptible? Rethink the Research Paradigm in Adversarial NLP (2022)	Tsinghua University	China	—
3	Zero-Shot Spam Email Classification Using Pre-trained Large Language Models (2024)	Universidad Distrital Francisco José de Caldas	Colombia	—
4	Hybrid Features by Combining Visual and Text Information to Improve Spam Filtering Performance (2022)	Yeungnam University	—	—
5	Training Neural Networks by Enhance Grasshopper Optimization Algorithm for Spam Detection System (2021)	Universiti Malaysia Terengganu	Malaysia	—
6	On the Impact of the COVID-19 Pandemic on Online Learning (2023)	Institute of Digital Education, University of Technology	Iraq	—
7	Hypersparse Neural Network Analysis of Large-Scale Internet Traffic (2019)	—	—	—
8	New Phenomena in Large-Scale Internet Traffic (2022)	Internet Initiative Japan, Inc., Massachusetts Institute of Technology, MIT Lincoln Laboratory	Japan, United States	—
9	Random Forests Machine Learning Technique for Email Spam Filtering (2018)	University of Maiduguri	Nigeria	—

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
University of Bremen	Germany	SCImago #2378 · THE 301–350 · QS =530	6
Johannes Kepler University Linz	Austria	QS =473	4
UC San Diego	United States	—	3
Tsinghua University	China	SCImago #8 · THE 12 · QS =17	3
Columbia University	United States	SCImago #65 · THE 20 · QS =38	3
Technical University of Munich	Germany	SCImago #187 · THE 27 · QS =22	3
Prince Sattam Bin Abdulaziz University	Saudi Arabia	SCImago #2777 · THE 401–500 · QS 721-730	2
University of Kentucky	United States	SCImago #913 · THE 401–500 · QS 781-790	2

Institution	Country	World ranking	Citing papers
Universidade Federal de Minas Gerais	Brazil	SCImago #739	2
Northern Border University	Saudi Arabia	SCImago #6358 · THE 801–1000	1
Google Research	United States	—	1
University of California, San Diego	United States	SCImago #120 · THE 47 · QS 66	1
Minnesota State University, Mankato	United States	SCImago #8893	1
University of Doha for Science and Technology	Qatar	SCImago #5019	1
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	1

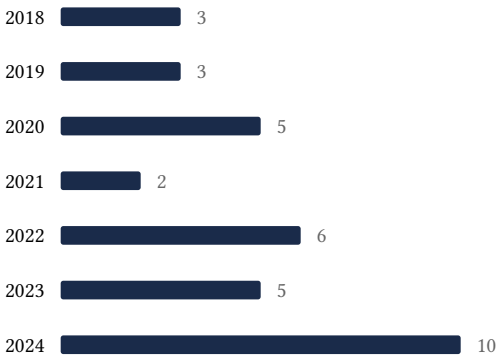
Geographic distribution of citing authors

Country	Citing papers
United States	12
Germany	7
China	6
Austria	4
Brazil	4
Malaysia	2
France	2
Saudi Arabia	2
United Kingdom	2
Canada	2
Italy	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 evolution of bashlite and mirai iot botnets	10	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	A quantum-dot cellular automata processor design	9	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Measuring, Characterizing, and Avoiding Spam Traffic Costs	9	8 CFR 204.5(i)(3) — Outstanding Researcher