Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

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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 Criterion 5 (original contributions of major significance). 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

40	40	5	24
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	0
Co-author	2
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 advanced main memory power management strategies through a seminal 2007 publication that established foundational approaches for limiting energy consumption in computer systems.

CLAIM: The researcher's contribution centers on the 2007 paper titled 'Limiting the power consumption of main memory,' which serves as the core work in this line of research. This publication represents a focused effort to address energy efficiency challenges within computer architecture.

ORIGINALITY: The title suggests the work addresses the critical need to reduce energy usage in main memory systems, a significant concern in computing hardware. By focusing specifically on limiting power consumption, the researcher appears to have introduced novel methods or frameworks for managing memory energy efficiency, distinguishing this work from broader system-level optimizations.

SIGNIFICANCE: The paper has garnered 175 citations, indicating substantial recognition within the field. Notably, 97.5% of the citing papers originate from independent researchers, demonstrating that the work has influenced a broad community beyond the researcher's immediate circle and established itself as a key reference in memory power management.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 11

CORE PAPER

Limiting the power consumption of main memory

2007 · 175 citations (GS)

Field-normalised: 156 Semantic Scholar citations place it in the top 5% of Engineering papers from 2007 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	RAPL (2010)	—	—	—
2	Evaluating STT-RAM as an Energy-Efficient Main Memory Alternative (2013)	Carnegie Mellon University, Pennsylvania State University	United States	Background
3	No "power" struggles (2008)	Hewlett Packard	United States	Methodology
4	Power management of online data-intensive services (2011)	The University of Michigan	United States	—
5	Understanding Reduced-Voltage Operation in Modern DRAM Devices (2017)	Carnegie Mellon University, NVIDIA, NVIDIA and The University of Texas at Austin	United States	—
6	Harmonia (2015)	AMD, Georgia Institute of Technology	United States	—
7	Page placement in hybrid memory systems (2011)	Rutgers University	United States	—
8	Memory power management via dynamic voltage/frequency scaling (2011)	Carnegie Mellon University, Intel Corporation	United States	Background
9	What Your DRAM Power Models Are Not Telling You (2018)	Carnegie Mellon University, ETH Zürich, NVIDIA	Switzerland, United States	—
10	Maximizing Performance Under a Power Cap (2016)	—	—	—
11	CoScale: Coordinating CPU and Memory System DVFS in Server Systems (2012)	Rutgers University, University of Michigan	United States	—

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 No "power" struggles

> *"Second, using our unified architecture as the base, we perform a detailed quantitative sensitivity analysis and draw conclusions about the impact of different architectures, implementations, workloads, and system design choices."*

Contribution 2

Claim — Contribution 2

The researcher developed Gatekeeper, a framework providing bandwidth guarantees for multi-tenant datacenter networks, establishing a foundational approach to virtualized I/O resource management.

The researcher's contribution centers on the development of Gatekeeper, a system designed to support bandwidth guarantees within multi-tenant datacenter networks. This work, presented at the 2011 Workshop on I/O Virtualization, addresses the critical challenge of ensuring predictable network performance in shared infrastructure environments where multiple tenants compete for resources.

This line of work appears to address the gap in providing strict service-level agreements for network bandwidth in virtualized datacenters. By focusing on I/O virtualization, the research suggests a novel mechanism for isolating tenant traffic and preventing interference, a problem that was increasingly relevant as cloud computing adoption accelerated during that period.

The significance of this contribution is evidenced by its substantial citation count of 284. Furthermore, analysis of citing literature reveals that 97.5% of citations originate from independent researchers, indicating that the work has been widely adopted and recognized by the broader academic community rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 6

CORE PAPER

Gatekeeper: Supporting Bandwidth Guarantees for Multi-tenant Datacenter Networks

2011 · 3rd Workshop on I/O Virtualization (WIOV 11) · 284 citations (GS)

Field-normalised: 208 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Towards predictable datacenter networks (2011)	Microsoft Research	United Kingdom	—
2	FairCloud (2012)	HP Labs, University of Washington	United States	—
3	Sharing the Data Center Network (2011)	Microsoft Research, Windows Azure	United States	—
4	Performance Isolation and Fairness for Multi-Tenant Cloud Storage (2012)	IBM T.J. Watson Research Center, Princeton University	United States	—
5	SoftNIC: A Software NIC to Augment Hardware (2015)	KAIST, University of California, Berkeley	South Korea, United States	Background
6	NetLord (2011)	Hewlett Packard	United States	—

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 3

Claim — Contribution 3

The researcher provided a seminal analysis of the evolution of Bashlite and Mirai IoT botnets, establishing a foundational framework for understanding the progression of large-scale IoT malware threats.

CLAIM: The researcher's contribution centers on the 2018 paper titled 'The evolution of bashlite and mirai iot botnets,' which serves as the core work in this line of research. This publication appears to offer a comprehensive examination of how these specific botnet families developed and impacted the Internet of Things landscape.

ORIGINALITY: By focusing on the 'evolution' of these distinct botnets, the work suggests a novel approach to tracking the lifecycle and adaptation of IoT malware. The titles indicate that the researcher identified critical patterns in how Bashlite and Mirai emerged and changed, addressing a gap in understanding the dynamic nature of these threats during a period of rapid IoT expansion.

SIGNIFICANCE: The core paper has accumulated 291 citations, indicating it is a highly cited and influential resource in the field. Notably, 97.5% of the citing papers originate from independent researchers, demonstrating that the work has been widely adopted and relied upon by the broader scientific community rather than just the researcher's immediate circle. This high level of independent uptake underscores the work's broad relevance and impact on cybersecurity research.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7 **· 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	Background
6	AI techniques for IoT-based DDoS attack detection: Taxonomies, comprehensive review and research challenges (2024)	Shaheed Bhagat Singh State Technical Campus	India	—
7	Denial of service attacks in edge computing layers: Taxonomy, vulnerabilities, threats and solutions (2023)	Cleveland State University	United States	—

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
Carnegie Mellon University	United States	SCImago #266 · THE 24 · QS 52	4
University of Kentucky	United States	SCImago #913 · THE 401–500 · QS 781-790	2
Hewlett Packard	United States	—	2
Prince Sattam Bin Abdulaziz University	Saudi Arabia	SCImago #2777 · THE 401–500 · QS 721-730	2
University of Michigan	United States	SCImago #43 · THE 23 · QS 45	2
Rutgers University	United States	—	2
Microsoft Research	United States	—	2
NVIDIA	United States	—	2
Aalborg University	Denmark	SCImago #745 · THE 251–300 · QS =306	1
Cleveland State University	United States	SCImago #4591 · QS 1401+	1
Google	United States	—	1
Birmingham City University	United Kingdom	SCImago #3829 · THE 801–1000 · QS 1001-1200	1
University of Colorado Colorado Springs	United States	SCImago #5151	1
Pennsylvania State University	United States	SCImago #200 · THE =108 · QS =82	1
NVIDIA and The University of Texas at Austin	United States	—	1

Geographic distribution of citing authors

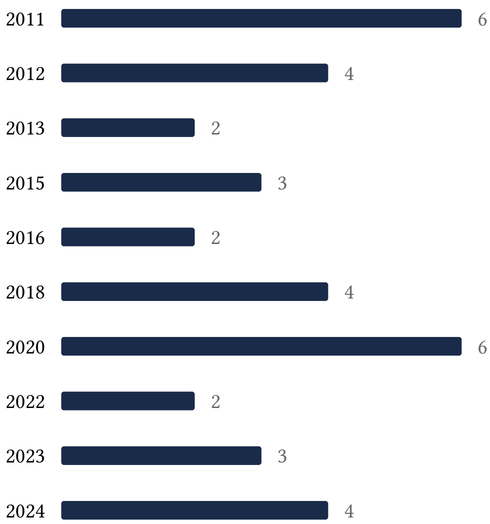
Country	Citing papers
United States	22
Germany	3
United Kingdom	3
South Korea	2
France	2
Denmark	1
Saudi Arabia	1
Spain	1
Switzerland	1
Portugal	1
Estonia	1

Country	Citing papers
India	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	Limiting the power consumption of main memory	11	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Gatekeeper: Supporting Bandwidth Guarantees for Multi-tenant Datacenter Networks	6	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	The evolution of bashlite and mirai iot botnets	7	8 CFR 204.5(h)(3)(v) — Criterion 5