Citation Evidence Report

EB-1A Petition — Original Contributions of Major Significance

8 CFR § 204.5(h)(3)(v) · Criterion 5

David Autor

Professor of Economics, MIT

Google Scholar profile

Generated 2026-06-08 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

2,373	2,796	27	95
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.

96.1% independent of 1,453 classified citing papers

Citation type	Count
Independent	1,397
Self-citation	31
Co-author	25
Same-institution	0

920 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 framework linking technological change to skill demand, subsequently expanding this analysis to explain the persistence of employment amid workplace automation.

CLAIM: The researcher's contribution centers on empirically exploring the skill content of recent technological change, as established in the seminal 2003 paper, and extending this inquiry to the broader implications for employment and earnings in the context of workplace automation.

ORIGINALITY: This line of work appears to address the evolving relationship between technology and labor markets. The 2003 core paper suggests an early empirical focus on how technological shifts alter skill requirements. The subsequent 2011 and 2015 papers indicate a progression from analyzing skill-task-technology interactions to addressing the historical and future dynamics of workplace automation, specifically investigating why jobs persist despite technological advances.

SIGNIFICANCE: The impact of this research is evidenced by substantial citation counts, with the core paper cited over 12,000 times and follow-up works cited over 7,000 times each. Furthermore, 96.1% of classified citations originate from independent researchers, indicating that this framework has been widely adopted and utilized by the broader academic community beyond the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 1,323 · **90 flagged influential by Semantic Scholar**

CORE PAPER

The skill content of recent technological change: An empirical exploration

2003 · 12,003 citations (GS)

Field-normalised: 4,570 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2003 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Digital technologies, innovation, and skills: Emerging trajectories and challenges	Politecnico di Milano, University of California, Irvine Medical Center, University of Manchester	Italy, United Kingdom, United States	—
2	Artificial intelligence and work: a critical review of recent research from the social sciences	Macquarie University	Australia	—
3	Gen-AI: Artificial intelligence and the future of work	—	—	—
4	The rise of robots increases job insecurity and maladaptive workplace behaviors: Multimethod evidence.	Sun Yat-sen University, Texas A&M University, University of North Carolina at Chapel Hill	China, United States	—
5	Generative AI at work	MIT, MIT & NBER, Stanford University	United States	—
6	GPTs are GPTs: Labor market impact potential of LLMs	Centre for the Governance of AI, OpenAI, University of Pennsylvania	United Kingdom, United States	—
7	Grundlegende Kompetenzen Erwachsener im internationalen Vergleich: Ergebnisse von PIAAC 2012	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
8	Cognitive challenges in human–artificial intelligence collaboration: Investigating the path toward productive delegation	University of Cologne, University of Minnesota	Germany, United States	—
9	Discourses of artificial intelligence in higher education: A critical literature review	Deakin University, La Trobe University	Australia	—
10	Digital Twin: Where do humans fit in?	Indian Institute of Science, Stanford University, WSP USA	India, United States	—
11	Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review	Netherlands Institute for Social Research, University of Twente	Netherlands	—
12	Navigating the jagged technological frontier: Field experimental evidence of the effects of AI on knowledge worker productivity and quality	Boston Consulting Group (United States), Harvard University, Internet Society	United Kingdom, United States	—
13	The short-term effects of generative artificial intelligence on employment: Evidence from an online labor market	New York University, Washington University in St. Louis	United States	—
14	Artificial intelligence adoption in a professional service industry: A multiple case study	Deakin University, Macquarie University	Australia	—
15	The effects of digital transformation on innovation and productivity: Firm-level evidence of South African manufacturing micro and small enterprises	Institut d'Etudes Politiques de Paris, University of Johannesburg	France, South Africa	—
16	The gender wage gap: Extent, trends, and explanations	Cornell University	United States	—
17	Developing evaluative judgement for a time of generative artificial intelligence	Deakin University	Australia	—
18	Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics	National Bureau of Economic Research, Stanford University, University of Pennsylvania	United States	—
19	The impact of artificial intelligence on the labor market	Stanford University	United States	—
20	What can machine learning do? Workforce implications	Stanford University	United States	—
21	Employment 5.0: The work of the future and the future of work	De Montfort University	United Kingdom	—
22	Automation, algorithms, and beyond: Why work design matters more than ever in a digital world	Curtin University, ETH Zürich	Australia, Switzerland	—
23	The growing importance of social skills in the labor market	Harvard University	United States	**Influential**
24	The future of employment: How susceptible are jobs to computerisation?	University of Oxford	United Kingdom	**Influential**
25	An illustrated user guide to the world input–output database: the case of global automotive production	University of Groningen, Vienna Institute for International Economic Studies	Austria, Netherlands	—
26	Automation, skills use and training	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
27	Occupational, industry, and geographic exposure to artificial intelligence: A novel dataset and its potential uses	New York University, Princeton University	United States	—
28	Artificial intelligence and economic growth	National Bureau of Economic Research, Northwestern University	United States	—
29	The great leveler: Violence and the history of inequality from the stone age to the twenty-first century	—	—	—
30	Explaining job polarization: Routine-biased technological change and offshoring	London School of Economics, University of Leuven, Utrecht University	Belgium, Netherlands, United Kingdom	—

Showing the 30 most-cited of 673 independent citing papers.

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).

FOLLOW-UP WORK

Why are there still so many jobs? The history and future of workplace automation

2015 · 7,164 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Digital technologies, innovation, and skills: Emerging trajectories and challenges	Politecnico di Milano, University of California, Irvine Medical Center, University of Manchester	Italy, United Kingdom, United States	—
2	Artificial intelligence and work: a critical review of recent research from the social sciences	Macquarie University	Australia	—
3	Economics of ChatGPT: A labor market view on the occupational impact of artificial intelligence	Indiana University Bloomington	United States	—
4	Artificial intelligence and firm-level productivity	Centre for European Economic Research, Conseil Européen de l'Industrie des Peintures des Encres d'Imprimerie et des Couleurs d'Art, KU Leuven	Belgium, Germany	—
5	Role of artificial intelligence in marketing strategies and performance	ESIC Business & Marketing School, National Chung Hsing University	Spain, Taiwan	—
6	Algorithms at work: The new contested terrain of control	Massachusetts Institute of Technology, Stanford University	United States	—
7	Machine culture	Max Planck Institute for Human Development	Germany	—
8	Artificial intelligence, firms and consumer behavior: A survey	Politecnico di Torino	Italy	—
9	Friend or foe? Teaming between artificial intelligence and workers with variation in experience	Johns Hopkins University, University of Rochester	United States	—

No.	Citing paper	Citing institution(s)	Country	S2
10	Managing with artificial intelligence: An integrative framework	University of Geneva, Vrije Universiteit Amsterdam	Netherlands, Switzerland	—
11	The future of work of academics in the age of Artificial Intelligence: State-of-the-art and a research roadmap	Parthenope University of Naples, University of Twente	Italy, Netherlands	—
12	Diffusion model-driven smart design and manufacturing: Prospects and challenges	Beihang University, Beijing Institute of Technology, Guangdong University of Technology	China, Sweden	—
13	The acceptance of chatbots in an enterprise context–A survey study	University of Duisburg-Essen, University of Potsdam	Germany	—
14	Experimental evidence on the productivity effects of generative artificial intelligence	Massachusetts Institute of Technology	United States	—
15	Influences of the industry 4.0 revolution on the human capital development and consumer behavior: A systematic review	Institute of Agricultural Economics Belgrade, Ovidius University, Petroleum & Gas University of Ploieşti	Romania, Serbia	—
16	International scientific report on the safety of advanced ai (interim report)	Université de Montréal	Canada	—
17	A systematic literature review on the impact of artificial intelligence on workplace outcomes: A multi-process perspective	Cyprus University of Technology, NEOMA Business School, University of Nicosia	Cyprus, France	—
18	Effects of higher education institutes' artificial intelligence capability on students' self-efficacy, creativity and learning performance	Zhejiang Wanli University	China	—
19	AI anxiety: A comprehensive analysis of psychological factors and interventions	Hanyang University Seoul Hospital, Johns Hopkins University, Seoul National University	South Korea, United States	—
20	The growing importance of social skills in the labor market	Harvard University	United States	—
21	Automation, skills use and training	—	—	—
22	Which economic tasks are performed with ai? evidence from millions of claude conversations	Anthropic, DeepMind, Stanford University	United Kingdom, United States	—
23	AI and the Economy	New York University	United States	—
24	The technology trap: Capital, labor, and power in the age of automation	—	—	—
25	Labor market exposure to AI: Cross-country differences and distributional implications	International Monetary Fund	United States	—
26	The impact of artificial intelligence on learning, teaching, and education	—	—	—
27	The development of artificial intelligence in education: A review in context	Stephen F. Austin State University	United States	—
28	Artificial Intelligence and emerging digital technologies in the energy sector	Beijing Institute of Technology	China	—
29	Technology and jobs: A systematic literature review	Maastricht University, University of Oxford	Netherlands, United Kingdom	—
30	AI-driven productivity gains: Artificial intelligence and firm productivity	Beijing Jiaotong University	China	—

Showing the 30 most-cited of 97 independent citing papers.

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).

FOLLOW-UP WORK

Skills, tasks and technologies: Implications for employment and earnings

2011 · 7,991 citations (GS)

Field-normalised: 4,309 Semantic Scholar citations place it in the top 1% of Economics papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Artificial intelligence and work: a critical review of recent research from the social sciences	Macquarie University	Australia	—
2	The organizational reproduction of inequality	Hertie School, University of Cambridge, University of Edinburgh	Germany, United Kingdom	—
3	The Alchemy of Digital Transformation: How Computing Power Investment Fuels New Quality Productivity	Wuhan University of Technology	China	—
4	The EPOCH of AI: Human-machine complementarities at work	—	—	—
5	Grundlegende Kompetenzen Erwachsener im internationalen Vergleich: Ergebnisse von PIAAC 2012	—	—	—
6	Winners and losers of generative AI: Early Evidence of Shifts in Freelancer Demand	Complexity Science Hub, Oldham Council, Research Institute of the Finnish Economy	Austria, Denmark, Finland	—
7	The growing importance of social skills in the labor market	Harvard University	United States	—
8	The future of employment: How susceptible are jobs to computerisation?	University of Oxford	United Kingdom	—
9	Automation, skills use and training	—	—	—
10	Artificial intelligence and economic growth	National Bureau of Economic Research, Northwestern University	United States	—
11	What can machines learn and what does it mean for occupations and the economy?	Stanford University, University of Pennsylvania	United States	—
12	The technology trap: Capital, labor, and power in the age of automation	—	—	—
13	Workplace heterogeneity and the rise of West German wage inequality	IZA - Institute of Labor Economics, University of California, Irvine Medical Center	Germany, United States	—
14	Earnings dynamics, changing job skills, and STEM careers	Harvard University, Harvard University Press	United States	—
15	The demand for AI skills in the labor market	IESE Business School	Spain	—

No.	Citing paper	Citing institution(s)	Country	S2
16	Skills and earnings: A multidimensional perspective on human capital	ifo Institute and CESifo, University of Munich	Germany	—
17	The arrival of fast internet and employment in Africa	Columbia University, Uppsala University	Sweden, United States	—
18	Technology and jobs: A systematic literature review	Maastricht University, University of Oxford	Netherlands, United Kingdom	—
19	Economics of artificial intelligence: Implications for the future of work	International Labour Organization	Switzerland	—
20	AI-driven productivity gains: Artificial intelligence and firm productivity	Beijing Jiaotong University	China	—
21	German robots: The impact of industrial robots on workers	—	—	**Influential**
22	Returns to skills around the world: Evidence from PIAAC	Ifo Institute for Economic Research, National Bureau of Economic Research, University of Konstanz	Germany, United States	—
23	Skill requirements across firms and labor markets: Evidence from job postings for professionals	Children's Hospital of Chongqing Medical University	China	**Influential**
24	The skill complementarity of broadband internet	IZA - Institute of Labor Economics, Stockholm University, University College London	Germany, Sweden, United Kingdom	—
25	The impacts of digital transformation on the labour market: Substitution potentials of occupations in Germany	Institut für Arbeitsmarkt und Berufsforschung	Germany	—
26	Skills and human capital in the labor market	Harvard University	United States	**Influential**
27	The rise of robots and the fall of routine jobs	Asian Institute of Management, Organisation de Coopération et de Développement Economiques, University of Groningen	France, Netherlands, Philippines	—
28	Skill shortages and skill mismatch: A review of the literature	European Investment Bank, University of Padua	Italy, Luxembourg	—
29	"You're fired," says the robot: The rise of automation in the workplace, technophobes, and fears of unemployment	Baylor University	United States	—
30	Automation, digitalization, and artificial intelligence in the workplace: Implications for political behavior	University of Barcelona, University of Konstanz	Germany, Spain	—

Showing the 30 most-cited of 553 independent citing papers.

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 foundational framework for analyzing how computer technology reshapes labor market inequality, a contribution evidenced by thousands of independent citations.

CLAIM: The researcher's seminal 1998 paper, 'Computing Inequality: Have Computers Changed the Labor Market?', serves as the cornerstone of this contribution, addressing the intersection of technological adoption and labor economics.

ORIGINALITY: This work appears to have pioneered the empirical investigation into whether the diffusion of computers fundamentally altered wage structures and employment dynamics, filling a critical gap in understanding the economic consequences of digital transformation during that era.

SIGNIFICANCE: With over 4,300 citations, the paper demonstrates substantial impact. Notably, 96.1% of classified citations originate from independent researchers, indicating that this framework has been widely adopted and utilized by the broader academic community to advance related inquiries.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

Computing Inequality: Have Computers Changed the Labor Market?

1998 · 4,308 citations (GS)

Field-normalised: 2,810 Semantic Scholar citations place it in the top 1% of Economics papers from 1998 indexed by Semantic Scholar, by citation count.

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

Contribution 3

Claim — Contribution 3

The researcher established a foundational framework for analyzing how computer technology reshapes labor market structures and wage inequality, a contribution evidenced by thousands of independent citations.

CLAIM: The researcher's seminal 1998 paper, 'Computing inequality: have computers changed the labor market?', serves as the cornerstone of this contribution line. This work appears to define the analytical approach for understanding the intersection of information technology and economic disparity.

ORIGINALITY: By posing the critical question of whether computers have fundamentally altered the labor market, this line of work addresses a pivotal gap in understanding the economic consequences of technological adoption. The title suggests a pioneering effort to quantify or qualify the structural shifts in employment and wages driven by computing power, distinguishing it from prior studies that may have treated technology as a neutral factor.

SIGNIFICANCE: The enduring impact of this contribution is demonstrated by its citation count of 4308, indicating it is a highly influential text in the field. Furthermore, the fact that 96.1% of citing papers originate from independent researchers underscores the work's broad acceptance and utility across the global academic community, confirming its status as a standard reference for scholars investigating technology and labor economics.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 0

CORE PAPER

Computing inequality: have computers changed the labor market?

1998 · 4,308 citations (GS)

Field-normalised: 2,810 Semantic Scholar citations place it in the top 1% of Economics papers from 1998 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
National Bureau of Economic Research	United States	SCImago #1957	60
Harvard University	United States	SCImago #4 · THE =5 · QS 5	41
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	38
University of California, Irvine Medical Center	United States	—	36
Stanford University	United States	SCImago #18 · THE =5 · QS 3	35
IZA - Institute of Labor Economics	Germany	—	34
Princeton University	United States	SCImago #386 · THE =3 · QS =25	31
London School of Economics and Political Science	United Kingdom	SCImago #1403 · THE 52 · QS 56	28
University of Chicago	United States	SCImago #124 · THE 15 · QS 13	25
University of Oxford	United States	SCImago #26 · THE 1 · QS 4	24
University of Toronto	Canada	SCImago #39 · THE 21 · QS 29	23
Columbia University	United States	SCImago #65 · THE 20 · QS =38	20
New York University	United States	SCImago #116 · THE =31 · QS 55	20
University of British Columbia	Canada	SCImago #144 · THE 45 · QS 40	16
University of Zurich	Switzerland	SCImago #313 · QS 100	16

Geographic distribution of citing authors

Country	Citing papers
United States	593
United Kingdom	172
Germany	157
China	151
Italy	97
Canada	77
Spain	72
Switzerland	58
Netherlands	53
France	47
Australia	42
Sweden	28

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.

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 skill content of recent technological change: An empirical exploration	1,323	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	Computing Inequality: Have Computers Changed the Labor Market?	0	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	Computing inequality: have computers changed the labor market?	0	8 CFR 204.5(h)(3)(v) — Criterion 5