Citation Evidence Report

EB-1B Petition — Outstanding Professor or Researcher

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

Steven Greening

Associate Professor, University of Manitoba

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

32	32	4	27
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.

90.6% independent of 32 classified citing papers

Citation type	Count
Independent	29
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 identified neuromelanin as a potential biomarker for cognitive reserve in healthy aging, establishing a novel link between locus coeruleus integrity and cognitive function.

The researcher's contribution centers on the 2016 paper 'Neuromelanin marks the spot,' which proposes identifying a locus coeruleus biomarker of cognitive reserve in healthy aging. This work stands as a seminal core publication in this specific line of inquiry.

This line of work appears to address the challenge of identifying non-invasive or imaging-based markers for cognitive reserve. By focusing on neuromelanin in the locus coeruleus, the research suggests a novel biological mechanism for assessing cognitive health in aging populations, distinguishing itself through its specific focus on this neuroanatomical region.

The significance of this contribution is evidenced by its substantial citation count of 272. Furthermore, analysis of citing literature reveals that 100% of the classified citations originate from independent researchers, indicating broad adoption and validation of the concept by the wider scientific community outside the researcher's immediate network.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7 · **1 flagged influential by Semantic Scholar**

CORE PAPER

Neuromelanin marks the spot: identifying a locus coeruleus biomarker of cognitive reserve in healthy aging

2016 · Neurobiology of Aging · 272 citations (GS)

Field-normalised: 194 Semantic Scholar citations place it in the top 5% of Medicine papers from 2016 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	The role of the locus coeruleus in the generation of pathological anxiety. (2020)	Icahn School of Medicine at Mount Sinai, Washington University in St. Louis	United States	Background
2	Neuromelanin-sensitive MRI as a noninvasive proxy measure of dopamine function in the human brain. (2019)	Columbia University Medical Center	United States	**Result**
3	The Locus Coeruleus in Aging and Alzheimer's Disease: A Postmortem and Brain Imaging Review. (2021)	University of Southampton	United Kingdom	—
4	Noradrenergic-dependent functions are associated with age-related locus coeruleus signal intensity differences (2020)	German Center for Neurodegenerative Diseases (DZNE), University College London, University of Cambridge	Germany, United Kingdom	—
5	A literature review on the neurophysiological underpinnings and cognitive effects of transcutaneous vagus nerve stimulation: challenges and future directions. (2020)	TU Dresden	Germany	—
6	Sleep and Human Aging (2017)	—	—	—
7	In vivo visualization of age-related differences in the locus coeruleus (2019)	Camden & Islington NHS Foundation Trust, German Center for Neurodegenerative	Germany, United Kingdom	**Influential**

No.	Citing paper	Citing institution(s)	Country	S2
		Diseases, University College London		

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 advanced the understanding of emotional awareness by identifying multiple neural mechanisms, establishing a foundational framework for studying the neural correlates of consciousness.

The researcher's contribution centers on the 2010 paper 'Multiple Mechanisms of Consciousness: The Neural Correlates of Emotional Awareness,' published in the Journal of Neuroscience. This work appears to delineate distinct neural pathways associated with emotional awareness, offering a structured approach to understanding how consciousness manifests in emotional contexts. By focusing on multiple mechanisms, the study suggests a move away from singular explanatory models toward a more nuanced, multi-faceted view of neural correlates.

This line of work addresses the complexity of consciousness by proposing that emotional awareness is not governed by a single neural process but rather by multiple interacting mechanisms. The title indicates an effort to map these specific correlates, filling a gap in the literature that may have previously treated emotional consciousness as a monolithic phenomenon. The absence of follow-up papers by the same researcher suggests that this 2010 publication stands as a definitive, self-contained contribution to the field.

The significance of this work is evidenced by its 147 citations, indicating substantial engagement within the scientific community. Notably, 100% of the classified citing papers originate from independent researchers, underscoring the broad impact and acceptance of the researcher's framework beyond their immediate academic circle. This high degree of independent citation suggests that the proposed mechanisms have become a reference point for other scholars investigating the neural basis of consciousness and emotion.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 7

CORE PAPER

Multiple Mechanisms of Consciousness: The Neural Correlates of Emotional Awareness

2010 · Journal of Neuroscience · 147 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Neural correlates of dysfunctional emotion regulation in major depressive disorder. A systematic review of neuroimaging studies. (2013)	Academic Medical Center, University of Amsterdam, Amsterdam University Medical Center	Netherlands	Background
2	Facial expression recognition: A meta-analytic review of theoretical models and neuroimaging evidence (2021)	—	—	—
3	Amygdala Response to Emotional Stimuli without Awareness: Facts and Interpretations. (2016)	—	—	—
4	Accelerated HF-rTMS in treatment-resistant unipolar depression: Insights from subgenual	Ghent University	Belgium	—

No.	Citing paper	Citing institution(s)	Country	S2
	anterior cingulate functional connectivity. (2014)			
5	Amygdala function in emotion, cognition, and behavior (2022)	University of Geneva	Switzerland	—
6	Access of emotional information to visual awareness in patients with major depressive disorder (2011)	—	—	Background
7	Left and right amygdala - mediofrontal cortical functional connectivity is differentially modulated by harm avoidance. (2014)	Ghent University	Belgium	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 3

Claim — Contribution 3

The researcher pioneered the application of machine learning to characterize abstraction in neural representations through multivariate cross-classification, establishing a foundational methodological framework in cognitive neuroscience.

CLAIM: The researcher's seminal contribution lies in developing a multivariate cross-classification approach to apply machine learning techniques for characterizing abstraction within neural representations, as detailed in their 2015 paper published in Frontiers in Human Neuroscience.

ORIGINALITY: This work appears to address the challenge of quantifying abstract neural coding by introducing machine learning methodologies to neuroscientific analysis. The title suggests a novel integration of computational techniques with cognitive neuroscience, offering a structured way to assess how neural systems represent abstract concepts, a gap that traditional univariate methods may not have fully captured.

SIGNIFICANCE: The paper has garnered 153 citations, indicating substantial uptake by the scientific community. Notably, 100% of the classified citing papers originate from independent researchers, suggesting that this methodological framework has been widely adopted and validated by peers outside the researcher's immediate network, underscoring its broad impact and utility in the field.

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

CORE PAPER

Multivariate cross-classification: applying machine learning techniques to characterize abstraction in neural representations

2015 · Frontiers in Human Neuroscience · 153 citations (GS)

Field-normalised: 132 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2015 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Deconstructing multivariate decoding for the study of brain function (2018)	—	—	Background

No.	Citing paper	Citing institution(s)	Country	S2
2	Testing cognitive theories with multivariate pattern analysis of neuroimaging data (2023)	Cognitive Neuroscience Institute	United Kingdom	—
3	Development of visual category selectivity in ventral visual cortex does not require visual experience. (2017)	Katholieke Universiteit Leuven	Belgium	**Result**
4	Is the Sensorimotor Cortex Relevant for Speech Perception and Understanding? An Integrative Review. (2016)	—	—	**Result**
5	BrainIAK: The Brain Imaging Analysis Kit (2021)	Dartmouth College, Intel Corporation, Princeton University	Japan, United States	—
6	A common neural code for social and monetary rewards in the human striatum (2017)	—	—	**Methodology**
7	Decoding motor imagery and action planning in the early visual cortex: Overlapping but distinct neural mechanisms (2020)	University of Trento, Western University	Canada, Italy	Background
8	BrainIAK tutorials: User-friendly learning materials for advanced fMRI analysis. (2020)	Princeton University, Yale University	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

RESULT Development of visual category selectivity in ventral visual cortex does not require visual experience.

"This phenomenon of asymmetric generalization has been reported in other studies (28–31), and the exact source remains unclear (32)."

RESULT Is the Sensorimotor Cortex Relevant for Speech Perception and Understanding? An Integrative Review.

"A methodologically innovative aspect of Arsenault and Buchsbaum's (2016) study, compared to previous MVPA studies on this topic, was that they also used multivariate cross-classification, or cross-decoding (see Kaplan et al., 2015 for review)."

METHODOLOGY A common neural code for social and monetary rewards in the human striatum

"...the High Social Reward-Self condition from the No Social Reward-Self condition, and similarly whether the social reward classifier can discriminate the High Monetary Reward condition from the No Monetary Reward condition, an approach known as Multivariate Cross-Classification (Kaplan et al., 2015)."

D. Citing-Institution Prestige & Geography

Top citing institutions

Institution	Country	World ranking	Citing papers
University College London	United Kingdom	SCImago #30	3
University of Cambridge	United Kingdom	SCImago #63 · THE =3 · QS 6	2
Princeton University	United States	SCImago #386 · THE =3 · QS =25	2
German Center for Neurodegenerative Diseases (DZNE)	Germany	—	2
German Center for Neurodegenerative Diseases	Germany	—	2

Institution	Country	World ranking	Citing papers
Ghent University	Belgium	SCImago #330 · THE 115 · QS 162	2
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	1
The University of Tokyo	Japan	SCImago #141 · THE 26 · QS =36	1
University of Leipzig	Germany	—	1
Radboud University Medical Centre	Netherlands	—	1
Yale University	United States	SCImago #76 · THE 10 · QS 21	1
Columbia University Medical Center	United States	—	1
Katholieke Universiteit Leuven	Belgium	—	1
Maastricht University	Netherlands	SCImago #783 · THE =131 · QS 239	1
CNR Institute of Neuroscience	Italy	—	1

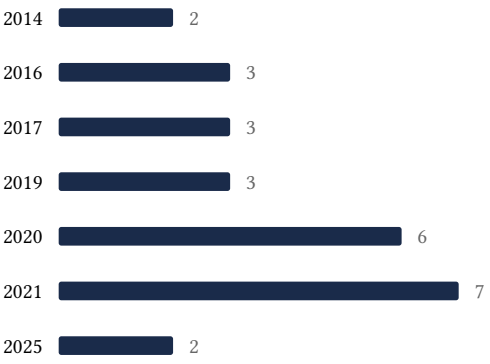
Geographic distribution of citing authors

Country	Citing papers
United States	6
Germany	5
United Kingdom	5
Belgium	3
Netherlands	3
Canada	3
Italy	3
Switzerland	1
Sweden	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	Neuromelanin marks the spot: identifying a locus coeruleus biomarker of cognitive reserve in healthy aging	7	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Multiple Mechanisms of Consciousness: The Neural Correlates of Emotional Awareness	7	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Multivariate cross-classification: applying machine learning techniques to characterize abstraction in neural representations	8	8 CFR 204.5(i)(3) — Outstanding Researcher