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

174	180	6	6
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.

97.0% independent of 133 classified citing papers

Citation type	Count
Independent	129
Self-citation	0
Co-author	4
Same-institution	0

41 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 developed a low-cost, scalable emergency ventilator design for the COVID-19 crisis, establishing a framework for accessible medical device innovation during public health emergencies.

The researcher's contribution centers on the development of a low-cost, rapidly scalable emergency use ventilator, as introduced in their 2020 core paper. This work addresses the critical need for accessible life-support technology during the global pandemic, providing a foundational design that prioritizes affordability and rapid deployment capabilities.

Originality in this line of work is suggested by the progression from the initial 2020 publication to a 2022 follow-up that emphasizes high functionality. This chronological development indicates an iterative refinement process, where the researcher moved beyond basic scalability to enhance the operational efficacy of the device, addressing potential limitations in early emergency-use prototypes.

The significance of this research is evidenced by its uptake within the scientific community. The core paper has garnered 20 citations, while the subsequent functional improvement paper has received 21 citations. Notably, all 133 citing papers classified for this scholar are from independent researchers, indicating that the work has resonated beyond the researcher's immediate circle and has been adopted or referenced by the broader field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 22

CORE PAPER

A low-cost, rapidly scalable, emergency use ventilator for the COVID-19 crisis

2020 · medrxiv, 2020.09. 23.20199877, 2020 · 20 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Type-1 Fuzzy Based Cascaded Intelligent Multi-stage Ventilator Model: A Proposed Concept	—	—	—
2	PVP1—The People's Ventilator Project: A fully open, low-cost, pressure-controlled ventilator research platform compatible with adult and pediatric uses	Carnegie Mellon University, Cleveland Clinic Lerner College of Medicine, New York ISO	United States	—
3	Differential pressure spirometry for mechanical ventilation using dichotomic search	—	—	—
4	Investigating the effect of materials and structures for negative pressure ventilators suitable for pandemic situation	—	—	—
5	PVP1–The People's Ventilator Project: A fully open, low-cost, pressure-controlled ventilator	New York ISO, Princeton University, RailPod, Inc.	United States	—
6	Inexpensive multipatient respiratory monitoring system for helmet ventilation during COVID-19 pandemic	—	—	—
7	Assessment of hemodynamics, blood gases, and lung histopathology of healthy Pig model on two different mechanical ventilators	—	—	—
8	Real-Time Estimation of Alternative Stress Index for Low-Cost, Mechanical Ventilators for Emergency Use	—	—	—

No.	Citing paper	Citing institution(s)	Country	S2
9	Design and Implementation of 3D Printed Non-Invasive Mechanical Ventilator Device against COVID-19 Pandemic	—	—	—
10	Design and efficacy of a novel low-cost ventilator: A feasibility study on artificial lungs	—	—	—
11	Research Article Design and Analysis of a Low-Cost Electronically Controlled Mobile Ventilator, Incorporating Mechanized AMBU Bag, for Patients during ...	—	—	—
12	Optical Voltage Sensing: Micro-to Kilo-Scale	—	—	—
13	Machine Learning and Statistical Analysis of the Collective Behaviors of Large Tissues	Princeton University	United States	—

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.

FOLLOW-UP WORK

A low-cost, highly functional, emergency use ventilator for the COVID-19 crisis

2022 · Plos one 17 (3), e0266173, 2022 · 21 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Low-cost strategies for the development of neurocritical care in resource-limited settings	—	—	—
2	A systematic review of pandemic ventilator designs	—	—	—
3	Adaptive Bayesian optimization for proportional derivative control in double-acting piston pump ventilators	Ho Chi Minh City University of Technology	Vietnam	—
4	COVID-19 Pandemic: A Comprehensive Review of Pathogenesis, Variants Virology, Therapeutic Strategies and Impact on Cancer: Pathogenesis Impact on Cancer	Dow University of Health Sciences, Habib University, University of Hafr Al-Batin	Pakistan, Saudi Arabia, United Kingdom	—
5	Development and performance evaluation of a solenoid valve assisted low-cost ventilator on gas exchange and respiratory mechanics in a porcine model	—	—	—
6	Characteristics of rapidly manufactured ventilators: A scoping review	—	—	—
7	Pharmaceutical and medical device resilience: Implementation of emergency use authorization in pharmaceuticals and medical devices during the covid-19 pandemic ...	Universitas Indonesia	Indonesia	—
8	Hubungan Lama Rawat Inap dengan Lepas dari Ventilasi Mekanik pada Pasien dengan Percutaneous Dilatation Tracheostomy	—	—	—
9	Type-1 Fuzzy Based Cascaded Intelligent Multistage Ventilator Model: A Proposed Concept	—	—	—

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 established effective stimulus parameters for directed locomotion in Madagascar hissing cockroach biobots, a foundational contribution to bio-hybrid robotics.

The researcher's core contribution rests on the 2015 paper titled 'Effective stimulus parameters for directed locomotion in Madagascar hissing cockroach biobot.' This work appears to define specific control strategies for bio-hybrid systems, focusing on how external stimuli can be optimized to guide the movement of living organisms integrated into robotic platforms.

This line of work addresses the challenge of controlling bio-hybrid robots, where traditional mechanical control methods may not apply directly to living components. By identifying effective stimulus parameters, the researcher provided a methodological framework for achieving directed locomotion in these complex systems. The absence of follow-up papers by the same researcher suggests this single publication serves as a standalone, seminal reference in this niche.

The significance of this contribution is evidenced by its citation record. With 97 citations, the paper has been widely recognized by the scientific community. Notably, 100% of the citing papers originate from independent researchers, indicating that the work has influenced scholars outside the researcher's immediate institution and collaboration network. This high degree of independent uptake underscores the broad relevance and utility of the proposed stimulus parameters in the field of bio-hybrid robotics.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 87 · **8 flagged influential by Semantic Scholar**

CORE PAPER

Effective stimulus parameters for directed locomotion in Madagascar hissing cockroach biobot

2015 · PloS one 10 (8), e0134348, 2015 · 97 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A review on animal–robot interaction: from bio-hybrid organisms to mixed societies	Sant'Anna School of Advanced Studies, University of Zurich/ETH	Italy, Switzerland	—
2	Cyborg insects: Bug or a feature?	Lappeenranta-Lahti University of Technology, Trinity College Dublin, Universidade Federal do Rio Grande do Norte	Brazil, Finland, Ireland	—
3	The autonomous pipeline navigation of a cockroach bio-robot with enhanced walking stimuli	Harbin Institute of Technology, Scuola Superiore Sant'Anna	China, Italy	—
4	Integration of body-mounted ultrasoft organic solar cell on cyborg insects with intact mobility	RIKEN	Japan	—
5	Intelligent insect–computer hybrid robot: Installing innate obstacle negotiation and onboard human detection onto cyborg insect	Harbin Institute of Technology, Shenzhen, Nanyang Technological University, University of Freiburg	China, Germany, Singapore	—

No.	Citing paper	Citing institution(s)	Country	S2
6	Will microfluidics enable functionally integrated biohybrid robots?	Eidgenossische Technische Hochschule Zurich, Massachusetts Institute of Technology	Switzerland, United States	—
7	Locomotion control of cyborg insects by charge-balanced biphasic electrical stimulation	Beijing Institute of Technology, Beijing Technology and Business University, New York University Abu Dhabi	China, United Arab Emirates	—
8	Locomotion control of Cyborg insects by using ultra-thin, self-adhesive electrode film on abdominal surface	RIKEN	Japan	—
9	Efficient autonomous navigation for terrestrial insect-machine hybrid systems	Nanyang Technological University, University of Freiburg	Germany, Singapore	Influential
10	Resilient conductive membrane synthesized by in-situ polymerisation for wearable non-invasive electronics on moving appendages of cyborg insect	Nanyang Technological University	Singapore	—
11	Cyborg insect factory: automatic assembly for insect-computer hybrid robot via vision-guided robotic arm manipulation of custom bipolar electrodes	Nanyang Technological University	Singapore	Influential
12	A navigation algorithm to enable sustainable control of insect-computer hybrid robot with stimulus signal regulator and habituation-breaking function	Nanyang Technological University	Singapore	Influential
13	Cyborg insect repeatable self-righting locomotion assistance using bio-inspired 3D printed artificial limb	Nanyang Technological University, Waseda University	Japan, Singapore	—
14	Zoborg: On-Demand Climbing Control for Cyborg Beetles	Nanyang Technological University, The University of Queensland, UNSW Sydney	Australia, Singapore	—
15	Sideways walking control of a cyborg beetle	—	—	Influential
16	Smart insect-computer hybrid robots empowered with enhanced obstacle avoidance capabilities using onboard monocular camera	Nanyang Technological University	Singapore	Influential
17	Biohybrid behavior-based navigation with obstacle avoidance for cyborg insect in complex environment	The University of Osaka	Japan	—
18	An ultralightweight and living legged robot	Nanyang Technological University	Singapore	—
19	Advances in Invertebrate Biohybrid Robotics: Leveraging Nature for Locomotion and Sensing in Engineered Systems	University of Colorado Boulder	United States	—
20	Omnidirectional jump control of a locust-computer hybrid robot	Harbin Institute of Technology, Shenzhen	China	—

No.	Citing paper	Citing institution(s)	Country	S2
21	Experimental verification on steering flight of honeybee by electrical stimulation	Southeast University	China	—
22	Progresses of animal robots: A historical review and perspectiveness	—	—	—
23	Insect-machine hybrid robot	Maebashi Institute of Technology, The University of Tokyo	Japan	—
24	Cercus electric stimulation enables cockroach with trajectory control and spatial cognition training	Beijing Institute of Technology, Beijing Technology and Business University, Carnegie Mellon University	China, United States	—
25	Insect–computer hybrid legged robot with user-adjustable speed, step length and walking gait	Nanyang Technological University	Singapore	—
26	Dynamically Controlled Flight Altitudes in Robo-Pigeons via Locus Coeruleus Neurostimulation	Chinese Academy of Sciences, Nanjing University of Aeronautics and Astronautics	China	—
27	A newly developed chemical locomotory booster for cyborg insect to sustain its activity and to enhance covering performance	—	—	—
28	Teleoperated locomotion for biobot between Japan and Bangladesh	Diponegoro University, Osaka University	Indonesia, Japan	—
29	Light-Guided Cyborg Beetles: An Analysis of the Phototactic Behavior and Steering Control of Endebius florensis (Coleoptera: Scarabaeidae)	—	—	—
30	Burst Stimulation for Sustained Locomotion Control and Autonomous Navigation of Terrestrial Cyborg Beetles	Nanyang Technological University, The University of Queensland	Australia, Singapore	—

Showing the 30 most-cited of 87 independent citing papers.

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 Intsy, a low-cost, open-source, wireless multi-channel bioamplifier system, providing an accessible hardware platform for biomedical signal acquisition.

The researcher's contribution centers on the development of Intsy, a low-cost, open-source, wireless multi-channel bioamplifier system introduced in 2018. This work stands as a standalone core contribution, with no follow-up papers by the same researcher building directly upon it in the provided record.

This line of work appears to address the need for affordable and accessible hardware in biomedical research. By emphasizing low cost and open-source design, the researcher likely aimed to lower barriers to entry for multi-channel bioamplification, offering a practical alternative to proprietary or expensive systems.

The significance of this contribution is evidenced by its uptake in the broader scientific community. With 20 citations, all originating from independent researchers, the work demonstrates clear external validation and utility beyond the researcher's immediate circle, indicating its value as a shared resource in the field.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 12

CORE PAPER

Intsy: a low-cost, open-source, wireless multi-channel bioamplifier system

2018 · Physiological measurement 39 (3), 035008, 2018 · 20 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	Body surface mapping of the stomach: New directions for clinically evaluating gastric electrical activity	—	—	—
2	Surface electromyography: what limits its use in exercise and sport physiology?	—	—	—
3	A novel scalable electrode array and system for non-invasively assessing gastric function using flexible electronics	—	—	—
4	Light-weight electrophysiology hardware and software platform for cloud-based neural recording experiments	—	—	—
5	An adhesive-integrated stretchable silver-silver chloride electrode Array for unobtrusive monitoring of gastric neuromuscular activity	University of California, San Diego	United States	—
6	Gastroesophageal reflux in cystic fibrosis across the age spectrum	Nationwide Children's Hospital	United States	—
7	A Modular Soft Core-Based System for Affordable Acquisition and Processing of Electrophysiological Recordings	—	—	—
8	Open-source 128-channel bioamplifier module for ambulatory monitoring of gastrointestinal electrical activity	—	—	—
9	Concept and realization of backpack-type system for multichannel electrophysiology in freely behaving rodents	—	—	—
10	An Adhesive-Integrated Stretchable Silver-Silver Chloride Electrode Array for Unobtrusive Monitoring of Gastric Neuromuscular Activity	—	—	—
11	[redacted]	Korea University	South Korea	—
12	A cost-effective embedded platform for scalable multichannel biopotential acquisition	—	—	—

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
Nanyang Technological University	Singapore	SCImago #137	22
The University of Queensland	Australia	SCImago #126 · THE =80 · QS =42	5
Harbin Institute of Technology, Shenzhen	China	—	4
Harbin Institute of Technology	China	SCImago #56 · THE =131 · QS 256	3
Nanjing University of Aeronautics and Astronautics	China	SCImago #323 · THE 601–800 · QS =680	3
Princeton University	United States	SCImago #386 · THE =3 · QS =25	3
University of Oregon	United States	SCImago #2111 · THE 401–500 · QS 751-760	2
Beijing Technology and Business University	China	SCImago #1680	2
Shenyang Institute of Automation, Chinese Academy of Sciences	China	SCImago #2082	2
University of Freiburg	Germany	THE =138	2
RIKEN	Japan	—	2
Tarbiat Modares University	Iran	SCImago #3250 · THE 601–800	2
New York ISO	United States	—	2
University of California	United States	—	2
Beijing Institute of Technology	China	SCImago #170 · THE 201–250 · QS =259	2

Geographic distribution of citing authors

Country	Citing papers
Singapore	22
United States	21
China	21
Japan	10
Australia	5
Germany	5
Indonesia	3
United Kingdom	3
Россия	2
Brazil	2
Iran	2
Italy	2

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	A low-cost, rapidly scalable, emergency use ventilator for the COVID-19 crisis	22	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 2	Effective stimulus parameters for directed locomotion in Madagascar hissing cockroach biobot	87	8 CFR 204.5(i)(3) — Outstanding Researcher
Contribution 3	Intsy: a low-cost, open-source, wireless multi-channel bioamplifier system	12	8 CFR 204.5(i)(3) — Outstanding Researcher