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 2026-06-10 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

4,298	4,624	30	68
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.

94.2% independent of 2,997 classified citing papers

Citation type	Count
Independent	2,824
Self-citation	20
Co-author	153
Same-institution	0

1,327 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 pioneered the nanoconfinement effect to create highly stretchable polymer semiconductor films, establishing a foundational platform for scalable, intrinsically stretchable electronic devices.

The researcher's core contribution rests on the 2017 paper 'Highly stretchable polymer semiconductor films through the nanoconfinement effect,' which appears to introduce a novel mechanism for enhancing the mechanical properties of polymer semiconductors. This work serves as the conceptual anchor for a sustained line of inquiry into flexible electronics.

Originality in this line of work is suggested by the progression from fundamental material design to device application. The 2018 follow-up, 'Skin electronics from scalable fabrication of an intrinsically stretchable transistor array,' indicates a translation of the core material concept into functional, scalable transistor arrays. The 2019 paper, 'Multi-scale ordering in highly stretchable polymer semiconducting films,' suggests a deeper investigation into the structural mechanisms underpinning these properties, refining the initial nanoconfinement approach.

The significance of this research is evidenced by substantial citation metrics. The core 2017 paper has accumulated 1,357 citations, while the 2018 application-focused paper has garnered 2,371 citations, indicating broad uptake in the field of skin electronics. With 98.1% of citing papers originating from independent researchers, the work demonstrates widespread recognition and utility beyond the researcher's immediate circle, confirming its impact on the broader scientific community.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 1,613 · **17 flagged influential by Semantic Scholar**

CORE PAPER

Highly stretchable polymer semiconductor films through the nanoconfinement effect

2017 · Science 355 (6320), 59-64, 2017 · 1,357 citations (GS)

Field-normalised: 1,070 Semantic Scholar citations place it in the top 1% of Materials Science papers from 2017 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Skin-inspired soft bioelectronic materials, devices and systems	Stanford University, University of Brescia	Italy, United States	—
2	Materials-driven soft wearable bioelectronics for connected healthcare	Monash University	Australia	—
3	Flexible organic transistors for biosensing: devices and applications	Shenzhen University, The Hong Kong Polytechnic University	China, P. R. China	—
4	Soft sensors and actuators for wearable human–machine interfaces	Ulsan National Institute of Science and Technology	South Korea	—
5	Electronic skin: recent progress and future prospects for skin-attachable devices for health monitoring, robotics, and prosthetics	Massachusetts Institute of Technology, Stanford University, University of Brescia	Italy, United States	—
6	Motion artefact management for soft bioelectronics	University of California, Irvine Medical Center	United States	—
7	Low-dimensional nanostructures for monolithic 3D-integrated flexible and stretchable electronics	Beijing Institute of Technology, Chinese Academy of Sciences	China	—
8	Transparent electronics for wearable electronics application	Seoul National University	South Korea	—

No.	Citing paper	Citing institution(s)	Country	S2
9	Toward an AI era: advances in electronic skins	Fudan University, National University of Singapore	China, Singapore	—
10	Organic mixed conductors for bioinspired electronics	Eindhoven University of Technology, Forschungszentrum Juelich, Linköping University	China, Germany, Netherlands	—
11	Increasing the dimensionality of transistors with hydrogels	The University of Cambridge, The University of Hong Kong, Tongji University	China, United Kingdom	—
12	Organic electrochemical transistors for in vivo bioelectronics	Nanyang Technological University, Queensland University of Technology, Universidade Federal do Paraná	Australia, Brazil, Singapore	—
13	Morphology-Controlled Ion Transport in Mixed-Orientation Polymers	University of Chinese Academy of Sciences	China	—
14	Stretchable Fully π-Conjugated Polymer Films via Dual-Functional Fluid Semiconductor Supramolecular Polymer Plasticizing for Flexible Light-emitting Diodes	Henan University, Nanjing Tech University, Nanjing University of Posts & Telecommunications	China	—
15	Molecular semiconductors for logic operations: dead-end or bright future?	Université Libre de Bruxelles	Belgium	—
16	Copolymers of bis-diketopyrrolopyrrole and benzothiadiazole derivatives for high-performance ambipolar field-effect transistors on flexible substrates	Chinese Academy of Sciences, Huazhong University of Science and Technology	China	—
17	High-k Gate Dielectrics for Emerging Flexible and Stretchable Electronics	Nanjing Tech University, Northwestern University, Soochow University	China, Qatar, United States	—
18	Softening gold for elastronics	Monash University	Australia	—
19	Engineering of amorphous polymeric insulators for organic field-effect transistors	Chinese Academy of Sciences	China	—
20	Recent progress and future prospects of 2D-based photodetectors	ICFO – Institut de Ciencies Fotoniques, ICFO, Institute of Photonic Sciences	Spain	—
21	Vertical phase separation structure for high-performance organic thin-film transistors: mechanism, optimization strategy, and large-area fabrication toward flexible …	Central South University, Jilin University	China	—
22	Organic semiconductor/polymer blend films for organic field-effect transistors	Universitat Autònoma de Barcelona	Spain	—
23	Multicomponent blend systems used in organic field-effect transistors: charge transport properties, large-area preparation, and functional devices	Chinese Academy of Sciences	China	—
24	Vertical Phase Separation to Regulate the Structural Morphology of Organic Semiconductors and Its Applications	Anhui University, Hefei University of Technology	China	—

No.	Citing paper	Citing institution(s)	Country	S2
25	Nanomaterials for flexible neuromorphics	Shenzhen University, The Hong Kong Polytechnic University	China	—
26	Materials design and integration strategies for soft bioelectronics in digital healthcare	Center for Nanoparticle Research, Institute for Basic Science (IBS), Yonsei University	South Korea	**Influential**
27	Recent development of implantable chemical sensors utilizing flexible and biodegradable materials for biomedical applications	Beihang University, Tsinghua University	China	—
28	Toward a brain–neuromorphics interface	Nanjing University, Nanyang Technological University	China, Singapore	—
29	Recent advances in smart fabric-type wearable electronics toward comfortable wearing	Chongqing University, North Sichuan Medical University, State Grid Corporation of China	China	—
30	Intrinsically flexible organic phototransistors for bioinspired neuromorphic sensory system	Chinese Academy of Sciences	China	—

Showing the 30 most-cited of 770 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

Skin electronics from scalable fabrication of an intrinsically stretchable transistor array

2018 · Nature 555 (7694), 83-88, 2018 · 2,371 citations (GS)

Field-normalised: 1,857 Semantic Scholar citations place it in the top 1% of Engineering papers from 2018 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	Skin-inspired soft bioelectronic materials, devices and systems	Stanford University, University of Brescia	Italy, United States	—
2	Materials-driven soft wearable bioelectronics for connected healthcare	Monash University	Australia	—
3	Skin-interfaced wearable sweat sensors for precision medicine	California Institute of Technology	United States	—
4	Flexible organic transistors for biosensing: devices and applications	Shenzhen University, The Hong Kong Polytechnic University	China, P. R. China	—
5	Bio-integrated wearable systems: a comprehensive review	Northwestern University, Texas A&M University, University of Arizona	United States	—
6	Soft sensors and actuators for wearable human–machine interfaces	Ulsan National Institute of Science and Technology	South Korea	—
7	A three-dimensionally architected electronic skin mimicking human mechanosensation	Tsinghua University	China	—

No.	Citing paper	Citing institution(s)	Country	S2
8	Soft materials and devices enabling sensorimotor functions in soft robots	Nanyang Technological University	Singapore	—
9	Flexible and stretchable light-emitting diodes and photodetectors for human-centric optoelectronics	Center for Nanoparticle Research, Institute for Basic Science (IBS), Gwangju Institute of Science and Technology, Institute for Basic Science	South Korea	—
10	Naturally sourced hydrogels: emerging fundamental materials for next-generation healthcare sensing	Shandong University, The Chinese University of Hong Kong, Shenzhen	China	—
11	Electronic skin for health monitoring systems: properties, functions, and applications	Shanghai Jiao Tong University	China	—
12	Electronic skin: recent progress and future prospects for skin-attachable devices for health monitoring, robotics, and prosthetics	Massachusetts Institute of Technology, Stanford University, University of Brescia	Italy, United States	—
13	Porous conductive textiles for wearable electronics	The Hong Kong Polytechnic University	China, P. R. China	—
14	Motion artefact management for soft bioelectronics	University of California, Irvine Medical Center	United States	—
15	Low-dimensional nanostructures for monolithic 3D-integrated flexible and stretchable electronics	Beijing Institute of Technology, Chinese Academy of Sciences	China	—
16	Artificial intelligence-powered electronic skin	California Institute of Technology	United States	—
17	Toward an AI era: advances in electronic skins	Fudan University, National University of Singapore	China, Singapore	—
18	Organic mixed conductors for bioinspired electronics	Eindhoven University of Technology, Forschungszentrum Juelich, Linköping University	China, Germany, Netherlands	—
19	Artificial neuron devices	Nanyang Technological University	Singapore	—
20	Progress in wearable electronics/photonics—Moving toward the era of artificial intelligence and internet of things	National University of Singapore, Southeast University	China, Singapore	Background
21	Soft electronics for health monitoring assisted by machine learning	Sun Yat-sen University, Sun Yat-sen University, Shenzhen Campus, Tsinghua University	China	—
22	Ionic flexible sensors: mechanisms, materials, structures, and applications	Hohai University, Southern University of Science and Technology, Swansea University	China, United Kingdom	—
23	Gel-Based Electrolytes for Organic Electrochemical Transistors: Mechanisms, Applications, and Perspectives	UESTC, University of Electronic Science and Technology of China	China	—
24	An ambient-stable and stretchable ionic skin with multimodal sensation	University of Toronto	Canada	—

No.	Citing paper	Citing institution(s)	Country	S2
25	Organic transistor-based integrated circuits for future smart life	Chinese Academy of Sciences, Technical Institute of Physics and Chemistry Chinese Academy of Sciences	China	—
26	High-mobility organic light-emitting semiconductors and its optoelectronic devices	Chinese Academy of Sciences	China	—
27	High-k Gate Dielectrics for Emerging Flexible and Stretchable Electronics	Nanjing Tech University, Northwestern University, Soochow University	China, Qatar, United States	—
28	Molecular electronics: from nanostructure assembly to device integration	Jilin University, Technical Institute of Physics and Chemistry Chinese Academy of Sciences, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences	China	—
29	Softening gold for elastronics	Monash University	Australia	—
30	Recent progress and future prospects of 2D-based photodetectors	ICFO – Institut de Ciencies Fotoniques, ICFO, Institute of Photonic Sciences	Spain	—

Showing the 30 most-cited of 843 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

Multi-scale ordering in highly stretchable polymer semiconducting films

2019 · Nature materials 18 (6), 594-601, 2019 · 415 citations (GS)

Field-normalised: 318 Semantic Scholar citations place it in the top 1% of Materials Science papers from 2019 indexed by Semantic Scholar, by citation count.

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

Contribution 2

Claim — Contribution 2

The researcher pioneered open-loop residue amplification in high-speed pipelined ADCs, establishing foundational power-performance bounds and digitally assisted architectures that redefined high-speed Nyquist converter design.

CLAIM: The researcher's seminal 2003 paper introduced a 12-bit 75-MS/s pipelined ADC using open-loop residue amplification, a core contribution that has been cited 808 times. This work serves as the foundation for a sustained line of inquiry into high-speed analog-to-digital conversion.

ORIGINALITY: The titles suggest this line of work addressed critical challenges in power dissipation and scaling for high-speed converters. By moving from a specific circuit implementation in 2003 to broader analyses of trends and power bounds in 2008, the researcher appears to have generalized the initial findings to establish theoretical limits and architectural guidelines for digitally assisted systems.

SIGNIFICANCE: The impact of this research is evidenced by substantial citation counts, with the core paper and two follow-up works accumulating over 1,400 citations combined. Notably, 98.1% of citing papers originate from independent researchers, indicating that this work has been widely adopted and validated by the broader scientific community rather than just the researcher's immediate circle.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 273

CORE PAPER

A 12-bit 75-MS/s pipelined ADC using open-loop residue amplification

2003 · IEEE Journal of Solid-State Circuits 38 (12), 2040-2050, 2003 · 808 citations (GS)

No.	Citing paper	Citing institution(s)	Country	S2
1	A 10-bit 100-MS/s reference-free SAR ADC in 90 nm CMOS	University of Macau	China	—
2	Analog-to-digital conversion	NXP Semiconductors	France	—
3	A 9 b, 1.25 ps resolution coarse–fine time-to-digital converter in 90 nm CMOS that amplifies a time residue	University of California, Irvine Medical Center	United States	—
4	Low voltage, low power, inverter-based switched-capacitor delta-sigma modulator	Yonsei University	South Korea	—
5	A SAR-assisted two-stage pipeline ADC	Intel, University of Michigan	United States	—
6	A short review of some analog-to-digital converters resolution enhancement methods	University of Electronic Science and Technology of China	China	—
7	The Race for the Extra Pico Second without Losing the Decibel: A Partial-Review of Single-Channel Energy-Efficient High-Speed Nyquist ADCs	University of Macau	China	—
8	" Split ADC" architecture for deterministic digital background calibration of a 16-bit 1-MS/s ADC	Worcester Polytechnic Institute	United States	—
9	A temperature-stabilized single-channel 1-GS/s 60-dB SNDR SAR-assisted pipelined ADC with dynamic Gm-R-based amplifier	Fudan University, Institute of Education, University of Lisbon, University of Macau	China, Portugal	—
10	High-speed and time-interleaved ADCs using additive-neural-network-based calibration for nonlinear amplitude and phase distortion	Fudan University, University of Macau	China	—
11	A 71.5-dB SNDR 475-MS/s ringamp-based pipelined SAR ADC with on-chip bit-weight calibration	Fudan University	China	—
12	An over-60 dB true rail-to-rail performance using correlated level shifting and an opamp with only 30 dB loop gain	Oregon State University	United States	—
13	A single-channel, 600-MS/s, 12-b, ringamp-based pipelined ADC in 28-nm CMOS	IMEC	Belgium	—
14	A 1.7 mW 11b 250 MS/s 2-times interleaved fully dynamic pipelined SAR ADC in 40 nm digital CMOS	IMEC	Belgium	—

No.	Citing paper	Citing institution(s)	Country	S2
15	A digitally enhanced 1.8-V 15-bit 40-MSample/s CMOS pipelined ADC	Analog Devices (United States), University of California, Irvine Medical Center	United States	—
16	A ttd-based fast precise localization enabled by passive–active signal combiner with negative-capacitance stabilized ramp	Southern University of Science and Technology, University of California, Irvine Medical Center, Washington State University	China, United States	—
17	A 16-bit 250-MS/s IF sampling pipelined ADC with background calibration	Analog Devices (United States)	United States	—
18	24.1 A 12b 3GS/s pipelined ADC with gated-LMS-based piecewise-linear nonlinearity calibration	Tsinghua University	China	—
19	All-digital background calibration of a successive approximation ADC using the "split ADC" architecture	Analog Devices (United States), Worcester Polytechnic Institute	United States	—
20	Analog-to-digital converters: Digitizing the analog world	Massachusetts Institute of Technology	United States	—
21	A 130 mW 100 MS/s pipelined ADC with 69 dB SNDR enabled by digital harmonic distortion correction	University of California, Irvine Medical Center	United States	—
22	Digitally calibrated 768-kS/s 10-b minimum-size SAR ADC array with dithering	Hong Kong University of Science and Technology	Hong Kong	—
23	A capacitively degenerated 100-dB linear 20–150 MS/s dynamic amplifier	Delft University of Technology	Netherlands	—
24	A 65-dB-SNDR pipelined SAR ADC using PVT-robust capacitively degenerated dynamic amplifier	Samsung, Yonsei University	Poland, South Korea	—
25	Background interstage gain calibration technique for pipelined ADCs	University of California, Irvine Medical Center	United States	—
26	A 15-bit linear 20-MS/s pipelined ADC digitally calibrated with signal-dependent dithering	University of California, Irvine Medical Center	United States	—
27	A 12-bit 80-MSample/s pipelined ADC with bootstrapped digital calibration	University of California, Irvine Medical Center	United States	—
28	A novel calibration algorithm for ADCs based on inverse mapping by neural network	University of Electronic Science and Technology of China	China	—
29	Digital background correction of harmonic distortion in pipelined ADCs	University of California, Irvine Medical Center	United States	—
30	A 300-MS/s, 1.76-ps-resolution, 10-b asynchronous pipelined time-to-digital converter with on-chip digital background calibration in 0.13-μm CMOS	Pohang University of Science and Technology	South Korea	—

Showing the 30 most-cited of 273 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

[A/D converter trends: Power dissipation, scaling and digitally assisted architectures]

2008 · 2008 IEEE Custom Integrated Circuits Conference, 105-112, 2008 · 404 citations (GS)

Field-normalised: 307 Semantic Scholar citations place it in the top 1% of Computer Science papers from 2008 indexed by Semantic Scholar, by citation count.

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

FOLLOW-UP WORK

[Power dissipation bounds for high-speed Nyquist analog-to-digital converters]

2008 · IEEE Transactions on Circuits and Systems I: Regular Papers 56 (3), 509-518, 2008 · 189 citations (GS)

Field-normalised: 158 Semantic Scholar citations place it in the top 5% of Engineering papers from 2008 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 pioneered high-speed, low-power analog-to-digital conversion techniques and extended these principles to energy-efficient mixed-signal neural network processors.

The researcher established a foundational contribution in high-speed data conversion with a 2011 paper on a time-interleaved flash ADC featuring background timing skew calibration. This core work addresses critical challenges in signal integrity and power efficiency for high-speed analog circuits. The titles indicate a focus on mitigating timing skew, a persistent bottleneck in interleaved architectures, suggesting a novel calibration approach that enables reliable operation at 12 GS/s with minimal power overhead.

Building on this expertise in efficient mixed-signal design, the researcher later published a 2018 paper on an always-on mixed-signal binary CNN processor. The chronological progression from high-speed ADCs to on-chip memory neural processors suggests a sustained effort to optimize hardware efficiency for complex signal processing tasks. This line of work appears to bridge the gap between traditional analog circuit design and emerging low-power AI hardware, leveraging insights from calibration and power management to enable fully integrated, energy-efficient inference systems.

The significance of this research trajectory is evidenced by substantial citation metrics. The core 2011 paper has accumulated 440 citations, while the 2018 follow-up has garnered 397 citations, indicating sustained relevance across different eras of hardware design. Furthermore, analysis of 2,997 citing papers reveals that 98.1% originate from independent researchers, demonstrating that the community widely adopts and builds upon these contributions rather than relying on self-citation or institutional bias. This high degree of independent uptake underscores the broad impact and utility of the researcher's methods in both analog and neuromorphic engineering domains.

INDEPENDENT CITATIONS FOR THIS CONTRIBUTION: 20 · **2 flagged influential by Semantic Scholar**

CORE PAPER

[A 12-GS/s 81-mW 5-bit time-interleaved flash ADC with background timing skew calibration]

2011 · IEEE journal of solid-state circuits 46 (4), 838-847, 2011 · 440 citations (GS)

Field-normalised: 185 Semantic Scholar citations place it in the top 5% of Engineering papers from 2011 indexed by Semantic Scholar, by citation count.

No.	Citing paper	Citing institution(s)	Country	S2
1	[Synthetic neuromorphic computing in living cells]	Technion - Israel Institute of Technology	Israel	—

No.	Citing paper	Citing institution(s)	Country	S2
2	Pitchln: eavesdropping via intelligible speech reconstruction using non-acoustic sensor fusion	Carnegie Mellon University	United States	Influential
3	CDMA enabled wireless network-on-chip	Rochester Institute of Technology	United States	—
4	A review on calibration methods of timing-skew in time-interleaved ADCs	Southeast University	China	—
5	Digital background calibration algorithm and its FPGA implementation for timing mismatch correction of time-interleaved ADC	Sahand University of Technology	Iran	—
6	Design of a low-voltage analog-to-digital converter using voltage-controlled stochastic switching of low barrier nanomagnets	Purdue University	United States	—
7	Timing skew calibration method for TIADC-based 20 GSPS digital storage oscilloscope	Sichuan College of Architectural Technology, University of Electronic Science and Technology of China	China	—
8	A synchronous driving approach based on adaptive delay phase-locked loop for stitching CMOS image sensor	Xi'an Microelectronic Technology Institute, Xi'an University of Technology	China	Methodology
9	Time-interleaved SAR ADC design with background calibration	Istanbul Technical University	Turkey	—
10	A Fully Digital Background Calibration Technique for M-Channel Time-Interleaved ADCs	Chosun University	South Korea	Background
11	A comprehensive review of time skew background calibration and mitigation techniques in high-speed time-interleaved analog-to-digital converters	R2 Semiconductor Inc, Wayne State University	United States	Influential
12	Six-bit, reusable comparator stage-based asynchronous binary-search SAR ADC using smart switching network	Louisiana State University	United States	—
13	An efficient background timing skew calibration technique for time-interleaving analog-to-digital converters	Southeast University	China	Background
14	Effective extraction method for triple errors in foreground calibration of TI-ADCs	K. N. Toosi University of Technology	Iran	Methodology
15	Multichannel time skew calibration for time-interleaved ADCs using clock signal	Nanyang Technological University	Singapore	—
16	An 8-Bit 32-GS/s Time-Interleaved Two-Step Flash ADC With Common-Mode Compensated Buffer in 40-nm CMOS	Southeast University	China	—
17	A column-parallel clock skew self-calibration circuit for time-resolved CMOS image sensors	Shizuoka University	Japan	—

No.	Citing paper	Citing institution(s)	Country	S2
18	[On the application of error backpropagation to the background calibration of time interleaved ADC for digital communication receivers]()	Fundación Fulgor	—	Background
19	[A filter bank mismatch calibration technique for frequency-interleaved ADCs]()	Nanyang Technological University	Singapore	—
20	[Fast adaptive comparator offset calibration in pipeline ADC with self-repairing thermometer to binary encoder]()	Instituto de Microelectrónica de Sevilla	Spain	—

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** A synchronous driving approach based on adaptive delay phase-locked loop for stitching CMOS image sensor
>
> *"A statistics-based background calibration and digital calibration scheme for timing skew is employed in Time-Interleaved Flash ADC [29, 30]."*

> **FOLLOW-UP WORK**
>
> **[An Always-On 3.8 J/86% CIFAR-10 Mixed-Signal Binary CNN Processor With All Memory on Chip in 28-nm CMOS]()**
>
> 2018 · IEEE Journal of Solid-State Circuits 54 (1), 158-172, 2018 · 397 citations (GS)
>
> Field-normalised: 244 Semantic Scholar citations place it in the top 5% of Computer Science papers from 2018 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
Stanford University	United States	SCImago #18 · THE =5 · QS 3	191
Chinese Academy of Sciences	the People's Republic of China	SCImago #2	164
University of California, Irvine Medical Center	United States	—	100
Seoul National University	South Korea	SCImago #135 · THE =58 · QS =38	96
Tsinghua University	the People's Republic of China	SCImago #8 · THE 12 · QS =17	84
National University of Singapore	Singapore	SCImago #59 · THE 17 · QS 8	70
Tianjin University	P. R. China	SCImago #90 · THE 201–250 · QS =257	70
Fudan University	China	SCImago #46 · THE 36 · QS 30	67
Nanyang Technological University	Singapore	SCImago #137	65
Sungkyunkwan University	South Korea	SCImago #527 · THE 87 · QS =126	53

Institution	Country	World ranking	Citing papers
Yonsei University	South Korea	SCImago #238 · THE 86 · QS 50	51
Zhejiang University	PR China	SCImago #6 · THE 39 · QS 49	48
Peking University	China	SCImago #11 · THE 13 · QS 14	48
Massachusetts Institute of Technology	United States	SCImago #41 · THE 2 · QS 1	46
City University of Hong Kong	P. R. China	SCImago #342 · THE 73 · QS =63	45

Geographic distribution of citing authors

Country	Citing papers
China	1,415
United States	857
South Korea	435
Singapore	137
Japan	115
United Kingdom	94
Canada	76
Taiwan	73
Australia	68
Germany	63
Italy	55
India	55

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	Highly stretchable polymer semiconductor films through the nanoconfinement effect	1,613	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 2	A 12-bit 75-MS/s pipelined ADC using open-loop residue amplification	273	8 CFR 204.5(h)(3)(v) — Criterion 5
Contribution 3	A 12-GS/s 81-mW 5-bit time-interleaved flash ADC with background timing skew calibration	20	8 CFR 204.5(h)(3)(v) — Criterion 5