Supplementary Material for "Position: The Current AI Conference Model is Unsustainable! Diagnosing the Crisis of Centralized AI Conference"

1 Related Work

The sustainability crisis in large-scale AI and computer science conferences intersects several research areas: publication culture, environmental impacts, equity and inclusion, and conference system design. Here, we survey related work and situate our contribution in the existing literature.

Hyper-Competition and Publication Practices The explosive growth in AI conference submissions echoes broader trends toward "publish or perish" cultures in academia (Head et al. 2015). Multiple studies have highlighted how publication pressure incentivizes p-hacking, state-of-the-art (SOTA) hopping, and incremental contributions over substantive breakthroughs, ultimately threatening the integrity of scientific discovery (Head et al. 2015; Kim, Lee, and Lee 2025). In AI and machine learning, these pressures are exacerbated by the rapid turnover of "hot" research topics and short innovation cycles (Kwa et al. 2025), contributing to superficial peer review and reviewer burnout (Yang 2025; Kim, Lee, and Lee 2025). Recent work also raises concerns about the impact of AI-assisted academic writing on contribution and integrity (Oliveira et al. 2025). This literature underlines our diagnosis of unsustainable hyper-competition and the erosion of quality in current conference models.

Environmental Impacts of Academic Conferences Growing awareness of the climate crisis has prompted substantial research into the environmental footprint of academic gatherings. Studies across science domains show that physical conference travel represents the dominant source of event-related emissions, often dwarfing institutional emissions from other sources (Gokus et al. 2024; Jäckle 2022; Ajufo and Bekaroo 2021). Proposals to reduce academic flying include hybrid and satellite formats, carbon offsetting, and greater reliance on digital platforms, but these often inadequately address the underlying incentive structures (Jäckle 2022; Gokus et al. 2024). Our work extends this literature by providing domain-specific estimates for top AI conferences and quantifying the misalignment with sustainability goals.

Equity, Inclusion, and the Social Contract of Conferences There has been growing recognition of the importance of diversity, equity, and inclusion (DEI) in AI research communities (Mackenzie et al. 2024; Zhang et al. 2022). Traditional conference models—centered around in-person attendance, expensive travel, and visa requirements—create barriers for underrepresented groups and researchers from the Global South (Zhang et al. 2022). Prior efforts include targeted travel grants, inclusive code-of-conducts, and virtual participation options, though studies show these are insufficient to address structural inequities (Mackenzie et al. 2024). Our position builds on this line of work by arguing that only systemic redesign can fulfill the social contract for equity and inclusion.

Mental Health, Community Building, and Digital Sentiment Recent literature draws attention to the mental health crisis in academia, particularly among doctoral students and early-career researchers facing job insecurity and hyper-competition (Nicholls et al. 2022; Åsa Knaggård, Ness, and Harnesk 2018). In the ML community, public forums and social media platforms have become spaces where community-wide stress, disillusionment, and burnout become visible (Yang 2025). Our extensive sentiment analysis of online discussions extends this work, connecting these sentiments to structural issues in conference design.

Conference Models and Reform Proposals Calls for reforming academic conference structures often focus on incremental solutions: submission caps, reduced travel, or hybrid meeting formats (KDD 2025; NeurIPS Conference 2025b,a). Some fields have experimented with rolling peer review or multi-site events, but these efforts are often constrained by legacy practices or replicate centralizing tendencies on a smaller scale (NeurIPS Conference 2025b,a). To our knowledge, there is limited literature proposing a cohesive, community-federated conference model that simultaneously addresses sustainability, equity, and scientific vibrancy. Our work advances this agenda by integrating decentralization, rolling peer review, and regional hubs in a unified framework.

We synthesize these threads and make a novel contribution by proposing a holistic structural reform via the CFC paradigm as a necessary response to these intersecting crises.

2 Detailed Emission Factors

Table 1 shows the emission factors for AI conference components.

Table 1: Emission Factors for AI Conference Components.

Emission Category	Selected Factor (Value and Unit)	Primary Source(s)
Air Travel	0.158 t CO_2e / passenger.km	(Independent 2025)
Accommodation (Kigali, 2023)	28.0 kg CO_2e / room-night	(Blodgett and Hoch 2014), (Sustainiam 2024)
Accommodation (Vienna, 2024)	13.9 kg CO_2e / room-night	(Climatiq 2021), (United Kingdom Department for Environment and DEFRA)
Accommodation (Singapore, 2025)	24.5 kg CO_2e / room-night	(United Kingdom Department for Environment and DEFRA)
Catering (Meals)	1.88 kg CO_2e / meal	(Scarborough et al. 2014), (Institute 2019)
Venue Operations	2.896 kg CO_2e / person/day	(Mannheim and Avató 2025)

The data in table 1 is retrieved from the UK's Department for Environment, Food and Rural Affairs (DEFRA) GreenHouse Gas (GHG) Conversion Factors 2025(Department for Energy Security & Net Zero 2025).

3 Detailed AI Conference Categories

Table 2 shows computer science areas and their corresponding top-tier conferences.

4 Conference Attendance Data

Table 3 shows ICLR Conference Attendance Data (2023-2025).

5 Carbon Emissions from ICLR.

Table 1 shows the carbon Emissions from ICLR.

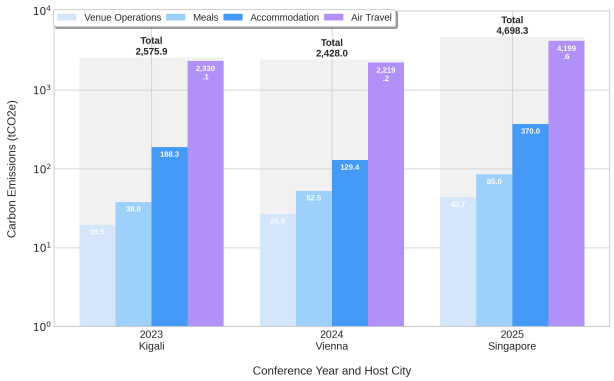

Figure 1: Carbon Emissions from ICLR.

6 Reddit Discussions

Table 4 shows the examples of ICLR Reddit discussions.

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NeurIPS Conference. 2025b. Announcement: We're excited to announce that NeurIPS2025 will be held in Copenhagen! https://x.com/NeurIPSConf/status/1866605640145064216.

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Table 2: Computer science areas and their corresponding top-tier conferences. The list of conferences is based on the CSRankings website.

Parent Area	**Abbreviation**	**Area**	**Conferences**
AI	ai	Artificial intelligence	AAAI, IJCAI
	vision	Computer vision	CVPR, ECCV, ICCV
	mlmining	Machine learning	ICLR, ICML, NeurIPS
	nlp	Natural language processing	ACL, EMNLP, NAACL
	inforet	The Web & information retrieval	SIGIR, WWW
Systems	arch	Computer architecture	ASPLOS, ISCA, MICRO
	comm	Computer networks	SIGCOMM, NSDI
	sec	Computer security	CCS, IEEE S&P ("Oakland"), USENIX Security
	mod	Databases	SIGMOD, VLDB
	da	Design automation	DAC, ICCAD
	bed	Embedded & real-time systems	EMSOFT, RTAS, RTSS
	hpc	High-performance computing	HPDC, ICS, SC
	mobile	Mobile computing	MobiCom, MobiSys, SenSys
	metrics	Measurement & perf. analysis	IMC, SIGMETRICS
	ops	Operating systems	OSDI, SOSP
	plan	Programming languages	PLDI, POPL
	soft	Software engineering	FSE, ICSE
Theory	act	Algorithms & complexity	FOCS, SODA, STOC
	crypt	Cryptography	CRYPTO, EuroCrypt
	log	Logic & verification	CAV, LICS
Interdisciplinary Areas	bio	Comp. bio & bioinformatics	ISMB, RECOMB
	graph	Computer graphics	SIGGRAPH, SIGGRAPH Asia
	csed	Computer science education	SIGCSE
	ecom	Economics & computation	EC, WINE
	chi	Human-computer interaction	CHI, UbiComp / Pervasive / IMWUT, UIST
	robotics	Robotics	ICRA, IROS, RSS
	visualization	Visualization	VIS, VR

Table 3: ICLR Conference Attendance Data (2023-2025)

Year	Total Participants	Origin (First Author)	Destination	No. Attendees (Est. Live)	Hotel Nights	Meals	Air Distance (KM)	Remarks
		United States		2172	5	15	14910	
		China, Peoples Republic of China		1946	5	15	4245	
		Singapore		947	0	15	0	
		United Kingdom		583	5	15	10859	
		Korea, Republic of Korea		528	5	15	4669	
		Germany		398	5	15	10311	11,039 participants spanning 85 countries; 10,435 in-person.
		Canada		308	5	15	13500	
2025	11039	Switzerland	Singapore	227	5	15	10300	
		Japan		213	5	15	5340	Only countries with over 100 participants are listed.
		Australia		223	5	15	6293	
		Hong Kong SAR, China		207	5	15	2555	
		France		164	5	15	10724	
		Israel		137	5	15	8002	
		India		117	5	15	4150	
		Netherlands		106	5	15	10513	
		United States		1647	5	15	6814	
		China, Peoples Republic of China		814	5	15	7496	
		Germany		494	5	15	539	
		United Kingdom		452	5	15	1277	6,533 participants spanning 79 countries; 5,938 in-person.
		Korea, Republic of Korea		315	5	15	8270	
2024	6553	Canada	Vienna, Austria	244	5	15	6950	
		Australia		215	5	15	15767	Only countries with over 100 participants are listed.
		Switzerland		204	5	15	632	
		France		160	5	15	1038	
		Singapore		118	5	15	9698	
		Japan		104	5	15	9150	
		Netherlands		102	5	15	950	
		United States		1960	5	15	11500	3,758 participants spanning 73 countries; 2,015 in-person.
		China, Peoples Republic of China		1222	5	15	10000	
		United Kingdom		273	5	15	6590	
2023	3758	Korea, Republic of Korea	Kigali, Rwanda	229	5	15	10760	First in-person conference since Covid.
		Germany		176	5	15	6200	
		Canada		163	5	15	11400	Only countries with over 100 participants are listed.
		Singapore		124	5	15	8208	
		Switzerland		102	5	15	5800	

Table 4: Examples of ICLR Reddit Discussions Reflecting Mental Health Struggles.

Thread Title	Date	MH Tag	Sentiment	Key Quote
ICLR 2025 paper decisions.	Nov 2024	Review fatigue	Negative	*"it was exhausting... spent the entire discussion period addressing each new 'problem'"*
[D] ICLR 2025 Paper Reviews Discussion.	Oct 2024	Stress/anxiety	Negative	*"Reviewers are clearly not... putting in the time... 30 minutes isn't enough"*
Quality of ICLR papers.	Nov 2024	Burnout	Negative	*"I reviewed... some of the worst papers... incremental... perverse incentives."*
ICLR 2023 reviews are out. How was your experience?	May 2023	Anxiety	Negative	*"I didn't read them yet, because of anxiety."*
ICLR 2024 decisions are coming out today.	Jan 2024	Stress	Negative	*"my paper... if this time does not work again, I will be very sad... research in ml is a pain."*
Toxic reviews at ICLR?	Jun 2025	Toxicity	Negative	*collective frustrations (inferred)*
ICLR submissions should not be public.	Jun 2025	Anxiety/stress	Negative	*"I am absolutely disgusted by their academic integrity..."*
When are ICLR reviews out?	May 2018	Anxiety	Negative	*"Seen anxiety about waiting — historic relevance"*
Why is everybody surprised that Mamba got rejected for?	Feb 2024	Frustration	Negative	*"reviewers measure contribution... I don't think this warrants a rejection."*
ICLR 2022 RESULTS ARE OUT	Jun 2022	Anxiety	Negative	*"Reviewer2 gave me a lot of anxiety about the scores..."*

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