



OPEN CALL

Future Shock: Grappling With the Generative AI Revolution

Edited by Francine Berman, Ralf Herbrich, and David Leslie

The submission deadline for eligibility to appear in the initial release of the Future Shock special issue this January has passed, but **the call will remain open through January 8, 2024**, with accepted contributions published on a rolling basis until May 2024.

Submissions Information

Manuscripts are submitted via Editorial Manager. Author guidelines must be strictly followed.

In Editorial Manager, authors should select (from the drop-down menu) “Special Issue” and indicate in their cover letter that they are submitting to the Future Shock special issue. Please submit a completed manuscript, not a proposal.

- [Submit via Editorial Manager](#)
- [Author Guidelines](#)

Please contact the *HDSR* Editorial Office at datasciencereview@harvard.edu with any questions, including queries concerning the appropriateness of your manuscript’s content.

Background on Future Shock

Just over a half-century ago, the sociologist Alvin Toffler coined the term “future shock” to capture the widespread societal dislocation affected by the rapid advent of the digital revolution. On his account, the continuous and accelerating changes brought about by this technological transformation were causing a bewildering overhaul of familiar forms of life and a “shattering stress” in the lived experience of individuals “subjected to too much change in too short a time.” Toffler’s concerns were rooted in how a society ill-prepared for such sudden changes could not cope with the accelerating pace of the innovation-induced demolition of existing human institutions, norms, and practices, raising the real prospect of a “massive adaptational breakdown.” “Future shock,” he wrote, describes “the dizzying disorientation brought on by the premature arrival of the future.”

In this special issue of [Harvard Data Science Review \(HDSR\)](#), “Future Shock: Grappling With the Generative AI Revolution,” we will explore the broad spectrum of questions raised by recent

advancements in foundation models and generative AI tools like ChatGPT. In particular, we will interrogate the extent to which these advancements are presenting contemporary society with dangers of future shock. To what degree, and how, is the accelerating pace of the generative AI revolution putting novel, and potentially unsustainable, pressures on accepted norms and practices of scientific research, teaching, scholarship, and academic publication? How is the hasty industrialization of this set of technologies impacting broader social, cultural, economic, political, and legal structures, dynamics, and institutions? Does the rapid proliferation of generative AI applications represent an inflection point in the evolution of data science and AI and in the scope and scale of their societal impacts or is this sense of ‘revolution’ itself merely a by-product of the hype created by over-zealous tech evangelists and their doomsaying critics?

The special issue will prioritize a multi-lens and interdisciplinary approach, seeking submissions that instantiate state-of-the-art research from a wide range of academic specializations while remaining accessible to non-specialists and scholars from other disciplines.

We welcome submissions along two concentration tracks:

1. Clarifying the nature and limitations of foundation models, large language models (LLMs), and generative AI applications.

These articles will delve into the scientific and technical dimension of foundation models, LLMs, and generative AI applications, focusing on making clear their statistical, mathematical, and data scientific underpinnings and their conceptual strengths and weaknesses. Submissions in this track will aim to sharpen an understanding of these methods for data scientists and the data scientific lens in the interrogation of what is really happening in the mathematical machinery of foundation models, LLMs, and generative AI applications, both in the theory supporting them, and in the practice of using them in the real-world. Areas of focus could include explorations of the strengths and limitations, as well as the challenges and opportunities, related to:

- Transfer learning and self-supervised learning techniques and transformer/attention-based architectures
- Multimodal foundation models and the linkage and integration of text data, image, audio, and video data, and structured data
- Multitask interaction of generative AI tools with lived environments including interaction with human agents and other automated systems in myriad social and cultural milieus
- Integration of multi-step or chain-of-thought reasoning techniques and ground-truth- and reference-checking mechanisms into foundation model architectures
- Integration of foundation models and sequential decision-making techniques (including application of reinforcement learning, planning, long-term memory, imitation learning, and so forth)

- Emergent abilities in foundation models based on zero-shot or few-shot prompting
- Interpretability and compositionality of foundation models
- Performance evaluation and benchmarking regimes for foundation models and for domain- or task-specific generative AI tools
- Application of current evaluation criteria for AI/ML systems (for example, safety, security, reliability, robustness, fidelity, fairness, bias mitigation, and training/operational efficiency and environmental impact) to foundation models and their tailored applications
- Use of public and non-public large-scale datasets for the training of foundation models
- Scaling appropriate methods of data cleaning, curation, and engineering to ensure bias mitigation and redress of harmful or discriminatory content
- Tendencies of foundation models to confabulate, ‘hallucinate,’ and generate non-factual content and mitigation methods to address this
- Reproducibility and replicability of the results of foundation models, LLMs, and generative AI applications

2. Exploring the wider societal risks and impacts of foundation models, LLMs, and generative AI applications.

These articles will engage in critical, sociotechnical, and ethical considerations of the transformative effects of the rapid proliferation of foundation models, LLMs, and generative AI applications (1) in the context of practices of scientific research, teaching, scholarship, and academic publication; and (2) in broader social, cultural, economic, political, and legal contexts. Areas of focus could include explorations of the risks, challenges, and impacts related to:

Context of scientific research, teaching, scholarship, and academic publication

- Research integrity
- Scientific ingenuity and discovery
- Research originality related to reliance on foundation models in scientific writing
- Widespread plagiarism in education, authorial misrepresentation, and scaled academic dishonesty
- Broader transformative effects of generative AI applications on educational systems and pedagogical norms and practices
- Diminishing or weakening the writing and critical thinking skills of researchers and students due to over-reliance on generative AI tools

Broader social, cultural, economic, political, and legal contexts

- Algorithmic bias and discrimination
- Replication and amplification of hateful, harassing, or abusive language, imagery, or other learned representations
- “Value lock-in” from static data containing discriminatory or harmful norms
- Humanity’s place in the design and use of generative AI—what does human-centered and public focused generative AI look like?
- Effects on social trust
- Legal contexts of generative AI—determination of authorship and IP, expansion of copyright, who is responsible and who is liable when AI is involved in an infraction, and so forth
- Failure modes of content moderation filters (for example, ‘jailbreaks’ and workarounds)
- Cybersecurity threats posed by misapplication of generative AI
- Users bypass of preventative content filters enabling bioterrorism, biowarfare, chemical warfare, bomb-making, and other hostile activities
- Data leakage, exposure of sensitive information, and violation of privacy and data protection rights
- Exploitation, displacement, and elimination of skilled human labor
- Differential performance and variable functioning of generative AI applications for underrepresented cultural, social, or language groups
- Deceptive anthropomorphism of conversational agents
- Misunderstanding of foundation models’ capacity for understanding or sentience (claims that they can ‘think,’ ‘believe,’ ‘understand,’ and so forth)
- Scaled production of disinformation, misinformation, and propaganda by misused, abused, or irresponsibly deployed generative AI applications
- Distortion or poisoning of downstream datasets and language corpora by the online digital traces produced by generative AI applications themselves
- Centralization of research and innovation capacity for the development of generative AI systems in the arms of a small number of big tech firms
- Macroscale economic effects of the proliferation of generative AI systems
- Transformation of the workplace and job quality by generative AI applications
- Environmental costs and biospheric impacts of training, developing, and using foundational models, LLMs, and generative AI tools
- Governance models that apply to both human and autonomous actors.