

SOCIETAL IMPACT OF ARTIFICIAL LIFE

EDITORIAL

A New Home for a Vital Conversation: Introducing the ALife Societal Impact Section and Going Back to Bio-Inspiration for the Internet

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I Exploring the Societal Impact of Artificial Life

Welcome to the new societal impact section of *Artificial Life*, the home for a community-wide conversation on how ALife can contribute to our common future. We inhabit an era of multiple, global-scale societal challenges that concern understanding and managing complex adaptive systems and living, lifelike, and hybrid technologies. Many of these challenges are genuinely existential. All are potentially profoundly disruptive for good or ill. The future of complexity, of adaptive, digital technologies, of synthetic biology and ecology, of ubiquitous AI, and of social, economic, and political upheaval is here, and our institutions and social norms seem unprepared to deal with it. This future clearly contains enormous challenges, but also tremendous opportunities to shape a better society.

We believe that the artificial life community has a key role to play in this future and in the debate surrounding it, both as producers of potentially disruptive technologies and as a community with a deep-rooted experience in considering complex systems, as well as in connection with the philosophical approaches and tools required for the job. The boundary-spanning, open, and creative nature of the artificial life community makes us an ideal fit to engage in this vital debate. However, we must reflect critically on how our work can be genuinely, practically useful in the real world today as well as being fantastical and exploratory. We also have a great deal to learn from other disciplines and practices: the social sciences, humanities, and arts and those who deal day to day with societal problems on the ground.

The aim of this section is to bring in voices from all over the artificial life community, so as to provide a home for an ongoing conversation about the current and potential societal impact

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of ALife and related work. We will highlight different opinions and points of debate, and juxtapose approaches. Our aim is to develop our collective thinking, to criticize and illuminate, and to provide a space for new ideas and connections both within our community and from other fields.

We invite you to contribute, to argue, and to get involved. Please contact me, the Societal Impact Editor, with ideas for short articles, interesting projects, or connections or topics for discussion.

2 Re-Decentralizing the Internet with Biologically Inspired Architectures

This issue's featured article introduces the RAIN architecture, which aims to allow distributed processing, storage, and information delivery via a decentralized network of user-owned devices in the Internet of Things.

The Internet today is a far cry from its decentralized origins, vast swathes now being controlled by monolithic interests to the potential detriment of diversity, user and community control, privacy, and even democracy. As Monti and Rasmussen point out, "our physical technologies ... have started to advance beyond our social technologies" [1, p. 552]. While the infrastructure of the Internet remains distributed, with regard to ownership, power, and control it is becoming more and more amalgamated. Calls to re-decentralize the Internet have been growing, for example, becoming one of the Free Software Foundation's high-priority projects this year.

The RAIN architecture presents and analyzes one approach to this problem, in which the new opportunity for multiple, inexpensive, individually owned, Internet-enabled devices enables the construction of new communities outside the control of large corporate interests, providing potential for a re-democratization of the Internet and new forms of bottom-up collaborative interaction. The topic of this article falls outside the central technical interests of the artificial life community, and thus illustrates how this new section gives the journal a forum to creatively challenge and broaden our conversation in a way fit for today's urgent societal challenges.

The Internet itself is certainly one of the most ubiquitous and socially important technologies that can be considered ecosystemic in design. And, arguably, it is its ideal of a distributed, multifarious, *bio-inspired* nature, social as well as physical, that gives it its power—power that can be misused or retaken by individuals or organizations and that technology can be used to reapportion.

Discussion of biologically inspired technologies and their function, uses, and implications is a domain to which the artificial life community can clearly contribute enormously. But we must also be prepared to question ourselves closely about the properties that we ascribe to them. Bio-inspired technologies are sometimes spoken of in ways that recall naturalistic fallacies: assumptions that being bio-inspired automatically means being sustainable, "natural," and worthy as well as perhaps possessing properties such as resilience, robustness, and adaptability. Like any biological system, any given bio-inspired technology has its own properties, functions in ways that are desirable for users in certain contexts and not in others, and indeed requires normative judgments to be made about what sort of function we want and whom the function is for. The *social technologies* that accompany them are crucial. We must debate and rigorously interrogate what bio-inspired technologies can genuinely offer in what contexts and particularly to whom they can offer it—not only developing physical technologies themselves, but considering how we can co-develop and productively intertwine them with social technologies for the common good.

References

1. Monti, M., & Rasmussen, S. (2017). RAIN: A Bio-Inspired Communication and Data Storage Infrastructure. *Artificial Life*, 23(4), 552–557.