COUNCIL ON
EXTENDED INTELLIGENCE

CXI was created to proliferate the ideals of responsible participant design, data agency and metrics of economic prosperity prioritizing people and the planet over profit and productivity.

OUR VISION

The Council on Extended Intelligence (CXI)

The IEEE Standards Association (IEEE-SA) and the MIT Media Lab are joining forces to launch a global Council on Extended Intelligence (CXI) composed of individuals who agree on the following:

One of the most powerful narratives of modern times is the story of scientific and technological progress. While our future will undoubtedly be shaped by the use of existing and emerging technologies - in particular, of autonomous and intelligent systems (A/IS) - there is no guarantee that progress defined by "the next" is beneficial. Growth for humanity's future should not be defined by reductionist ideas of speed or size alone but as the holistic evolution of our species in positive alignment with the environmental and other systems comprising the modern algorithmic world.

We believe all systems must be responsibly created to best utilize science and technology for tangible social and ethical progress. Individuals, businesses and communities involved in the development and deployment of autonomous and intelligent technologies should mitigate predictable risks at the inception and design phase and not as an afterthought. This will help ensure these systems are created in such a way that their outcomes are beneficial to society, culture and the environment.

Autonomous and intelligent technologies also need to be created via participatory design, where systems thinking can help us avoid repeating past failures stemming from attempts to control and govern the complex-adaptive systems we are part of. Responsible living with or in the systems we are part of requires an awareness of the constrictive paradigms we operate in today. Our future practices will be shaped by our individual and collective imaginations and by the stories we tell about who we are and what we desire, for ourselves and the societies in which we live.

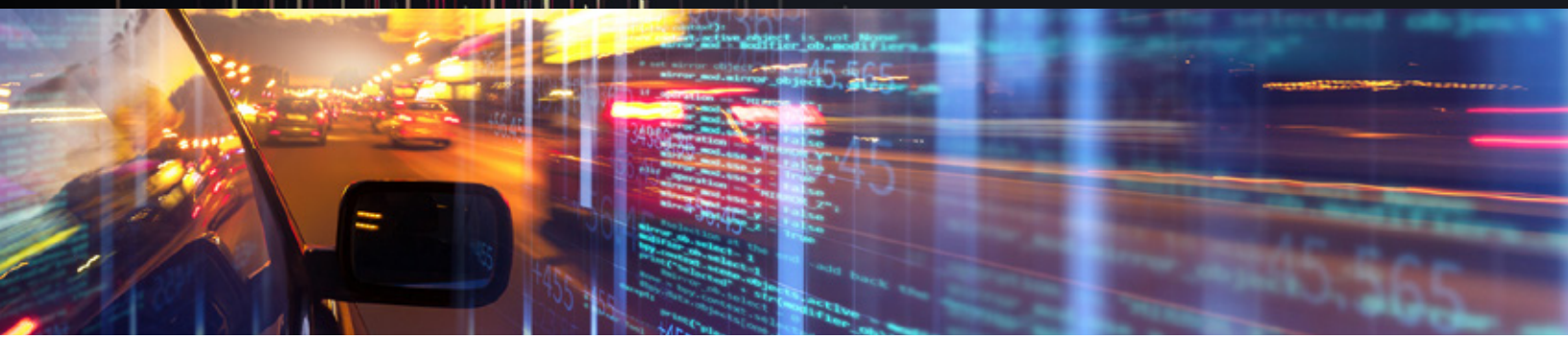
These stories must move beyond the "us versus them" media mentality pitting humans against machines. Autonomous and intelligent technologies have the potential to enhance our personal and social skills; they are much more fully integrated and less discrete than the term "artificial intelligence" implies. And while this process may enlarge our cognitive intelligence or make certain individuals or groups more powerful, it does not necessarily make our systems more stable or socially beneficial.

This is why:

"Instead of thinking about machine intelligence in terms of humans vs. machines, we should consider the system that integrates humans and machines–not artificial intelligence, but extended intelligence. Instead of trying to control or design or even understand systems, it is more important to design systems that participate as responsible, aware and robust elements of even more complex systems. And we must question and adapt our own purpose and sensibilities as designers and components of the system for a much more humble approach: Humility over Control." [1]

We cannot create sound governance for autonomous and intelligent systems in the Algorithmic Age while utilizing reductionist methodologies. By proliferating the ideals of responsible participant design, data symmetry and metrics of economic prosperity prioritizing people and the planet over profit and productivity, The Council on Extended Intelligence will work to transform reductionist thinking of the past to prepare for a flourishing future.

[1] Joichi Ito "Resisting Reduction: A Manifesto"



A Vision for Responsible Participant Design

The Council on Extended Intelligence has identified three major priority areas [2] that urgently need a concerted global effort by broad societal constituencies in order to:

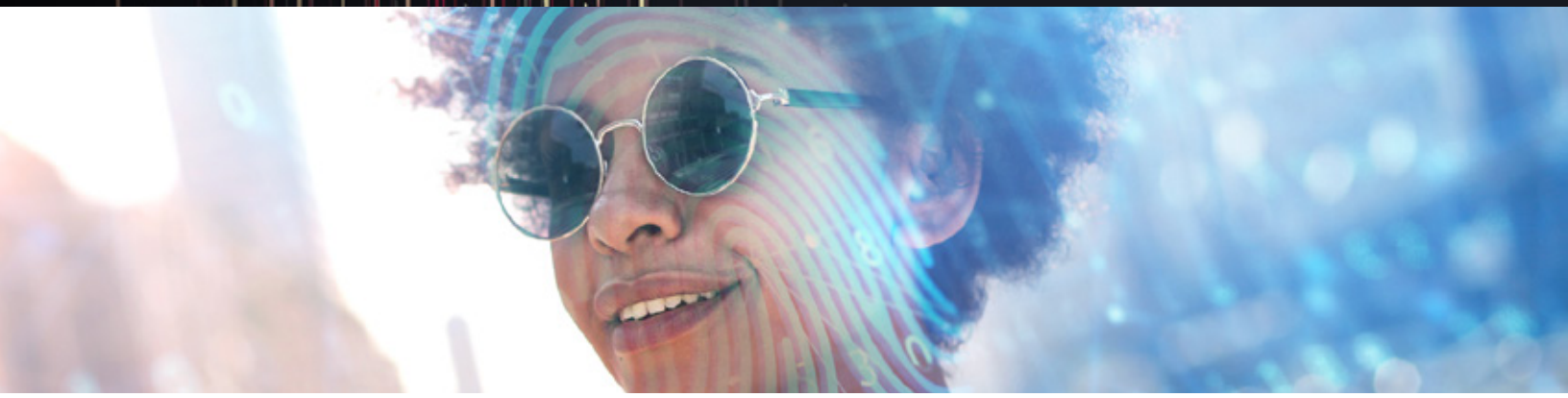
1 Build a new narrative for autonomous and intelligent technologies inspired by principles of systems dynamics and design.

"Extended Intelligence" is based on the hypothesis that intelligence, ideas, analysis and action are not formed in any one individual collection of neurons or code. By leveraging principles of systems dynamics and design, developers can guide the integration of increasingly powerful algorithms and machines into present and future systems in a way that increases their robustness and prevents the reinforcement of negative systemic biases. This would align with the flourishing of all humans involved in such systems or affected by them and with the preservation of our natural environment.

Likewise, increased public interest around autonomous and intelligent technologies opens a window of opportunity to reinforce critical, self-reflecting discourse and action within the technology and scientific communities. We urge the building of permanent two-way bridges of dialogue and understanding to social sciences, environmental sciences and other societal groups, including socio-political actors, philosophers and spiritual leaders from all cultural traditions, as well as designers and artists to facilitate this form of consensus-driven participant design. Self-reflection and cross-fertilization will also make the process of technology creation and evolution more stable and predictable. They will help to ensure that the rapid evolution of autonomous and intelligent systems does not escalate into a threat to social, cultural and environmental cohesion, to the rights of individuals, to democracy and to the rule of law.

Practical actions and outcomes from The Council's work in this area may include bottom-up standards, professional guidelines and codes of ethics that prioritize societal, cultural and environmental considerations equally with functionality and speed to market. Art and design will explore the immense potential and applicability of autonomous and intelligent technologies, while also making its impact on broader societal groups more understandable. All this could help address the widening gap between the dynamics of rapid technology evolution and the capacity of social and political processes to adopt, in a consensus-building manner, the rules necessary to ensure harmony of technology development and public interest.

Beyond this, we will work to ensure that the process of creation and the products of new technologies themselves will be designed not only to comply with professional rules, but also with the purpose of supporting informed public discourse and informed rule making. In particular, those involved in technology development and deployment should engage to ensure a broader understanding of the impacts the adoption of their products will have on individuals, on societies and on the planet. This form of responsible participant design is at the heart of all The Council's efforts.



2 Reclaim our digital identity in the algorithmic age

Business models based on tracking behavior and using outdated modes of consent are compounded by the appetites of states, industries and agencies for all data that may be gathered. Such widespread surveillance, combined with social-engineering techniques, has eroded trust and can ultimately lead to authoritarianism and the proliferation of systems that reinforce systemic biases rather than correct them. The Council is actively working against this paradigm - in which people have no agency over their identity and their data - as being fundamentally at odds with an open and free society.

We, therefore, support proper regulation for collection, access and control of personal data analogous to the European Union's General Data Protection Regulation. We also urge development of initiatives exploring new models for the handling and exchange of personal data such as distributed communities of trust like those evolving with blockchain technology versus centralized control.

Practical actions and outcomes for The Council's work in this area will be to develop paradigms of personal data ecosystems that create "data vaults" for all individuals, wherein people create their own "terms and conditions" that are algorithmically recognized and tied to trusted identity sources. The application of privacy-enhancing cryptographic systems such as zero-knowledge proofs, differential privacy and multi-party computation can also prevent the exploitation of personal information. We aspire toward a future where the intelligence of technical systems expands rather than diminishes community spaces of autonomy and self-determination governed by trusted methodologies and policies regarding the sharing of personal data.

3 Rethink our metrics for success

Although very widely used, concepts of exponential growth and productivity such as the gross domestic product (GDP) index are insufficient to holistically measure societal prosperity. What we measure reflects the paradigm that governs setting goals and measuring success. Current indexes prioritizing short-term gains tend therefore to reinforce economic and societal models of the Industrial Revolution era. Under current circumstances, progress in autonomous and intelligent technologies is likely to further reinforce the dynamics of such short-term returns-oriented systems, thus increasing inequality and social tensions and further concentrating wealth and power among an ever-smaller class of privileged people.

We need, therefore, to develop and use broader metrics that capture the wellbeing of people and of our Earth as our habitat, not as an "externality" of global production chains and markets. These metrics for success must be utilized in the setting of standards, ethical principles and policy that holistically reflect the explicit values and expectations of the communities where metrics are deployed (including developing countries and vulnerable groups worldwide). This will drive technological progress to serve inclusive and sustainable development that increases political autonomy and global democracy.

For this purpose, it is necessary to combine more diverse aspects from economics, ecology, sociology, technology, business and policy in order to define and implement indicators that can be used as global metrics of value and holistic prosperity. During the last decade, the United Nations has engaged, through the pursuit of the Sustainable Development Goals, in such an exercise charging the national statistical offices of every member state with the task of regularly measuring more than one hundred metrics of social and societal wellbeing. There are also other well-established indicators such as the Organization for Economic Cooperation and Development (OECD) Better Life Index or best-in-class thinking on Happiness and Wellbeing Policy as embodied in the first Global Happiness Policy Report.

Practical outcomes for The Council in this area will be to identify, aggregate and highlight these metrics and indicators, define new ones where needed, and support their operationalization by national statistical offices along with regional and national policy bodies around the world.