Editorial

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Editors

Listening to numerous public voices today creates the impression that artificial intelligence is everywhere, and that it will continue to dominate our lives beyond anything before. Given the seemingly unlimited potential of computational tools, it is hardly astonishing that their usage has become advertised without measure for almost all areas of public life. Medical services can no longer be imagined without computer-aided or computer-driven techniques of both diagnosis and therapy. Pharma corporations design molecules computationally before they get tested in lab experiments and in preclinical and clinical trials. The fraction of global population that owe their lives to the rapid progress of these techniques increases day by day.

Administrations in practically all sectors of public concern (including health care) are claimed to become more effective, straightforward and less cumbersome with digital data management. However, this can mean many different things. Fast information transfer between medical practices and hospitals often is to the advantage of patients in need of fast attendance. But the horizon of expectation also includes controversial visions from personalized insurance policies to computer-determined selection for transplantation or treatment. During the covid pandemic, the notion of “triage”, referring to the decision who receives artificial ventilation and who doesn’t, made a disconcerting career in public awareness. The delegation of such decisions to artificial decision-makers seems uncanny, at best.

Moreover, administrative actions often acquire the pejorative undertone of “bureaucracy” when they are performed in an overly rigid fashion. The algorithmic nature of digital tools implies that they work as rigid as possible, without the room for flexibility that would give them a human face. Anecdotes about such situations have become so common that they look like accepted, almost normal irritations in an otherwise functioning world. Who hasn’t experienced that the person on the other side of the counter does not apologize for mistakes but shifts responsibility to “the system”? And that it can get pretty complicated to fix the mistakes “the system” made, because it has been set up so untransparent that even the experts (human experts) find it hard to trace down where and how to intervene?

A particularly important area that is becoming infected by digitalization is education, at all levels from preschool to universities. Why particularly important? Because education is decisive for the growth and
development of the younger members of the human race who will be in charge of its future when those who are responsible for its present state are long dead. While there is much excitement about computer-assisted teaching today, there are critical voices too. Manfred Spitzer’s provocative book *Digital Dementia* sketches a number of psychological and biological malfunctions and impairments that humans, in particular young ones, acquire due to excessive usage of digital tools, not only in computer games and so-called “social media” (where the term “social” couldn’t be more inadequate) but also in school education.

The English word “education” covers two meanings that German language, for instance, distinguishes as “Bildung” and “Ausbildung”. The latter addresses the acquisition of facts and skills of using them whose certification may be conditional for a career in some selected profession. The success of this kind of education can usually be verified by examinations and assessments. Augmenting such education digitally helps to access existing knowledge to a degree that has never been seen before. But is this all we mean when we speak of education? Would we perceive someone who knows all the facts (and lets everyone know that he knows them) as an educated person?

Education as “Bildung” is deeper and more comprehensive than education as “Ausbildung”. A well known guideline in experimental science says that nature gives answers to every question we pose to it (in an experiment, say), but it does not prescribe which questions to ask. In this picture, factual knowledge, which can be extremely efficiently provided by artificial intelligence, is the route toward answering questions, not toward raising them. The quality of all research depends decisively on good questions that open up interesting options to be tested. Insight and understanding do not arise just from known facts. Raising a good question is a measure of being human, which no artificial intelligence will be capable of yielding.

In the early 17th century, Francis Bacon coined the slogan that “knowledge is power” (*scientia potestas est*) in his *Novum Organon*. This may have been a groundbreaking insight at the beginning age of enlightenment. However, Bacon’s knowledge has gradually slipped into a form of knowledge that expresses a social-political gradient between those who are in power (often without much legitimation) and those who are not (often without their own fault). Knowledge for power is factual knowledge that one can possess at one’s disposal and that can be learned mechanically, with no deep insight or true understanding.

By contrast, another form of knowledge is of a different kind: knowledge for orientation. It provides a compass for judgment and action that cannot be derived from facts alone, a compass that gives our lives direction. The philosopher Peter Bieri addressed this in a graduation speech at Bern in 2005 as a form of education as “Bildung”. With the ques-
What Would It Be Like to Be Educated? he highlighted a topic that many opinion leaders of digital artificial intelligence would find utterly anachronistic. While education as “Ausbildung” has the goal for us to master a number of skills to perform, education as “Bildung” has the goal for us to become someone, to develop self-determination and freedom. Education as “Bildung” facilitates the great Greek poet Pindar’s succinct demand to “become who you are”!

Digitalization and artificial intelligence, in whatever form, do arguably not point us toward an appropriate direction of achieving this. Nevertheless, artificial intelligence and information technology are here to stay and continue to promise benefits for humanity. But the only way to focus in on its benefits and minimize its risks is to be alertly aware of the distinction, sometimes subtle and always difficult, between two sides of the coin: digital tools that are beneficial and helpful for the future trajectory of humankind on one side and, on the other, lightweight and shortsighted applications that political and public propaganda palms off on us to “make life easier” (or to show off with foolish gimmicks that are as superficial as unsubstantial). This Janus-faced situation entails a call for distinction: to confine the hysteria of artificial digital intelligence and carefully bethink its benefits.

This is the theme that Carlos Montemayor develops in his recent monograph The Prospect of a Humanitarian Artificial Intelligence, and the present issue of Mind and Matter begins with a precis – at the same time an appetizer – of this book by its author. Its key motif is what the author calls “our drive to live a dignified life”, very much in line with what Pindar and Bieri recommend. Montemayor first reminds us that the threats and benefits of artificial intelligence (AI) cannot be properly distinguished if the central notions involved are confused. So part of his book is about clarifying such confusions.

This project begins with an in-depth discussion of the differences between (artificial and human or animal) intelligence and consciousness, from psychological and philosophical perspectives. A crucial distinction between both is this: While intelligence usually is considered public and contrastive, consciousness is deeply subjective and private. In addition, the concept of attention is at the core of this distinction: attention as an (a) autonomous faculty of an agent that (b) interacts with its environment in order to (c) satisfy its own needs. An AI lacking one of these three points might perform as if it were human (Searle’s notion of weak AI), but it wouldn’t in fact be human (Searle’s strong AI).

The second part of the precis is concerned with what AI engineers can learn from such philosophical and psychological deliberation as well as, conversely, what progress in AI may teach us about our own minds. Neural networks are not programmed as conventional Turing machines, they do not learn task by task, detail by detail. Rather, they learn without
explicit instructions through reinforcement strategies, much like humans learn without consciously or voluntarily following preset rules. In this spirit, it appears misleading to “engineer” potential ways out of conflict as in step-by-step user manuals. By contrast, we need strategies that reconcile basic rules with the freedom necessary to allow for variation and diversity – definitely cornerstones of human dignity.

The article by Audrey Borowski looks at AI through the philosophical anthropology of the 20th century scholar Hans Blumenberg and his critical stance on engineering and technology. Other than his peers, such as Martin Heidegger and Edmund Husserl, Blumenberg fully appreciates the great benefits that science and engineering produced and continue to produce. But he criticizes the mindset that – imprudently – went along with this progress: an unquestioned belief in the overarching power of the rational-intellectual method. Blumenberg sees a mythical side in Husserl’s concept of the “life-world”, which he relates to a non-conceptual, non-propositional mental attitude that emphatically accounts for the contingent, the unpredictable, the uncontrollable, the unstable, and the ultimately ineffable.\footnote{See Husserl’s famous \textit{Crisis of the European Sciences and Transcendental Phenomenology} (transl. by D. Carr, Northwestern University Press, Evanston 1989), based on lectures at the Universities of Prague and Vienna in 1934 and 1935. Part I of Husserl’s opus addresses “The Crisis of the Sciences as Expression of the Radical Life-Crisis of European Humanity”. A predecessor of Husserl’s approach is Weber’s \textit{Science as Vocation} (transl. by R. Livingstone, Hackett, Indianapolis 2004), based on a lecture at the University of Munich in 1917, in which the author expressed his concerns about overly scientistic trends of rationalization and intellectualization, and hence disenchantment, of the life-world.}

Under the pressure of an ever-growing trend toward social, political, and environmental instabilities and crises that we witness today, it is obviously insane to look away and shirk the need of facing them explicitly. Yet the traditional strategy of trying to fix the contingent and to stabilize the unstable using techniques that actually produced them must be recognized as questionable, sometimes perhaps even detrimental. As the scientist and humanist Albert Einstein expressed it more than 70 years ago, we won’t be able to resolve the significant problems of our times at the same level of awareness we were at when we created them.

Future technical gadgets, most of which are inconceivable without more or less sophisticated versions of AI, may not provide the optimal way to revise and correct technical disasters of the past. By contrast, Blumenberg proposes pensiveness and the “art of detour” as tools of choice to cultivate the reflexiveness and criticality that offer flexible and resilient constructs appropriate for a truly humane interaction of humans with one another and their environment. Perhaps it is just through an enlightened awareness of instabilities and their potential for creativity and freedom that, paradoxically, problems become solvable whose solution cannot be
secured in principle. Borowski properly refers to a cryptic, yet remarkable quote about so-called “oracle machines” from Alan Turing (1939, pp. 172f):²

Let us suppose that we are supplied with some unspecified means of solving number-theoretic problems; a kind of oracle as it were. We shall not go any further into the nature of this oracle apart from saying that it cannot be a machine.

Markus Lindholm asks us to look more closely at the actual historical developments of human intelligence, which encompasses the evolution of self-consciousness, language, reason, altruism, and the enormous cultural backdrop this all played out against – something that the author calls the “human syndrome”. His article proposes to look at these issues through the lens of embodied cognitive science, the idea that intelligence is not simply realizable in abstract computations carried out by an information-processing system but crucially involves the living body, extended to the whole mind-body system.

The brain is not a sophisticated computer that controls a purely material entity. Instead, it is viewed as an ecological organ, making connections between different aspects of an organic whole. Theoretically, such a re-description should be based on our lived experience. Mind and culture should thereby not be understood as emergent features of a brain working in isolation, but as autonomous agents that play a decisive part in the emergence of corporality as such. This conception is quite different from current approaches in artificial intelligence research.

Lindholm’s article focuses on upright posture and proposes all forms of locomotion as a “psychophysical dance” rather than as a purely physiological function. The variety of embodied cognition endorsed by the author finds a nested evolution from posture to language and from language to reasoning. Even norms and ethical conceptions are said to fit into this scheme of mind-body interplay, which is often induced by culture and has to be maintained by the biological organism. The aim of this paper is not to refute causal explanations in biology, but to embed them in an integrative view that sees mental and bodily functions not as (separated) biological adaptations but as mutually interdependent factors in shaping the evolution of concrete (human) beings.

One philosophical bedrock principle of standard approaches to cognition, including contemporary research into artificial intelligence, is the view that material entities are causally closed against any supposedly non-material events in the world. This idea dominates a variety of views within mind-matter research, according to which mentality can be comprehensively understood as complex computation carried out by a purely

²The quote is from his dissertation, published 1939 as “Systems of Logic Based on Ordinals”, Proceedings of the London Mathematical Society 45, 161–228.
material entity. A few years ago, the author of the present paper, Alin Cucu, together with his the philosopher of science Brian Pitts, published an award-winning essay refuting a commonly-held argument against dualist mind-matter interaction, supposedly based on physical principles.

In the current issue, Cucu looks more closely at the concrete neurophysiological evidence underlying such a claim. The causal closure of the physical has often been proposed as being informed by our best science, as a quasi-empirical, philosophical thesis. The author proposes to fact-check such and similar statements, thereby complementing his earlier work on mind-body interaction. Perhaps surprisingly, he finds that research on the brain basis of volitional action has not identified a physical cause of volition so far, thus suggesting to revisit the assumption that material systems are in fact causally closed.

What is more, any plausible mechanism would likely entail energy non-conservation – which would amount to a contradiction of one of the main arguments in favor of physicalism. The author’s favorite alternative is interactive mind-matter (substance) dualism, which he proposes as the most parsimonious, robust option to make sense of this situation. Incidentally, his arguments against physicalism do not exclude other non-physicalist theories of the mind-matter relation, such as – perhaps – panpsychism or neutral monism.

The final publication in this issue is an obituary for Michael Turvey by Scott Jordan. Michael was one of the most successful and prominent representatives of ecological psychology, following the ideas of J.J. Gibson. In his masterful studies of how affordances underlie relations between subjects and their environment, called action-perception-cycles, he established profound links between experimental observations and the theoretical framework of nonlinear dynamical systems.

Michael Turvey’s creative mind also explored new vistas, for instance connections between ecological psychology and new approaches in quantum cognition, as documented in a paper he published in Mind and Matter in 2015. The Society for Mind-Matter Research awarded his rich and deep lifework with the Mind-Matter Prize of 2023. His legacy at the Center for the Ecological Study of Perception and Action (University of Connecticut) is now in the hands of his successor Jay Dixon.