

ter und schmerzliche Scham für den Menschen. Diese Abwertung des jetzigen Menschseins findet sich auch bei den transhumanistischen Utopien und – Überraschung! – auch bei Sartre mit seiner Ansicht, dass die Existenz der Essenz vorausgehe, der Mensch nichts anderes sei als wozu er sich macht. Transhumanisten wie Bostrom gehen jedoch weiter, indem sie eine Zukunft imaginieren, die nicht mehr die Zukunft von Menschen ist, sondern von Wesen, die einmal Menschen waren. Für den Transhumanismus jedoch ist nicht das (politische) Handeln wichtig, wie bei Sartre, sondern das technische Herstellen, das zu einem Gewinn an Authentizität führe, die (unpolitische) Optimierung des individuellen Erlebnisraumes, auch mit der Abschaffung der Endlichkeit.

Karen Kastenhofer und Helge Torgersen geben die Technikfolgenabschätzung und Innovation (RRI), sich mit den Visionen, wie *Converging Technologies* oder *Neuroenhancement*, kurz *NBIC-Technologien* (Nano, Bio, Info, Cogno) auseinanderzusetzen, während ihr klassisches Thema war, sozio-technische Innovationen im Stadium der Realisierung kritisch zu bewerten. Es geht für die Technikfolgenabschätzung dabei auch um Szenarien für die öffentliche Beteiligung, mit dem Ziel einer frühen Intervention in Innovationspfade durch das Aufzeigen von Risiken, Erfordernissen zur Beforschung gesellschaftlicher Herausforderungen und ethischen Ansprüchen. Dies wird hier anhand des aktuellen Projekts *Mobilization and Mutual Learning Activity (MML) – Neuro-Enhancement: Responsible Research and Innovation (NERRI)* für einen Umgang mit transhumanistischen Visionen exemplarisch aufgezeigt. Neuroenhancement befasst sich mit vielen unterschiedlichen technologischen (meist physikalischen oder biochemischen) Interventionen in das Zentralnervensystem. Es zeigt

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sich, dass schon die Definitionen von Unklarheiten und Uneindeutigkeiten geprägt sind, dass weder die technologischen Mittel noch die Akteurszusammenhänge oder Anwendungssituationen spezifiziert sind, sondern dass Neuroenhancement auf einen (postulierten) Wirkungsaspekt oder auch ein (potenzielles) Handlungsziel fokussiert. Weiter wird offenbar, wie abhängig von diversen Bedingungen die TA-Ergebnisse sind, so von der Wahl der Expertengruppe, oder dem Diskurszusammenhang, sodass es sein kann, dass Neuroenhancement-Begriff, -Diskurs und -Experten selbstreferenziell bleiben, oder noch problematischer, durch einen unbeabsichtigten ‚Realitätseffekt‘ zu Verstärkern von technologischen Hypes, zum Realitätsschein spekulativer Visionen geraten, und so weitere Förderströme in diese technologischen Innovationenfelder auslösen. TA also greift zwar ein, doch hat sie die Interpretation selbst letztlich nicht in der Text auf, welche tiefgreifende unterliegende Technik- und Wissenschaftsverständnis hat. Es kann durchaus als krisenhaft angesehen werden und bedarf daher dringend der Explikation und Diskussion.

Wir hoffen, der *FifF-Community* mit diesem Themenheft zahlreiche Impulse und Gesprächseinstiege anzubieten, und wünschen uns, dass diese aufgegriffen und weitergeführt werden. Transhumanismus wird uns Informatiker:innen in Zukunft noch intensiv beschäftigen.

In diesem Sinne einen guten Einstieg und viel Lesevergnügen wünschen

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James J. Hughes, Zoltan Istvan, Stefan Lorenz Sorgner

Expectations and Apprehensions on Transhumanism

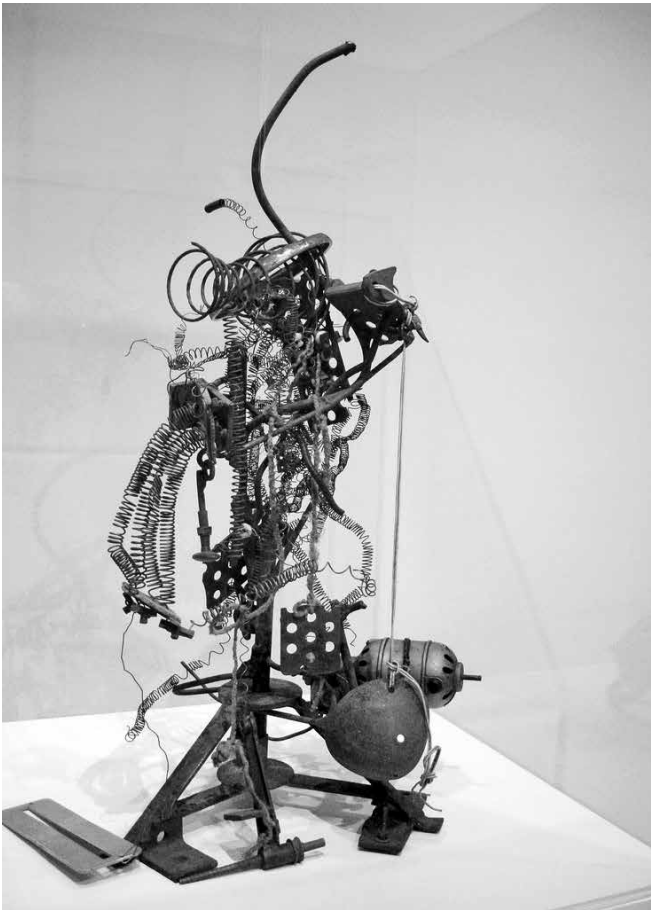
As a luscious introduction to the subject of our special issue, the editors interviewed three heavyweights of the transhumanism scene: James J. Hughes from the Institute for Ethics and Emerging Technologies in Boston, the 2016 US Presidential candidate of the Transhumanist Party, Zoltan Istvan, and the philosopher Stefan L. Sorgner from John Cabot University in Rome.

FifF: *One popular thought of transhumanism is that people will eventually be able to upload themselves into the virtual world, where they will live forever after. The technical effort involved in achieving this would be tremendous, however, and right now it appears questionable whether it will be possible at all. But wouldn't it be much smarter and much less time-consuming for supporters of this vision to simply reprogram their own minds, for example, by consciously and purposefully converting to Buddhism and then approaching immortality via the concept of reincarnation? Several other world religions offer a direct path to eternal life. So why take the long way through technology?*

James J. Hughes: Reincarnation and spiritual life after death are false promises. The only way to extend one's consciousness is through technological enhancement and transcendence of the brain. However your question reveals a misconception about religion in general, and Buddhism in particular. Religion in general

offers immortality with or without belief. You just get to enjoy life-after-death more if you are "saved". Buddhism in particular precisely denies that "you" actually survive moment-to-moment, much less life-to-life. For Buddhists, the goal is transcending the illusion of a continuous self, an illusion increasingly revealed by neuroscience as well. The real transhumanist dilemma is not how to upload the brain and preserve a continuous sense of personal identity, but what to do with the eroding conviction that there is any authentic personal identity to preserve.

Zoltan Istvan: Most transhumanists are atheists or agnostic, so they don't believe in concepts like reincarnation or heaven. They think – like the evidence shows – that their bodies (and minds in their brains) disintegrate after death. Transhumanists believe the only way to achieve an indefinite lifespan is via multiple scientific ways. Some of those ways are through replacing organs with robotic ones (most people die from organ failure), stem cell



Jean Tinguely – *The Sorceress*
Foto: Roberto C. Madruga, CC BY-NC-ND 2.0

technology, genetic editing, cryonics, and mind uploading. Mind uploading is definitely the most complicated one yet. However, with advances in telepathy recently and brain wave technology, we may still be able to accomplish some form of it in twenty years or less. Mind uploading is the holy grail of transhumanism, since many transhumanists, like myself, would like to become machines.

Stefan Lorenz Sorgner: Is reprogramming our minds necessarily much easier to realize than mind-uploading? Would it be smart to decide to convince yourself of something by means of technology in which you currently do not believe? I am not a utilitarian but in this respect I do agree with John Stuart Mill: It is “better to be Socrates dissatisfied than a fool satisfied.” I am not claiming that this is a generally valid judgement; yet, it is one I subscribe to. Working on cyborg technologies and both digital as well as mechanical brain computer interfaces and AI, on the other hand, permanently provides us with new options, capacities and insights, which help us leading more fulfilled lives, living longer and having a greater variety of lifestyle choices. The speed of progress in this area has been enormous during most recent decades. Will changes occur at the same speed in the future? We have reasons for holding this claim, but no certainty, of course. However, even if the speed of advancement was to slow down, we would still have the benefits associated with the latest technological developments.

In any case, more important in this respect is that most transhumanists hold a naturalist anthropology. An eternal life in an immaterial realm or any other type of personal immortality is

not a plausible option on that basis. Given a naturalist world, I do not think immortality can even be conceptualized in a plausible manner. How should we be able to survive the process, if the entire universe was to collapse into a point of enormous density? Nevertheless, it does make sense to use the word “immortality” as a rhetorical device, as it is associated with a lot of intense emotions. Using this word is a way of making people aware of what we can plausibly achieve by means of technologies, namely a radical extension of our health span, and this is a goal which is being affirmed by most human beings worldwide.

Fiff: *Suppose man were to succeed in uploading his/her own self. Do you believe this would most likely rather be a privilege for the rich, or isn't it ultimately actually a sham package: A virtual container for the poor which seduces the masses to transit into the virtual world, freeing up huge world regions for exploitation of precious mineral deposits?*

James J. Hughes: Inequality of access to uploading and to virtual quality of life will likely be a social justice issue in the future. Like all social justice issues the appropriate response to uploading inequality is to fight for equal access. The poor and unemployed may drown their miseries in television and the Internet, but equal access to the Internet is still a legitimate social justice claim.

Zoltan Istvan: I think this technology would be made available to everyone, like cell phones. As a US Presidential candidate, I would insist in creating policies where mind uploading and other life extension techniques are available to everyone, including possibly paid for via grants from the government.

Stefan Lorenz Sorgner: Why should you exploit precious material deposits, if the masses had been uploaded in a material container? You do not normally maximize your financial gain, if you sell products to a small group of customers only. Microsoft, Apple, Facebook and Google are successful, because almost everyone is using their products. However, your question does address one of the most central issues which need to be dealt with when reflecting on the impact of emerging technologies, e.g. the social, political and economic consequences and the danger of ending up in a *Brave New World* or more likely in a *Gattaca*-like world. And yes, there is the possibility that the rich will mainly benefit from such a development. However, it is important to realize that this is not a necessary development. Moreover, it is central to keep in mind that the process of privileging the rich is not a challenge related solely to technological advances, but to most other types of development, too. Technologies merely represent a means for achieving certain ends. In many instances, the same ends which are being targeted by advanced technologies can be achieved by less advanced means, too, e.g. both education as well as certain drugs aim at increasing our cognitive capacities. However, through the use of more traditional procedures progress occurs in many cases in a less efficient way.

The central question for dealing with the issue of the danger of a nontransparent multi class society is the following: Who is in charge of making decisions concerning the use of technologies? This question, however, is a political question. It is independent of the development of emerging technologies. By taking seriously and reflecting upon the challenges related to emerging technologies, transhumanists are at the forefront of addressing these questions.

An awareness of the latest developments and a public exchange on these issues is the best means for preventing the coming about of political structures which are not in our interest.

Fiff: *The improvement of man through technical means raises numerous questions and issues that need to be reevaluated. These are also discussed in this special issue. What are your recommendations specifically for people working in computer science in terms of behavioral guidelines for them as conscientious professionals? Are there any reference systems we might use to extract appropriate criteria?*

James J. Hughes: Professionals and scientists do not have special ethical obligations to pursue or curtail their occupations. That is a myth perpetuated by professionals who want special autonomy from social accountability. Every citizen – including every professional – has an obligation to engage in democracy, and in regards emerging technologies, to work to ensure that technologies are as safe and equitably accessible as possible within democratic accountability. To give an example, it is not the particular responsibility of individual reproductive medicine providers to decide which fertility treatments or prenatal testing options they should offer. They should offer all options determined to be safe and legal, and their individual professional responsibility is avoid conflicts of interest, to ensure patients have informed consent, and to provide their services as well as they can. It is the responsibility of democratic government to determine which technological options are safe and legal, and the responsibility of citizens to participate in that governance.

Zoltan Istvan: Yes, the newly crafted *Transhumanist Bill of Rights*¹ should be considered carefully. And so should the politically centric platform² of the Transhumanist Party. These are very broad, humanitarian policies and points of views that should be considered by those working on the technology for the future and for society.

Stefan Lorenz Sorgner: You are right. Technological advances go along both with an increase of our quality of life as well as with an increased likelihood of bringing about human extinction, if the respective technologies are being used by the wrong kind of human beings. How can we prevent these from developing the capacities to or coming into the position of being able to use the respective emerging technologies? Recently, scholars suggested the use of moral bioenhancement for dealing with this issue. However, I do not think that technologically we are in a state yet of seriously considering this option. Does this mean we are doomed? I do not think so.

In *The Better Angels of our Nature* Steven Pinker has convincingly shown that there has been a significant moral progress over the course of human history. It might even be the case that the likelihood of us acting morally gets increased through the enhancement of our cognitive capacities. If we combine the Flynn-effect which has revealed an increase of intelligence during the 20th century with Pinker's insights, then there are reasons for regarding such a judgment as plausible. The judgement does not imply that there is a necessary link between cognitive capacities and morality, but that there is at least a likely correlation between these faculties. If this insight applies, we have reasons for holding that it is highly likely that a great percentage of well-educated

experts in the computer sciences are not immoral human beings. Hereby, I identify morality with freedom, equality and solidarity. If someone affirms these basic norms and has high capacities within her field, then excellent preconditions are given for the person also being a conscientious professional.

Recently, Google's artificially intelligent Go-playing computer system had defeated the Korean grandmaster Lee Sedol which was a big surprise, as it was not expected that AI related capacities had already progressed so far. Maybe, by drawing upon big data, world literature on ethics, and sociological and psychological studies concerning morality from all parts of the world, a moral algorithm could be developed by AI. I am uncertain whether it would make moral suggestions to which we could hold on, but I would at least be curious to see what an AI generated moral algorithm would suggest and what it would look like.

Fiff: *Can you describe a range of topics that responsible transhumanism researchers should focus on? Can you identify issues where critical computer scientists should offer resistance?*

James J. Hughes: Again, while critical computer scientists may decide that as responsible citizens they should abstain from some lines of research, individual resistance is not an answer to the challenges we face from emerging technologies. There will always be scientists with no ethical reservations about fraudulent, exploitative, military and even catastrophic lines of research. The responsibility of a critical computer scientist is to engage as an informed citizen in the debate over the governance of technology. There are myriad emerging information technology governance issues that concern the transhumanist community, from the security of personal electronic devices to the prevention of run-away artificial general intelligence. For transhumanism as a human enhancement movement, however, most of the focus is on biology and neuroscience rather than information technology.

Zoltan Istvan: Transhumanist researchers should focus on topics that advance technology to live longer. This is the main goal of transhumanists, to overcome death. We can worry about many other things later, like social equality, ending wars, and ending poverty. But first we must strive to create technologies that stop the world's greatest killers: aging and disease. Computer scientists should be careful not to launch a fully independent artificial intelligence without massive oversight. The world simply does not need an entity that can quickly become much smarter than humans.

Stefan Lorenz Sorgner: As a consequence of CRISPR/Cas9, the area of genetic modification has turned into a field with an enormous potential. Given that genetic modification and traditional education are structurally analogous processes, and I have argued in favor of this insight in many of my publications, then there are even reasons for holding that genetic modification technologies can be seen as a central element concerning the future of parental education, and education is a fundamental issue when dealing with moral challenges. It is no coincidence that many central passages of Plato's Republic deal with the issue of education.

A further element concerning the future of parental education is the use of gene analysis. The *Human Genome Project* was

completed in 2003. In the meantime, we are in a position of getting a lot of specific further gene related information by combining gene analysis with Big Gene Data, and many citizens in particular of the US, Ireland and Island are volunteering in having their genes analyzed. As a consequence, more and more correlations between genes and capacities, traits, diseases and responses to drugs are being revealed. This knowledge can be of invaluable importance both for our own lives but also for parents during the process of education. However, this field of research is also connected to potentially highly problematic developments. The Kuwait government has announced that they will make it obligatory for all residents to enter their DNA into a governmental database. Here the following needs to be considered: if something is digitally available, it is already publicly available. Furthermore, the issue of bioprivacy needs to be taken seriously. It is a particularly tricky issue, because we are sharing most of our genes with our siblings, which is the reason why bioprivacy is not simply a subcategory of the category privacy. Given such a database, there are many people and organizations who would be interested in the information it contains. Hackers might be able to get hold of this information which is of enormous interest not only for oneself, but also for one's future employer or an insurance agency. The power of a gene analysis (due to the fact that it is being supported by Big Gene Analysis) can hardly be underestimated. I am convinced that it will have radical implications for the future of our society.

Given these reflections, I think that computer scientists should be strongly reluctant to participate in any kind of activity which provides institutions with the power to bring about totalitarian and paternalistic structures. The internet panopticon which already exists seems like an invitation for turning our liberal systems into totalitarian ones. It is this potential which I regard as a serious danger for human flourishing.

FifF: *How will the "engineered human" affect the individual itself? What evidence is there regarding the effects of technical manipulation and extension on the personality structure, identity, character or temperament of individuals?*

James J. Hughes: Neuroscience is already eroding the illusory solidity of the continuous, discrete self. Emerging neurotechnologies will accelerate the process, and the need to develop a new legal, political and philosophical understanding of the relationship of the individual and society. Some of the questions we already face are: How culpable is an individual given that their neurology determines their behavior? Should individuals be allowed to change their own memories and desires? Should personality reconstruction replace criminal punishment and rehabilitation? If individuals copy their personalities into computers who owns their stuff? If twenty people merge their personalities do they get one vote or twenty votes? Fun times ahead.

Zoltan Istvan: The engineered human will affect the individual greatly. However, that is part of why it's such a great thing to do. Cranial implants, for example, may connect us all in a sort of hive mind, and this might lead to much less violence in society. It might usher in an unprecedented era of empathy, respect, and love.

I suspect we will view ourselves very differently in 100 years – we will see ourselves as a species that can daily change our form and mindset. Genetic editing and mind uploading will make sure totally different than we are now.

Stefan Lorenz Sorgner: Human beings have always been engineered. Why should the future use of new technologies bring about significant alterations concerning our human self-understanding concerning personality, identity, and character? We have always used technologies in order to make our lives more fulfilling and hence in some way better. Does it make a difference whether the technology we are using is education, or genetic modification? The changes which were brought about by means of technologies have always been both irreversible as well as reversible ones. Even the use of genetic modification is not a radically new technology. Epigenetic researchers have found out that by means of stress, education and nutrition, it has always been the case that genes were turned off or on or that the relationship between genes was altered. Hence, it can be said that education has always been related to genetic alterations. What is different now is that we are getting more efficient in understanding and using these technologies, so that we can employ them such that they function in our interest. Yet, unless mind-uploading can be realized, I do not expect that significant alterations concerning our self-understanding can be noted with respect to us being engineered beings.

A much more significant impact concerning our self-understanding is related to the cultural paradigm shift which has occurred during the previous centuries. We used to believe that we consist of an immaterial mind and a material body. This view, however, is no longer the most plausible anthropology. It is this cultural paradigm shift which has not even been recognized appropriately in most legal systems. The former understanding might still count as the dominant one in many encrusted cultural structures.

FifF: *What is your personal approach towards technical improvement of your body, and what would be your advice for your children or your mother-in-law?*

James J. Hughes: I exercise every day, fast several times a week, and eat a low carbohydrate diet, and I would recommend those practices for everyone.

Zoltan Istvan: My personal approach is to eat well (not too much meat or fat) and to work out every day. To children – which I have two of – I have little advice. Their entire world's in 20 years will be based on brain implant technology. They'll be able to upload how to play the piano and will also have chips installed that do second language translation on demand. The future for children is amazing – and their lives will be very different from ours. I wonder if any brick and mortar colleges will even exist as education facilities. They might only exist for research.

Stefan Lorenz Sorgner: I think human beings are permanently in the process of overcoming themselves. Obviously, some are more efficient than others in this respect, and some are more active than others. I am trying my best to permanently challenge myself, and work on my goals which keeps me in a process of

permanent motion, as my goals are no permanent goals but flexible ones which demand that they get adapted on a regular basis. I am also drawing on whatever technologies are necessary for realizing these aims which I see as contingent nodal points. What is central for my own approach is the focus on my own concept of perfection which is related to my psychophysiology. My nodal points ought to be related to my idiosyncratic psychophysiology, and should not be such that they are the result of encrusted totalitarian and paternalistic structures. It can be a difficult task to keep authenticity separate from pseudo-authenticity. However, this is what I regard as necessary for best promoting my own quality of life. As I hold that there is a radical plurality of concepts of perfection and that no universally valid, non-formal judgment concerning the good life is possible, the best advice I can give to anyone is to listen to your very own

needs, desires and wishes in order to make sure that your very own psychophysiology manages to unfold itself in the fullest possible manner.

The interview was conducted by Karsten Wendland, Linda Embacher and Stephan Straub. The biographies of the interviewees can be found on p. 17.

Remarks

1 <http://www.transhumanistparty.org/TranshumanistBillOfRights.html>

2 <http://www.transhumanistparty.org/Platform.html>



James "J." Hughes, Zoltan Istvan and Stefan Lorenz Sorgner



James "J." Hughes, Ph.D., is the Executive Director of the *Institute for Ethics and Emerging Technologies*, and the *Associate Provost for Institutional Research, Assessment and Planning* for the University of Massachusetts, Boston. Dr. Hughes is the co-editor of the *Journal of Posthuman Studies* and associate editor of the *Journal of Evolution and Technology*. Dr. Hughes holds a doctorate in sociology from the University of Chicago where he taught bioethics at the *MacLean Center for Clinical Medical Ethics*. Dr. Hughes is a former Buddhist monk, and served as the Executive Director of the *World Transhumanist Association* from 2002-2006. Dr. Hughes is author of *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future*, and is working on a second book tentatively titled *Cyborg Buddha*. Dr. Hughes is a Fellow of the *World Academy of Arts and Sciences*, and serves on the *State of Connecticut Regenerative Medicine Research Advisory Committee*.



Zoltan Istvan is the 2016 US Presidential candidate of the *Transhumanist Party*, a political organization dedicated to putting science, health, and technology at the forefront of American politics. At the age of 21, Zoltan began a solo, multi-year sailing journey around the world. His main cargo was 500 handpicked books, mostly classics. He's explored over 100 countries – many as a journalist for the *National Geographic Channel* – writing, filming, and appearing in dozens of television stories, articles, and webcasts. His work has also been featured by *The New York Times*, *BBC Radio*, *Business Insider*, *The Daily Beast*, *Newsweek*, *CNN*, *Fox News*, *RT*, *the Travel Channel*, and in many other media. Zoltan writes futurist and transhumanist-themed blogs for *The Huffington Post*, *Psychology Today* (*The Transhumanist Philosopher*), and *Vice's Motherboard* (*Transhumanist Future*). He has also written for *Slate*, *Gizmodo*, *Daily Mail*, *Wired UK*, *Singularity Hub*, *The San Francisco Chronicle*, and *Outside*. In addition to his award-winning coverage of the war in Kashmir, he gained worldwide attention for inventing the extreme sport of volcano boarding. Zoltan later became a director for the international conservation group *WildAid*, leading armed patrol units to stop the billion-dollar illegal wildlife trade in Southeast Asia. Back in America, he started various successful businesses, from real estate development to filmmaking to viticulture, joining them under *ZI Ventures*. He is a philosophy and religious studies graduate of *Columbia University* and resides in *San Francisco* with his two daughters and physician wife.



Prof. Dr. **Stefan Lorenz Sorgner** teaches philosophy at *John Cabot University* in Rome and is director and co-founder of the *Beyond Humanism Network*, Fellow at the *Institute for Ethics and Emerging Technologies* (IEET) and Research Fellow at the *Ewha Institute for the Humanities* at *Ewha Womans University* in Seoul. He is author and editor of more than 10 books, e.g. *Menschenwürde nach Nietzsche* (WBG 2010). In addition, he is Editor-in-Chief and Founding Editor (together with J. Hughes) of the "Journal of Posthuman Studies" (a double-blind peer review journal forthcoming with Penn State University Press in 2017). Furthermore, he is in great demand as a speaker in all parts of the world (e.g. TEDx; *World Humanities Forum*) and a regular contact person of national and international journalists and media representatives (e.g. *Die Zeit*): www.sorgner.de