Resolving Conflicts Between **Artificial Intelligence and Ethics**

While AI harbors tremendous potential for African countries, its use can sometimes present different ethical and social challenges than in more industrial nations. A team at the Institute of Ethics in Artificial Intelligence has co-founded a platform that brings African AI experts together – and promotes ethical, sustainable AI development.

Link
www.gov.sot.tum.de/en/wirtschaftsethik
www.ieai.sot.tum.de
www.rainafrica.org

Ghana

Gesamter Artikel (PDF, DE): www.tum.de/faszination-forschung-30

Künstliche Intelligenz und Ethik zusammenbringen

D

Künstliche Intelligenz kann afrikanische Länder entscheidend voranbringen, zum Beispiel in der Landwirtschaft, im Gesundheitswesen oder in der Stadt-planung. Auch die TUM ist über ihr Partnernetzwerk in Afrika an vielen KI-Projekten beteiligt. Dort spielen nachhaltige und ethische Aspekte in der KI-Entwicklung eine viel stärkere Rolle als in Europa oder den USA. Ein Team des TUM Institute of Ethics in Artificial Intelligence (IEAI) hat eine Plattform mitgegründet, die afrikanische KI-Experten vernetzt und eine ethische und nachhaltige KI-Entwicklung fördert. □

When we think about Africa, artificial intelligence is unlikely to be the first thing to spring to mind. And yet, AI is a topic of huge importance on the African continent. One reason is that the technology does not require heavy industrial infrastructure or conventional factories and is not necessarily capital-intensive to develop.

A more important factor, however, is that AI enables African countries to take steps forward in their development that that would otherwise not be possible. Take agriculture, for example – a crucial sector for the continent – where AI can help farmers to optimize fertilization and irrigation processes. In urban development, AI-based Earth observation systems can identify and support the planning for informal settlements (commonly known as slums). And, in the healthcare sector, AI can help to improve the medical situation for rural populations.

Many African researchers and scientists are cooperating with European institutions. TUM is no exception, having established an extensive partner network in Africa and participating in many AI-related and other projects. Through this work, it has become apparent that, in addition to technological issues, aspects surrounding sustainability and ethics have an important role to play in Africa – possibly far more so than in Europe or the USA.

"Responsible AI" is a high priority in African countries, and with good reason. For instance, while facilitating the AI-based monitoring of informal settlements may appear a purely technical problem at first glance, the ethical implications can make the entire project appear dubious. If excavators move in on the basis of such data because the government wants to hide the existence of such settlements from the public, the consequences could be grave. The residents would be evicted and forced to find a new place to live.

Prof. Christoph Lütge can recount a series of stories of similarly problematic ethical consequences of AI development projects. Director of the Institute of Ethics in Artificial Intelligence (IEAI) at TUM and co-founder of the Responsible AI Network in Africa, Lütge is convinced that AI will inherently fail to function without ethical considerations – and that such aspects should be taken into consideration when developing AI applications. "We're frequently confronted with similar ethical problems with AI, all around the world," explains Lütge. "So, it's important we tackle these problems not only by working at the local level but also through networking."

Members of TUM IEAI participate in a conference on "Responsible AI and Ethics – A Panacea to Digital Transformation in Sub-Saharan Africa" at KNUST, Ghana. RAIN-Africa co-hosted this event with the KNUST Responsible AI Lab.

Connecting African AI experts

In recent years, the IEAI has established several networks to promote the discussion of ethical challenges related to AI use and prevent social dislocation. One such network, the Responsible AI Network Africa (RAIN-Africa), focuses specifically on African countries. It was founded in 2020 through a partnership between the IEAI and the Faculty of Electrical and Computer Engineering at the Kwame Nkrumah University of Science and Technology in Ghana (KNUST) in Ghana. In addition to Lütge, the other co-founders of RAIN are his colleague Dr. Caitlin Corrigan, TUM doctoral student Laud Ammah, and Prof. Jerry Kponyo from KNUST.

"In RAIN-Africa, we are bringing African AI experts together," explains Caitlin Corrigan, Executive Director at the IEAI. "The platform enables users to jointly discuss and develop projects related to the ethical and social challenges at the interface of technology and human values – and especially with regard to sustainable development."

Specifically, Corrigan organizes events, online workshops and live conferences on the platform – supported by her colleagues at TUM in Munich and at KNUST in Ghana. "This gives scientists and AI experts a platform for exchanging ideas – about ongoing projects and how they're implementing them. They can also find research partners in their fields of work," says Corrigan. The RAIN-Africa project hopes to stimulate international and interdisciplinary cooperation through a series of virtual and in-person workshops.

Professor Mrs. Rita Akosua Dickson, Vice-Chancellor, KNUST speaking at the Responsible AI and Ethics Conference in Kumasi, Ghana.

Putting community benefits first

Fairness is a perennial ethical challenge at the conferences and workshops hosted by the RAIN-Africa platform. "For many people, the central question is whether the benefits of this technology are distributed fairly, justly, or whether only a select few stand to profit," explains Corrigan. "This aspect is decidedly crucial in Africa."

People in the south of the continent in particular draw on a special ethical approach: Ubuntu ethics. Unlike Western ethical concepts, which often have an individualistic focus – such as Kantianism, utilitarianism and virtue ethics – Ubuntu ethics considers the individual as inextricably linked with others and prioritizes the community above the individual. Given the inherent links between the well-being of the individual and their society, the rights of the individual are subordinate to the benefits to society.

This ethical concept has very tangible impacts: "If a community can use a healthcare app, the individual should be willing to disclose their data," says Corrigan. "Data protection is sometimes sacrificed in a Covid tracing app, for instance – but, in return, that app can protect the whole community." As Corrigan explains, this issue has been raised time and again at recent RAIN-Africa conferences – though it has also been the subject of considerable discussion in other countries in the context of the Covid-19 pandemic. ▷
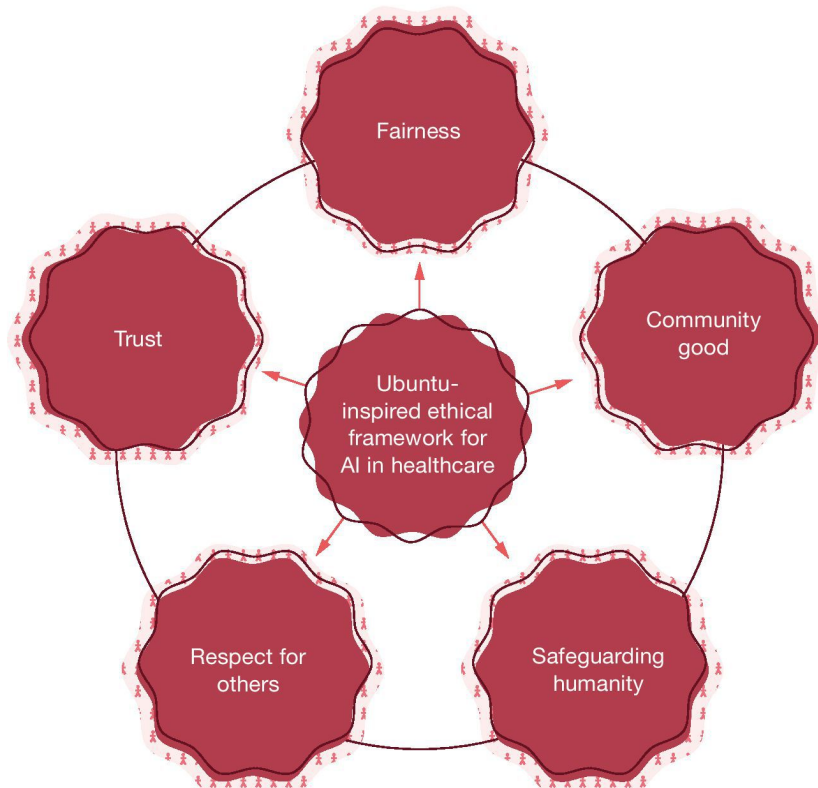
Ubuntu ethics, which emphasizes the interconnectedness and interdependence of all people, provides a promising framework for addressing ethical concerns in AI for healthcare. Researchers at the IEAI, along with partners in Namibia, developed the framework above.

In some cases, speed is also given priority over individual data protection – especially in critical situations. "A discussion point at the latest RAIN-Africa conference was about the 'responsibility' of launching an AI-enabled app in society as quickly as possible, even if it isn't perfect," says Corrigan. Developers from African countries want to help people who might live too far from a hospital or don't have a doctor nearby. It can therefore be important to deploy such apps as quickly as possible and then iteratively refine them. "Socially beneficial applications like this are often associated with the question of how we define 'responsible' and how different ethical concerns could come into conflict. For example, should data processing regulations be given priority over promoting access to healthcare?"

These examples are just a fraction of the entire range of AI-related ethical problems that are discussed in the RAIN-Africa Network with the aim of creating solutions to a variety of challenges related to sustainable development. In all probability, such networks could also yield benefits in other regions, given their potential to bring discussions of AI and ethics together worldwide. ■

Klaus Manhart

Prof. Christoph Lütge

has held the Chair of Business Ethics at TUM since 2010 and has been active as Director of the Institute for Ethics in AI (IEAI) since 2019. He studied business informatics and philosophy, completed his doctorate at TU Braunschweig and earned his habilitation at LMU Munich. Lütge was awarded a Heisenberg Fellowship in 2007 and appointed a Distinguished Visiting Professor by the University of Tokyo in 2020 and has been a guest lecturer at Harvard, Pittsburgh, Taipei, Kyoto and Venice. Moreover, he is a member of the Scientific Committee of the European AI ethics initiative AI4People, and of the German government's Ethics Commission on Automated and Connected Driving. Lütge has been actively engaged in projects in Africa for some time. In March 2023, he traveled extensively in sub-Saharan Africa and visited universities associated with RAIN-Africa in South Africa, Namibia, Cape Verde and Senegal.

Dr. Caitlin Corrigan

has been engaging with issues surrounding sustainable development in Africa for over ten years. She received her doctorate in Public and International Affairs from the University of Pittsburgh. For her doctoral thesis, she focused on the governance of natural resources, specifically in sub-Saharan Africa, including conducting field research in Botswana and South Africa. She was also the Program Development Manager, developing research projects and grant applications, for the University of Pittsburgh's Africa Studies Program. As Executive Director of the IEAI at TUM, Caitlin Corrigan is responsible for developing and coordinating all its research and administrative activities. She also works closely with the institute's director to shape its agenda.