

Friday, March 13, 2020 -

Code Red: This is how Christoph Rensing and Ralf Steinmetz see it.
Weekend – How to handle?

Planning, arrangements for immediate and long-term implementation.

Monday, March 16, -

Shock, announcement: KOM will work from home for at least one to two years.

The pandemic confronted the entire globe with serious challenges and decisions to take. Nevertheless: research and teaching continued. The silver lining: 2020 stressed the importance of many of KOM's research areas, significantly driving progress; Digitization and multimedia communication is everywhere. As tradition has it - here is a brief review of this year's highlights.

The "DFG Collaborative Research Center MAKI - Multi-Mechanism Adaptation for the Future Internet" founded in 2013, was approved for another four years until the end of 2024 for an additional approx. €15 million. This is a milestone success to further advance research on adaptive, flexible communication networks and mechanisms, with significant deployment of personnel and resources. In addition to intensive fundamental research the aim is now to further transfer the Transition concept into industrial practice by three transfer projects with NEC Laboratories, Vodafone GmbH, and Robert Bosch GmbH. Additionally, our transfer project on "Flexibility in Time Sensitive Networking" will be funded from 2020 to 2023.

As part of our long-standing cooperation with Deutsche Telekom we have been working on the disaggregation and virtualization of the landline network and mobile access networks. One of this year's highlights was the Deutsche Telekom Laboratories Day where we presented our project results in a fully functional demonstration setup. Jointly with Deutsche Telekom we also registered several patents. An experimental, fully functional 5G network operated at our chair is now available to further research in this context; highly adaptive system components and protocols will be used.

This year's PhDs are especially proud, virtual disputation or not: Wael Alkhatib, Augusto García-Agúndez, and Thomas Tregel. We also have promising new additions to the team: Jannis Weil and Christoph Gärtner, who both support the MAKI research center as research assistants. Boris Koldehofe is a full professor in Groningen since February 1, 2020, whilst continuing to work at TU Darmstadt. Christoph Rensing is head of the Research and Transfer Department at the TU Darmstadt since April 1, 2020.

We are proud that two new start-ups emerged from our founder-friendly chair, supported by EXIST scholarships: Michelle Martinussen and Lara Wietschorke are both former KOM students. Their start-up beVaiR is working on the release of an exergame that uses virtual reality and music to create a disco-like, playful training environment. The second KOM supported founding project is arryve GmbH. The founders developed a system that uses machine learning to help transport companies recognize ticket refund abuse whilst also further supporting their employees. The KOM start-up Green

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Date
December 2020

Our Signs
RSI/TL/GS

Mobility Solutions GmbH, which emerged out of a cooperation with the buildings department, continues to make progress with Hessen Kapital as new shareholder. Customer acquisition for the parking management of electric charging points and new commercial buildings progressed and the product range was expanded to include bicycle boxes management.

Numerous new projects started in which KOM is significantly involved. Right on January 1, 2020, under the leadership of Matthias Hollick, the LOEWE center "*emergenCITY*" started in its first funding period (approx. €8.5 million) which lasts until the end of 2023. The central research topic "Resilient Infrastructures of Digital Cities" is more current than ever. In addition, a cooperation agreement between *emergenCITY* and the German Aerospace Center (DLR) was concluded to complement each other's research in the long term.

From 2020 to 2023 the research project "*AI for crowd-based platforms: Use of Deep Neural Networks for Process Optimization and Rationalization*" will be funded with €500 thousand as part of Distr@1 - the digitization offensive of the Hessian Ministry for Digital Strategy and Development. Cooperation partners are wer-denkt-was GmbH and KOM.

From December 2019 to March 2020 Ralf Steinmetz, with dedication and commitment, took over the interim management of the Hessian Center for Responsible Digitization (ZEVEDI.de). In the meantime, this interdisciplinary and Hesse-wide center has been gaining ground with two projects on "Data Sovereignty" and "Diffusion of Responsibility".

A therapeutic game for the rehabilitation of stroke patients using a new type of gesture recognition is financed for one year by Accitio through the federal funding of the game association at KOM. With MaibornWolff a serious game on IT security is being realized following the special quality criteria for high-quality serious games, developed in the "*Science and Technology Transfer Serious Games*" project. This year's particularly successful GameDays 2020, which were held entirely virtually, including a virtual showroom and online rally.

The local newspaper Darmstädter Echo published an article about the Corona Survey developed by, among others, Augusto García-Agúndez for better statistical estimation of the COVID-19 case numbers. Furthermore, in cooperation with Digitalstadt Darmstadt and the profile area Internet and Digitization of TU Darmstadt, an animated corona educational video on hygiene regulations was published to inform people with limited knowledge of German.

Anna Filighera, Ralf Kundel, and Tim Steuer successfully passed the tough project- and personnel-selection of Software-Campus-Projects. This is special because young scientists are the sole project manager and, in addition to the technical implementation, are trained and coached to become tomorrow's leaders.

This year, our scientific guests who have been on the ground for some time were Ioannis Stavrakakis (University of Athens) and Christian Oberli (Pontificia Universidad Católica de Chile). Christian is supporting MAKI and *emergenCITY* in weekly virtual sessions, as opposed to monthly in-person visits prior to "Code Red" in March 2020. This exemplifies that close exchange and cooperation are possible without international travel, and that especially within the pandemic we all can learn a lot from each other, on research and teaching.

Our chair was successful in introducing home office operations thanks to optimized technical and social innovations. Within days Frank Jöst and Stephan Tittel set up open-source tools "Mattermost" and "Big Blue Button" to facilitate communication among the team via chat and video conference. Karola Schork-Jakobi organizes daily informal meetings fostering exchange and social life, even without being physically present. The challenge revealed our potential, both human and technological; we see a number of opportunities to apply this virtual setting in years to come. Our annual Kleinwalsertal trip unfortunately needed to adapt as well: We held a virtual event, and, in addition, organized a mystery event in the Darmstadt forest (Waldkunstpfad).

Last but not least, a photo from our retreat in the digital Kleinwalsertal.

If you would like to stay in touch with us throughout the year(s), you will find current scientific publications and information at www.kom.tu-darmstadt.de and twitter.com/kom_tudarmstadt, as well as blog.multimedia-communications.net. Furthermore, we are reachable, as far as allowed, personally and via (self-operated open source) BBB, Zoom, Skype, ... e-mail, WhatsApp, and telephone.

Wishing you a merry Christmas and a successful and healthy 2021!

Yours sincerely,
Ralf Steinmetz

