At the Heart of Everyday Life

Together with her team Oldenburg computer scientist Susanne Boll is developing mobile assistance devices that people actually want to use because they fit well into their daily routines. A portrait

Von Tim Schröder

Susanne Boll arrives just in time, at exactly the same moment as the postman. She has just dropped off her son at kindergarten and her daughter at daycare. "You need to put a new name tag on your postbox, the old one is completely faded," the postman says. "Oh yes, I noticed that. I'll try to have one engraved. But please don't be surprised if it takes a while," she answers. She has bought bread rolls. The sun is shining. She lays the table outside on the terrace for a second breakfast. Yesterday evening she picked a few strawberries from her garden. Now she sprinkles them with vanilla sugar and puts the bowl on the table. "I hope you like them like this?" She's wearing a pink T-shirt and light-coloured trousers. She looks fresh and sporty, even though she must have worked until midnight yesterday.

These days her desk is piling up with assessments for specialist journal articles and reports for the German Federal Ministry of Education and Research. The name on the postbox will have to wait because Susanne Boll's working days are full. She is Professor of Media Informatics and Multimedia Systems at the University of Oldenburg and heads a research group with twelve PhD Students. She serves on the executive board of the OFFIS Institute for Informatics, an affiliated institute of the University of Oldenburg, where she is also Chairwoman for Health. Her area of expertise sounds abstract – Human Centered Design, Multimodality – but her work addresses real everyday life issues. For example Susanne Boll researches how smartphones can help people to stay healthy. "That involves more than just an app," she says. "Today there are hundreds of apps which count your paces while jogging or your calories while eating – and thousands of unhappy people who realise that their apps don't help them at all." Just having a smartphone and an app is not enough if the developers have not understood how to make a mobile health tool that people actually want to use and will use regularly.

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Susanne Boll wants to do things better. Together with her team she is developing software for people who want to change something in their lives, for people with cardiovascular problems who need to drink regularly. Other devices encourage people to move about more often. "It can take a long time for people to establish new, healthier behaviour," says Susanne Boll. "Things need to repeated dozens of times. If a mobile app doesn't fit well into people's daily routines, they stop turning it on."

Some people in informatics only work at the computer. At OFFIS Susanne Boll has set up a workshop with laser cutting machines and an electronics lab where, together with her research group, she builds mobile assistance devices such as the WaterJewel, an LED wristband which reminds people to drink regularly. The wristband has 8 LEDs representing 8 glasses of water. Every time you drink a glass of water you press the armband. The more glasses you drink, the more diodes light up. At the end of the day they should all be lit up. A ninth diode reminds you to drink. It changes colour over the course of two hours to signal without an alarm or hectic blinking that it's time to drink your next glass of water. An LED wristband may look almost trivial compared with a multifunctional smartphone, but a lot of work has gone into it. Susanne Boll and her team are investing a great deal of time in researching how to design technology that people will actually use. It needs to look good and fit in with its environment. A device that sits on the table at home all day, for example, does not need to be as robust as one that goes in your trouser pocket. "Some of my colleagues are amazed when we tell them that you need to ask people on the street what they think," Susanne Boll says. "We have to listen to what people want and not present finished technologies."

Over the last two years she has read a stack of psychology articles that deal primarily with how and when people change their behaviour. Only armed with this knowledge, she says, can she find good solutions. The development of the WaterJewel, for example, was based on research into user behaviour. Of course you can also remind someone to do things via their smartphone. But a wristband is always with you; it's unobtrusive and looks good if you get the design right. Some experts are doubtful about this soft psychological layer between human and computer. For Susanne Boll, however, this "Human Centred Computing" is the key to really good assistance functions. Her research group has plenty of ideas for such things: systems that help people who have had a heart attack with a running programme, or smartphones that help blind people navigate by directing them to go left or right using different vibration signals. There are many channels for communication between humans and technology. Susanne Boll uses these channels creatively – and has made an international name for herself in the process. "We are being approached by more and more young scientists who want to come and work with us. People are taking notice of what we are doing."

Susanne Boll has always been ambitious, a bit of a striver in school, she says, before adding quickly: "But not at other people's expense. I just liked speaking up, sitting at the front, I liked contributing." For her school leaving exams she revised over the Christmas holidays, writing down all the key facts in a notebook. When the teacher started going over the material again in January, she already knew everything. She smiles: "But I wasn't the best in the class – there were two or three others."

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She passed the exams with flying colours. Yet she still didn't know what to do next. Her mathematical talent and technical curiosity came from her father, a doctor of physics and a skilled craftsman. Her mother comes from a farm in Bavaria and was the one who got things done in the family – and the bread winner. "It made a big impact on me. I would have made a good housekeeper. I was good at sewing. The clothes I made were not perfect but they were good enough." At the time Susanne Boll considered training to become a seamstress – with an A in advanced mathematics. Her mother would have liked one of her children to become a doctor, not least because of the prestige it brings. Susanne Boll had three older siblings and none of them had become a doctor. Susanne had no such ambitions either. In the end she went to career counselling with her mother and they suggested she train to become a mathematical-technical assistant. "During my training I learned that some people clock in at seven in the morning and then read the newspaper until half past seven." Quite a culture shock for someone as highly motivated as Susanne.

But she enjoyed the course. She made friends with other trainees, "The 4 Chickens" they called themselves. The four girlfriends still meet up every year. It was with one of them that she decided to study informatics at the University of Darmstadt – the best place for informatics in the Rhein-Main area. "My basic studies period was disillusioning, the exams were difficult, I didn't enjoy it much and I was not particularly good." She only came into her own in during the main studies phase, thanks in part

to her two subsidiary subjects, Sport and English Studies. "English Studies had an Erasmus exchange programme of which very few people took advantage, so I ended up going on a six-month exchange to the University of Surrey in Guildford near London." There, in addition to learning good English she took part in Shakespeare sessions with actors.

While completing her dissertation in Informatics she followed her supervisor, computer scientist Wolfgang Klas, to the University of Ulm. She had specialized in multimedia information systems and the question of how database systems could not only save individual media files but also represent, store and interactively play entire multimedia presentations. It was in Ulm that she met her husband. The couple then followed the professor on to the University of Vienna, where Susanne Boll obtained her doctorate and worked as a post-doctorate researcher. Until 2002, when Hans-Jürgen Appelrath, Professor of Informatics and Chairman of OFFIS, brought her to Oldenburg as an expert on databases and Internet technology for a junior professorship he had had established as a condition for staying on at the university.

The focus of Susanne Boll's work has changed greatly over the past 12 years. And much has changed in her private life too. She has had two children and, after building a house for herself and her family in the city, has deepened her commitment to Oldenburg. Recently she was offered a position at Hamburg University, but Oldenburg University and OFFIS managed to keep her. Susanne Boll decided to stay.

Over breakfast on the terrace she drinks from a mug that says "Zuhause – Oldenburg" [Oldenburg is home]. "I bought it at the tourist information centre when it became clear that I was going to stay." Plastic toys are leaned against the wall of the house. Her children spend the afternoons with a childminder. She takes over at around five o'clock. As her husband works in Hamburg during the week, Susanne Boll takes care of family life on her own apart from weekends. "It's fine," she says. "I like working in the garden, where the children can run around." She plays with them when none of her neighbours' children are there. "As long as it's not Lego." She often continues working after she has put the children to bed. But everything fits together fine, she says.

Susanne Boll does not necessarily see herself as a role model, but she does wish that more women would have the courage to take on both – a job in technology and family. "I don't understand mothers who tell their daughters that they were no good at maths either. That's no way to get girls interested in technology and maths-related subjects." She definitely considers herself an „Emanze" [a women's libber], a woman who knows what it's like to be alone in a group of men and to have to put up with the odd dumb comment. But she persevered – and as a result has done her share of pioneering work. She looks serious when she asks why women still earn less than men, and why there are still so few women in leading positions. "Yes, I'm in favour of the ‚frauenquote' [increasing the proportion of women in management positions] because when women have to be given senior positions it puts pressure on schools and educational institutes to support girls and women. It's a long chain that reaches from school to the workplace."

Susanne Boll has made her own way and has established herself in academia. Sometimes her husband says that they should have had children earlier, rather than wait until their early 40s. "I actually wanted four children. Now we have two and it's good. The children are wonderful, we have no financial worries and my work gives me incredible freedoms." So perhaps she really is a role model for female scientists starting out in their careers after all.
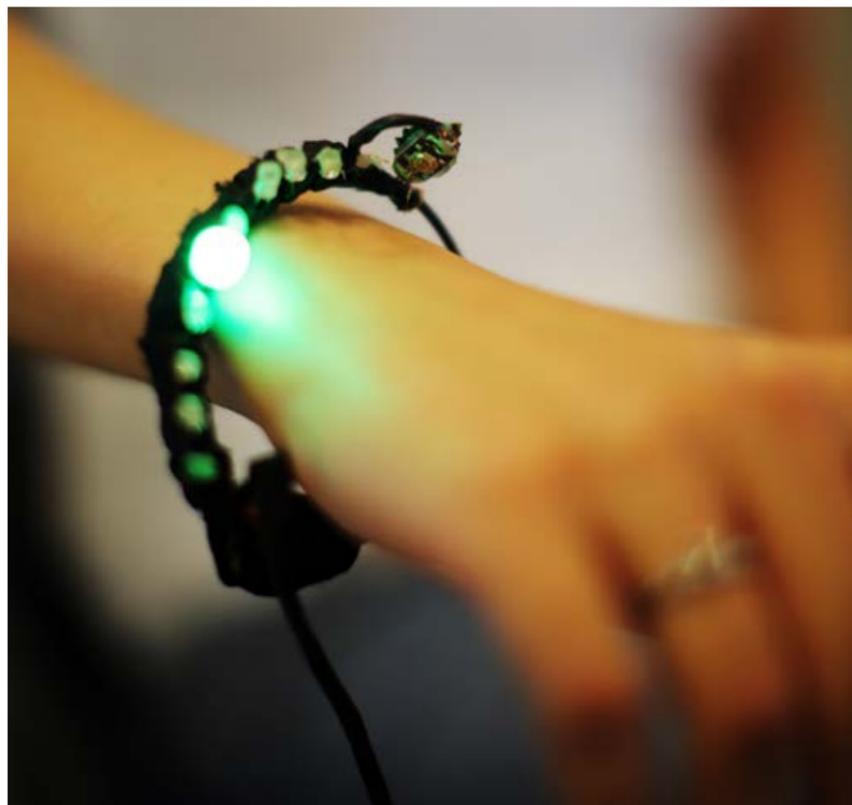
The WaterJewel reminds its wearers to drink regularly.