association-wide, cross-departmental, multi-disciplinary research centre on ICT@KU Leuven
hardware & software, as well as user & legal issues

90+ professors
600+ researchers

Leuven Centre on ICT (LICT)

Data Collection
Devices:
• wearables
• wireless (reconfigurable) radar technology
• smart plate
• pfluidics
• radiation hardened IC’s
• (indoor) localisation technology
(Wireless) communications:
• secure and reliable data transfer
• sensor networks
• wearable antenna’s

Analytics
Technologies:
• AI, Machine Learning, Deep Learning: supervised, unsupervised, semi-supervised, reinforcement or transfer based
• (biomedical) Signal Processing
• statistics, numerical approximation
• bio-informatics
• data-fusion, data-assimilation
• visual analytics
Applications:
• detection, tracking, classification, anomaly detection, trend analysis, decision support, …
• numerical simulation
• (big) data driven modeling
Processing environment:
• embedded processing
• cloud & distributed processing
Types of data:
• wearables, sensors, images/video, acoustic, radar, speech/text, ultrasound, thermal, lab-on-chip
• vital signs, activity, heart & brain signals, digital biomarkers, food intake, omics, …
• complex data-sets: multimodal, multivariate, multi-origin, …

Direction:
• Human-to-Computer: steering, questioning, …
• Computer-to-Human: information, feedback, persuasion, …

Target:
• experts, lay-people
• people with special needs (e.g., elderly, children) or disabilities

Technological concepts
• new, natural/playful interaction paradigms, incl. (intelligent) chatbots
• physical computing
• persuasive system design
• human-oriented design
• personalized & interactive dashboards and recommender systems
• (serious) games

Technologies:
• gamification
• visualisation & recommender techniques
• VR/AR/XR, 3D
• interface technologies: touch, speech, ‘free’ text, gesture, haptic, tangible

Safety, Security, Privacy & Ethics
• dependable, secure and safe HW & SW; incl. EMC
• data related legal & ethical aspects; incl. responsibilities & reliabilities
• data privacy & security technologies
• secure access (incl. biometrics, authentication) and communications
• explainable AI
• blockchain

Some examples
• monitoring of activities (of daily life), FOG, food intake, incontinence, sleep, epileptic seizures, neonatals, … utilizing different types of technology
• interfaces for people with disabilities: e.g., wheelchair based movement games interaction, assistive self-learning speech interface, signal processing for hearing aids, skewees, …
• therapeutic games: e.g., motion based games for people with motor disabilities, dyslexia screening, breastfeeding skill education, elderly activity enhancement, …
• medical text analysis

For more information or if you want to reach out to one of the researchers, please contact:
Greet Bilsen, LICT valorisation coordinator
greet.bilsen@kuleuven.be, +32-16-32 55 28
http://www.kuleuven.be/LICT