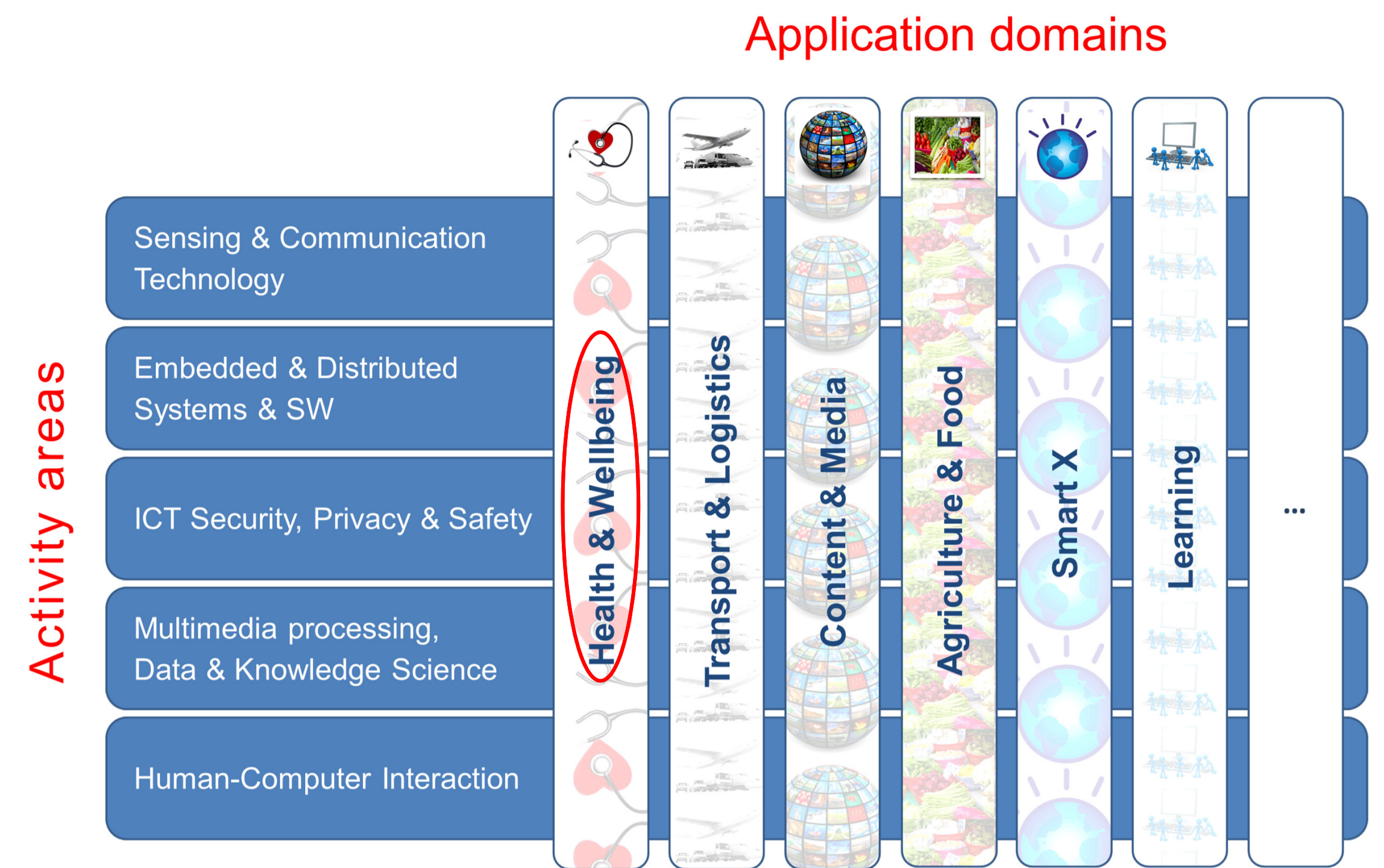
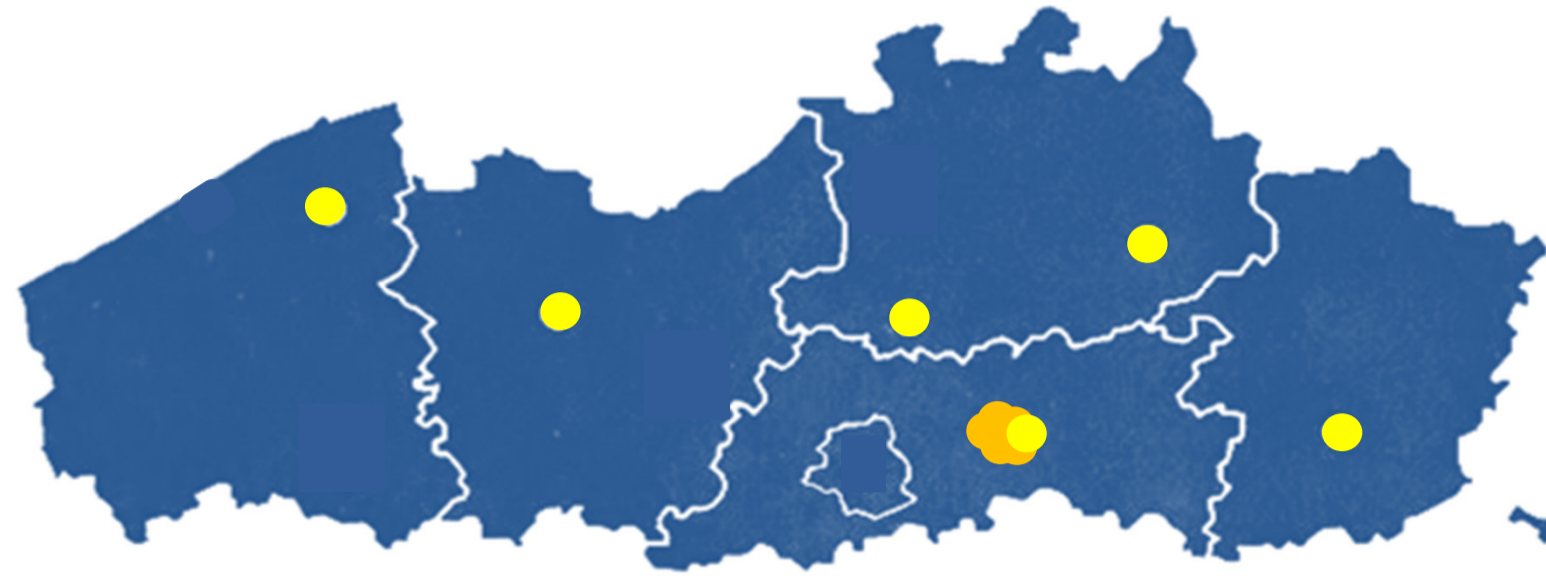


association-wide, cross-departmental,
multi-disciplinary
research centre on ICT@KU Leuven
hardware & software, as well as user & legal issues

90+ professors
600+ researchers

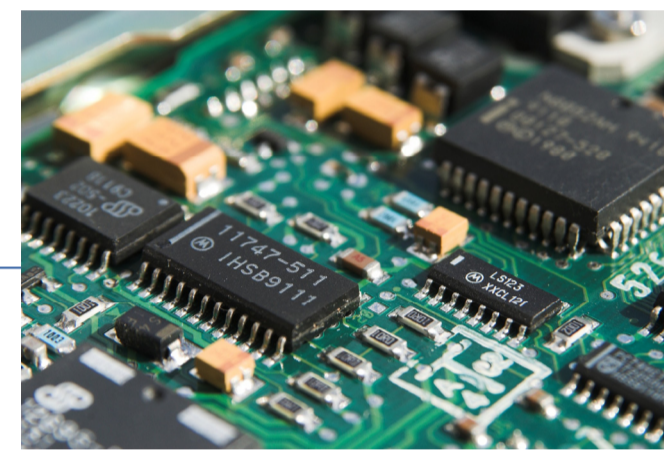
Leuven Centre on ICT (LICT)

Locations



LICT in Health Tech

Data Collection



Devices:

- wearables
- wireless (reconfigurable) radar technology
- smart plate
- μfluidics
- 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, ...

For more information or if you want to reach out to one of the researchers, please contact:

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greet.bilsen@kuleuven.be, +32-16-32 55 28
<http://www.kuleuven.be/LICT>

Interaction



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), physical activity, FOG, food intake, incontinence, sleep, epileptic seizures, neonatals, ... utilizing different types of technology
- (personalised) coaching/empowerment towards reduction of work-absenteeism due to mental health or musculoskeletal pain, increase of therapy adherence, healthy food selection, ...
- interfaces for people with disabilities: e.g. wheelchair based movement games interaction, assistive self-learning speech interface, signal processing for hearing aids, skweezes, ...
- therapeutic games: e.g. motion based games for people with motor disabilities, dyslexia screening, breastfeeding skill education, elderly activity enhancement, ...
- medical text analysis

