SMART SYSTEMS FOR PERSONALIZED AND CONNECTED HEALTHCARE

Session co-chairs:
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FUTURE VISION

Personalized healthcare systems connected to our everyday lives using modern communication platforms, including consumer devices and electronics.

Multidisciplinary engineering approaches required, including biomedical engineering, material science, mechanical engineering, electrical engineering, computer science, chemical engineering, industrial engineering, among many others.
Democratization of future health-care systems

-- Can we convert patient’s home into an advanced 24/7 laboratory for medical diagnosis, monitoring of patients, high-risk and aging populations, preventive & personalized medicine?

-- Manage costs better, early diagnosis, better treatment, better adherence, etc.?

- Today: 5% of Americans Make Up 50% of U.S. Health Care Spending
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-- Global health & under-served communities: Can medical diagnostics and care be practiced in resource limited settings using innovative and cost-effective technologies at massive scales?

-- Harnessing Big/Small Data for better patient outcomes
Imagine robotic microscopes and sensors that can image/sense autonomously and in their journey within your body or any complex sample find the locations of “real” interest/importance through their analysis and decisions within the body/sample.
Where to go and sample? Random!
Specificity? None or extremely limited!
Multi-modal or reconfigurable? No!
We need interdisciplinary teams
OUTLINE OF THE SESSION

The Role of Flexible Medical Devices in Health Monitoring and Diagnosis
– Ana Arias, University of California, Berkeley

Miniaturized and Minimally Invasive Interfaces to the Brain
– Rikky Muller, Cortera Neurotechnologies/University of California, Berkeley

Digital Microscopy Supported by Artificial Intelligence for Improved Access to Diagnostics
– Johan Lundin, University of Helsinki