

# Future Health Technologies

*Transforming healthcare through mobile digital health technology: delivering care from hospitals to the community*

## The Future of Healthcare

To meet the healthcare needs of the future, mobile digital health technologies play a pivotal role in a future-oriented and sustainable healthcare model. However, this shift requires a holistic and evidence-based approach to gain public trust and acceptance of these technologies.

Future Health Technologies (FHT) aims to transform the continuum of care towards a community-based and patient-centric model. Leveraging on scalable digital technologies, the team will tackle chronic diseases such as diabetes, obesity and stroke.



## Research Modules

### Early Detection and Prevention

Using data from sensors and screening algorithms, personalised biomechanical models will be built to screen and assess individuals with high fall risk in order to predict and reduce their risk of fractures.

### Mobile Health Interventions

The team will promote behavioural change through mobile apps, in order to overcome individual, cultural, legal, and organisational barriers in reducing the risk of chronic diseases, specifically diabetes and depression.

### Connected Rehabilitative Technologies

A "rehab gym" equipped with robotic devices and brain-computer interfaces will allow remote functional assessments of stroke patients, in order to chart and promote their recovery with suitable rehabilitative therapies.

### Health Data Governance

A "trustworthy data governance" concept will be developed. A "health data microcosm" that mimics real-world health systems will enable health forecasting, treatment response prediction and cost estimation.

► [www.fht.ethz.ch](http://www.fht.ethz.ch)

## Our Approach

Future Health Technologies (FHT) brings together leading Singapore- and Swiss-based researchers and clinician scientists from the fields of health engineering, medicine, computer science and artificial intelligence, economics, bioethics, social sciences, neuroscience, and rehabilitation science.

Multidisciplinary teams pursue a holistic approach by combining scientific and technological innovations with clinical and stakeholder needs and requirements. The goal is to generate an evidence-based roadmap towards high-value healthcare within Singapore's ecosystem. New technologies will be used to collect and connect multi-source data of individuals while delivering new interventions for selected medical problems in hospitals, community centres and the individual's home.

The programme is a collaboration among ETH Zurich, Nanyang Technological University, National University of Singapore, Duke-NUS Medical School, National Healthcare Group, National University Health System, and SingHealth. Researchers will work closely with the Ministry of Health, government agencies, industry and other relevant stakeholders, as well as participate in nation-wide research initiatives.



### Programme Director

Prof. Nicole Wenderoth is professor for Neural Control of Movement in the Department of Health Sciences and Technology at ETH Zurich.



### Programme Co-Director

Prof. E Shyong Tai is professor at the National University Singapore Saw Swee Hock School of Public Health and senior consultant at the National University Hospital.

## The Singapore-ETH Centre

Future Health Technologies is the third programme of the Singapore-ETH Centre, established by ETH Zurich – the Swiss Federal Institute of Technology Zurich and Singapore's National Research Foundation (NRF), as part of the NRF's Campus for Research Excellence and Technological Enterprise (CREATE).

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