

DIH Health

Luleå University of Technology, Sweden

20th October, 2020



DIH Health – Luleå University of Technology

- Computer Science, Electrical and Space Engineering Dept.
- Health Sciences Dept.

- **Activity Lab**

- Anneli Nyman, Associate Professor in Occupational Therapy
- Kåre Synnes, Professor in Pervasive and Mobile Computing

- **Robotics Lab**

- Georgios Andrikopoulos, Senior Researcher in Robotics and AI

- **Digital Services & Systems**

- Michael Nilsson, Project Manager in Digital Services & Systems

Activity Lab



Activity Laboratory v1.0



The Human Health and Activity Lab - H²AI
Luleå University of Technology, Sweden

Arctic Garden
250m²

Activity Laboratory v3.0



Activity Lab

Environmental Sensors

vayyar



SOMNOFY
Quantum of Sleep



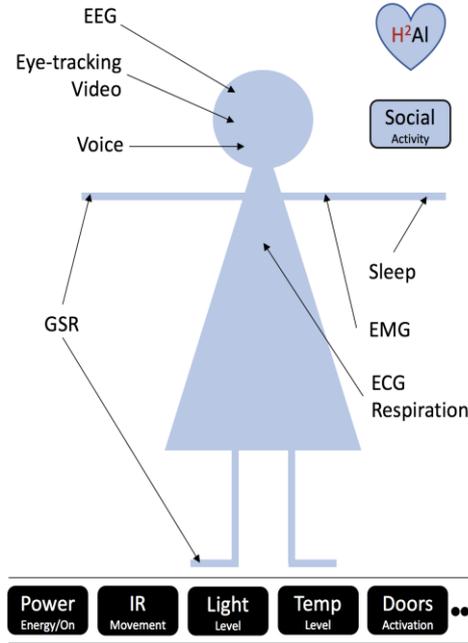
KARDIAN
AUTOMATED HEALTH MONITORING



ZWAVE



UWB Positioning UWB Respiration UWB Sleep UWB Posture Video Sound



Wearable Sensors



B-Alert X10



Shimmer 3



Tobii Glasses 2



Empatica E4



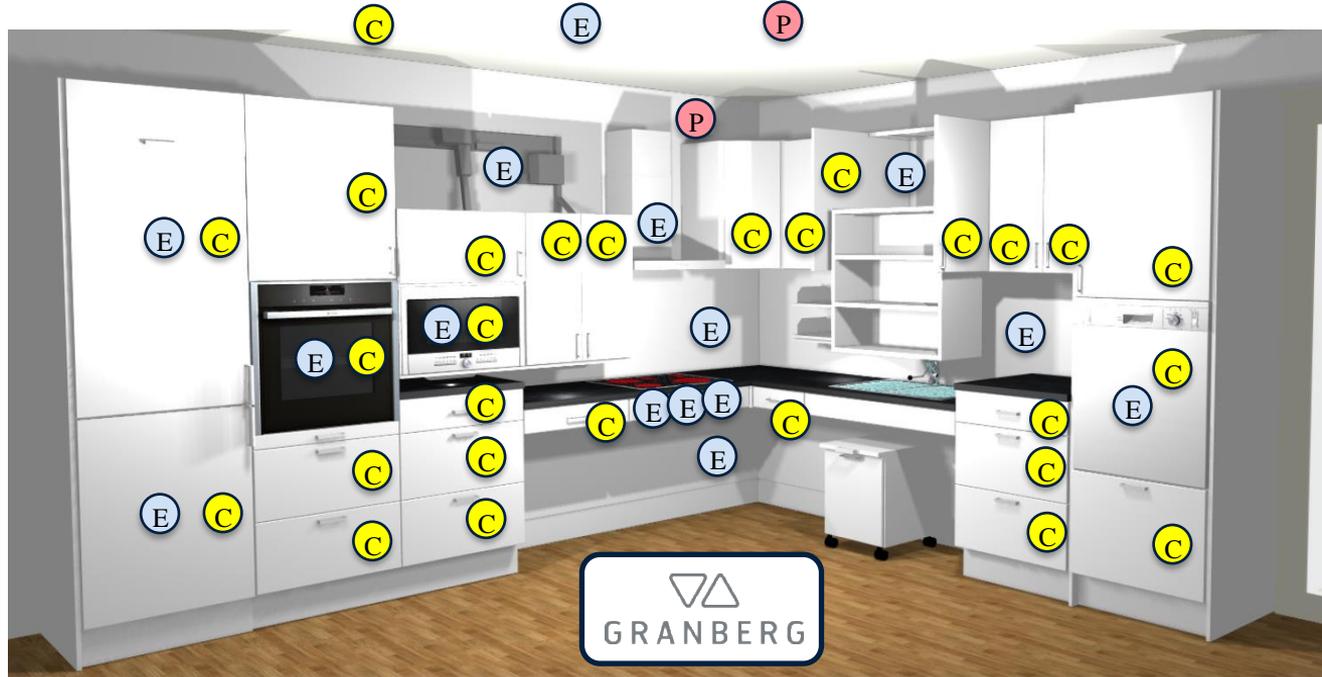
NFC/RFID



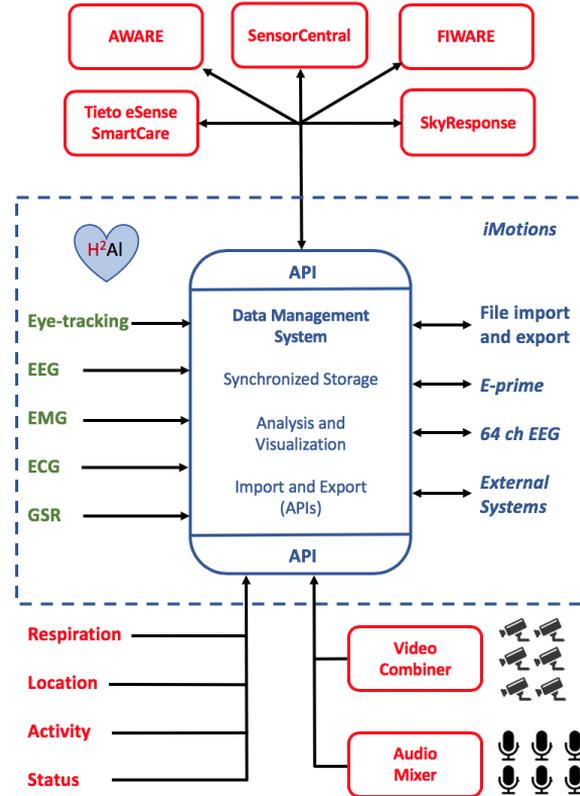
OURA

LULEÅ UNIVERSITY OF TECHNOLOGY

Activity Lab



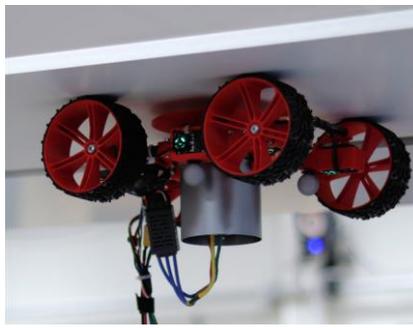
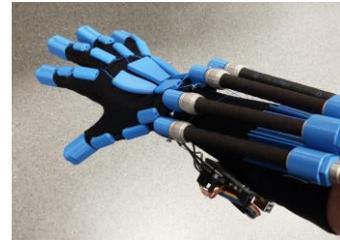
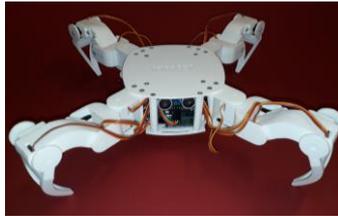
Activity Lab



Activity Lab



Robotics & Artificial Intelligence



Robotics & AI Group



Prof. George
Nicolakopoulos
Head of Robotics Team



Dr. Georgios
Andrikopoulos
Post-Doc



Dr. Avijit Banerjee
Post-Doc



Dr. Georgios
Georgoulas
Post-Doc



Dr. Christoforos
Kanellakis
Post-Doc



Dr. Petros Karvelis
Post-Doc



Dr. Anton Koval
Post-Doc



Post-Doc



Post-Doc



Hedyeh Jafari
PhD Student



Samuel Karlsson
PhD Student



Björn Lindqvist
PhD Student



Sina
Sharif-Mansouri
PhD Student



Andreas
Papadimitriou
PhD Student



Summeet
Satpute
PhD Student



PhD Student



PhD Student



Jakub Haluska
Research Engineer



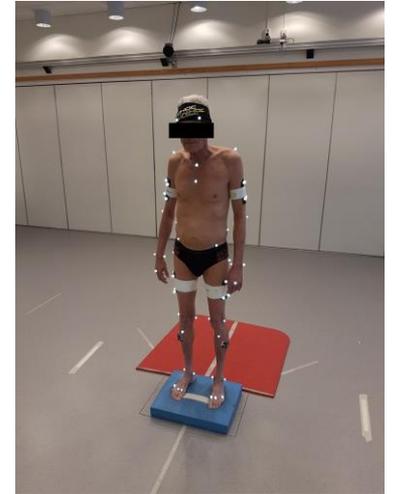
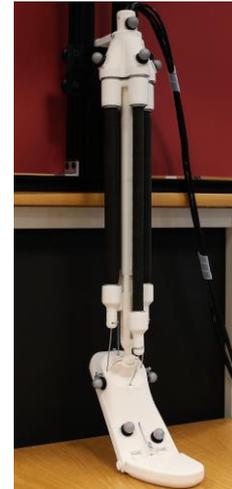
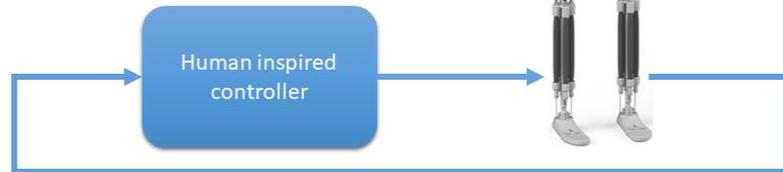
Dariusz Kominiak
Research Engineer

Robotics Lab

- BAHRT, “*New Understanding of Motor Control and Falls by Novel Postural Sway Analysis, Robotics and Mathematical Modeling*”, Swedish Research Council (Vetenskapsrådet)
 - Clinical studies in elderly population (45 subjects in Luleå)
 - New understanding of balance and falls prevention
 - Replicating the brain mechanism on a humanoid leg robot



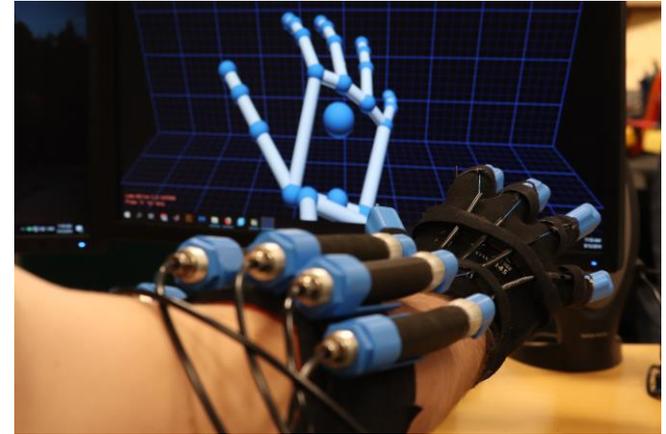
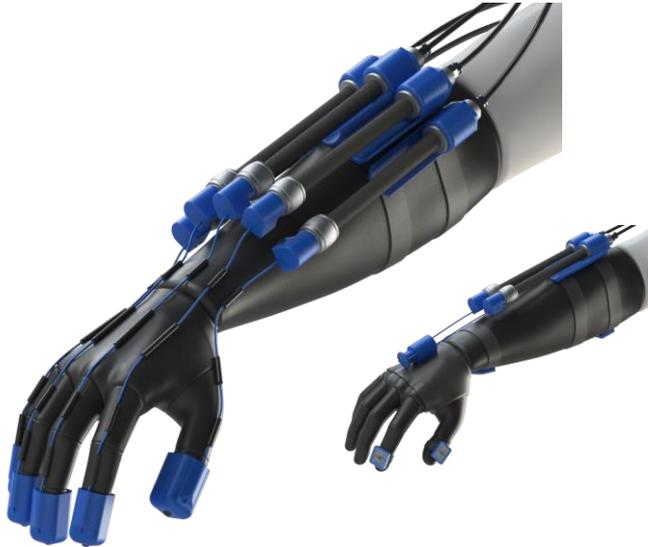
Vetenskapsrådet



LULEÅ
UNIVERSITY
OF TECHNOLOGY

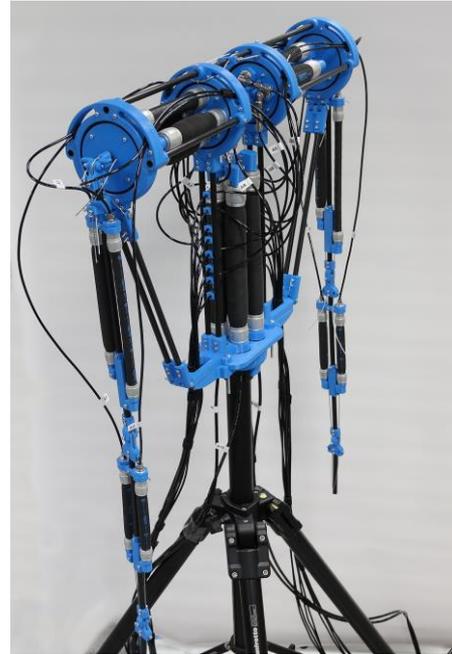
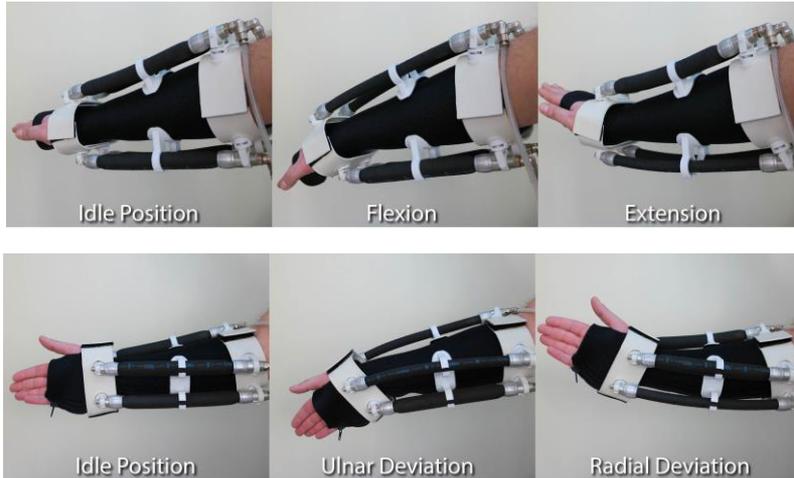
Robotics Lab

- **Exoskeletal Gloves for Hand Tremor Suppression and Virtual Reality Interactions, Swedish Universities & Collegies**



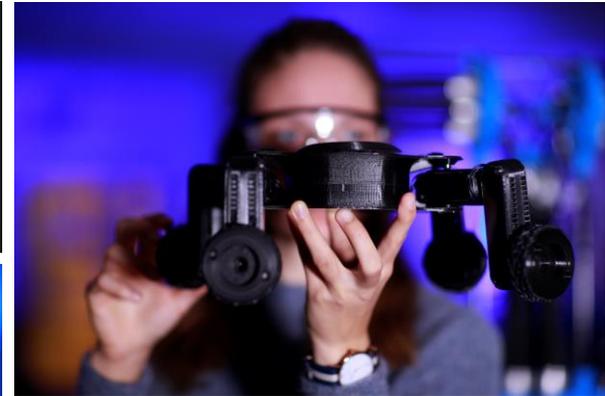
Robotics Lab

- **Exoskeletal Setups for Rehabilitation and Biomimetic Designs for Power Augmentation, Swedish Universities & Collegies**



Robotics Lab

- *“On the Naturality of Motions and Expressivity of a Tabletop Robot” & “Towards Ubiquitous Actuators for Multidimensional Physical Assistant Machines”, HONDA Research Institute of Japan*



HONDA
Honda Research Institute Japan

Socially Intelligent Robotics Consortium: <https://mypersonalrobots.org/>

LULEÅ
UNIVERSITY
OF TECHNOLOGY

Robotics & AI Group

For more information, contact us at:

Georgios Andrikopoulos, geoand@ltu.se

George Nikolakopoulos, geonik@ltu.se

www.ltu.se/robotics



LULEÅ

UNIVERSITY

OF TECHNOLOGY