

Training School 2019  
Internet of Things for  
Furniture in Smart  
Habitats  
Call for Trainees  
Tallinn, Feb 2019

By 2050, the number of people in the EU aged 65 and above is expected to grow by 70% and the number of people aged over 80, by 170%, which will increase demand and costs for healthcare. Integrating ICT solutions into habitats, along with improved building design, will allow us to live at home and stay active and productive for longer despite cognitive or physical impediments.

Improving accessibility, functionality, and safety at home, at work and in society in general requires combining many disciplines together to develop solutions that integrate ICT, ergonomics, healthcare (psychological and physical), building and community design.

The furniture sector plays an incredibly important role. Not only is it a critical part of the European economy, it also can significantly improve the accessibility of the built environment for the elderly by integrating ICT solutions, ergonomic design, and taking into account the health needs of the elderly more completely.

The COST Action CA16226 Indoor living space improvement: Smart Habitat for the Elderly (Sheldon) is a science and technology network where relevant actors from academic, research and industry sectors utilise networking tools and activities to address the ageing population challenges facing Europe, helping to reduce redundancy in RDI efforts, ensure solutions are developed with a broader set of expertise, and help refine the efforts of diverse group of researchers.

The Sheldon Training School will enable you to learn, explore, evaluate and takeaway knowledge on the interaction design for smart solutions, and integration of sensors and actuators on everyday-life objects such as furniture or wearables.

The Sheldon Training School is a multidisciplinary event open to professionals, researchers, PhD and master students with a B2 or equal level of English and relevant skills in ICT and in any of the following thematic areas: furniture production and design, Ambient Assisted Living, construction and interior design, Computer Science, Bioengineering, or similar. Applicants must be affiliated to an organization from any Action participant from COST Full Member/COST Cooperating members, from Approved Near Neighbour Country (NNC) Institutions or from any approved International and European RTD Organisation. (please consult the detailed list of participating countries in <https://www.cost.eu/actions/CA16226/#tabs|Name:parties>)

Any interested applicant must complete the [Application Form](#) where he/she will be required to demonstrate experience and competence in the above mentioned focus (professional or research experience).

The **20 selected trainees** will benefit of a Trainee Grant to participate in the school activities **from Sunday the 10th of February to Thursday the 14th of February of 2019**. This grant is expected to cover the travel, accommodation and expenses, each application will be individually evaluated along with the total grant to be awarded that can be up to **€1200€ for the five days**. Selected trainees must also register for an e-COST profile at <https://e-services.cost.eu/> and add their bank details to their e-COST profile prior to receiving their e-COST invitations. The University of Tallinn, Local Organiser of the first Sheldon Training School, will provide the meeting rooms at TLU School of Digital Technologies.

## KEY DATES:

**Application opened:** 21<sup>st</sup> of December 2018

**Applications submission Deadline:** 21<sup>st</sup> of January 2019

**Confirmation to the selected Trainees:** 25<sup>th</sup> of January 2019

**Deadline for e-Cost registration and confirmation:** 1<sup>st</sup> of February 2019

**Training School Days:** 10<sup>th</sup> of February to 14<sup>th</sup> of February 2019.

## PRELIMINARY TRAINING PROGRAMME

Tallinn University is the largest university of humanities in Tallinn and the third biggest public university in Estonia. We have more than 7,500 students (with 9.5% of them international), and over 800 employees, including close to 400 researchers and lecturers. Tallinn University is very strongly committed to internationalisation.

School of Digital Technologies focuses on development of five academic areas: Applied Informatics, Human-Computer Interaction, Information Sciences, Mathematics and Didactics of Mathematics, Technology Enhanced Learning. The school has one research centre and four laboratories: Game Lab, Interaction Design Lab, Software Lab, Technology Lab.

Each day will comprise between 4 to 6 hours, half of the time lectures and hands-on, half of the time self learning on labs and developing prototypes. Students will be provided with additional time for development by necessary.

The course participants will be supplied with different sets of sensors, actuators, and controllers including Arduino, Raspberry Pi and BITalino platforms.

### **Sunday 10th of February: Introduction, problems and scope**

- 1.1. Creating smart habitats with smart furniture
- 1.2. Problems, Scenarios, opportunities and challenges for smart habitats
- 1.3. Privacy, Safety, and User experience
- 1.4. Performance, optimization, distributed processing and using Cloud-based A.I. services

### **Monday 11th of February: Design Day**

- 2.1. Lectures on design for smart habitats
- 2.2. Designing lo-fi prototypes

**Tuesday 12th of February: 1st Development Day.**

- 3.1. Lecture on development for smart habitats
- 3.2. Lecture on tests and validation in smart habitats
- 3.2. Teams develop their project in the robotics lab

**Wednesday 13th of February: 2nd Development Day.**

- 4.1. Lecture on development for smart habitats
- 4.2. Tests and validation
- 4.3. Teams develop their project in the robotics lab

**Thursday 14th of February: Final Day**

- 5.1. Finishing development, preparing and presenting projects

**Trainers** (to be confirmed)

- Vladimir Tomberg, University of Tallinn, Tallinn, Estonia
- Aleksandar Jevremović, University of Singidunum, Belgrad, Serbia
- Nuno M. Garcia, University of Beira Interior, Covilhã, Portugal
- Hugo Silva, Instituto de Telecomunicações, Lisboa, Portugal
- Tanel Toova, University of Tallinn, Tallinn, Estonia
- Nuno Pombo, Instituto de Telecomunicações, Covilhã, Portugal