



## TTRN Ph.D. Course

# Research methods in innovation processes for digital health technology

August 12-16<sup>th</sup>, 2019

The Transatlantic Telehealth Research Network (TTRN) is arranging the third Ph.D. course at the Center for Innovative Medical Technologies (CIMT) at Odense University Hospital (OUH) and University of Southern Denmark, August 12-16<sup>th</sup> 2019.

### Aim

The aim of the Ph.D. course is to give a comprehensive introduction to research methods used in the different phases of the innovation process for digital health technologies such as telehealth, home monitoring, mHealth, video consultation, robot surgery, artificial intelligence, electronic health record systems, POCT (Point of Care Testing) devices etc. Thus, Ph.D. students will during the course learn about relevant research methods and their strengths and weaknesses in the design, assessment and implementation of digital health technologies. During the course the students will examine the possibilities for using the methods in their own Ph.D. project.

The course focus on current and next generation of digital health technologies, research methodologies, health communities and models of digital health care, and have an interdisciplinary faculty and students from policy to medicine and engineering. The 2019 course will have special focus on research methods used in assessment of the outcomes and value of digital health technologies and on the implementation of these technologies in healthcare organizations. Thus, the course will give students tools to ensure that new health technologies are implemented and adopted in healthcare in practice and used in large scale. Different types of research methods and designs in assessment of clinical outcomes, patient perception, health economics and organizational impact will be discussed during the course.

OUH is a leading European university hospital with regard to research in and practical use of telehealth and digital health technologies. As part of the course students will each day meet and talk with researchers, doctors and nurses involved in different telehealth programs at the hospital.

#### Examples of digital health technologies at OUH:

- Home monitoring of COPD patients
- Telemedicine for patients with diabetic foot ulcers
- PRO and mHealth app for patients
- Video as alternative for outpatient treatment
- Hospital at Home for premature infants etc.



## Draft program

Sunday	Welcome dinner in Odense City
Monday	Theme: Introduction and overview of phases in the innovation process <ul style="list-style-type: none"> <li>- Ignite Talk and presentation of Ph.D. projects</li> <li>- Steps in the innovation process</li> <li>- Visit 1 - Use of eHealth in a clinical department</li> </ul>
Tuesday	Theme: Research methods in the design of digital health technologies <ul style="list-style-type: none"> <li>- Participatory Design methods</li> <li>- Workshop: Use of the methods in your own project</li> <li>- Visit 2 - Use of eHealth in a clinical department</li> </ul>
Wednesday	Theme: Multidisciplinary assessment of the value of digital health technologies <ul style="list-style-type: none"> <li>- Assessment of clinical outcomes and safety</li> <li>- Assessment of patient perception and acceptability</li> <li>- Health economic assessment</li> <li>- Legal and ethical aspects</li> <li>- Workshop: Use of the methods in your own project</li> <li>- Visit 3 - Use of eHealth in a clinical department</li> </ul>
Thursday	Theme: Research methods in implementation and integration <ul style="list-style-type: none"> <li>- Implementation science</li> <li>- Assessment of organizational consequences of digital health technologies</li> <li>- Barriers and facilitators of implementation</li> <li>- Workshop: Use of the methods in your own project</li> <li>- Visit 4 - Use of eHealth in a clinical department</li> </ul>
Friday	Theme: Discussion of use of the research methods in Ph.D. projects <ul style="list-style-type: none"> <li>- Presentation of learning from Ph.D. projects and peer feedback</li> <li>- Visit 5 - Use of eHealth in a clinical department</li> <li>- Reception</li> </ul>

### Course chairs:

Kristian Kidholm, associate professor, Center for Innovative Medical Technology, SDU  
 Birthe Irene Dinesen, professor, Department of Health Science and Technology, AAU

### Lecturers:

Nick Anderson, professor, Department of Public Health Sciences, UC Davis  
 Kathy Kim, assistant professor, Department of Public Health Sciences, UC Davis  
 Jim Marcin, professor, Director Center for Health and Technology, UC Davis  
 Timothy Hale, associate Director, Harvard Medical School  
 Anne Kirstine Dyrvig, Ph.D., Center for Clinical Epidemiology, OUH  
 Jane Clemensen, professor, Department of Clinical Research, SDU  
 Mette Rothman, associate professor, Department of Clinical Research, SDU  
 Knud Yderstræde, associate professor, Department of Clinical Research, SDU  
 Lars Dittman, professor, Department of Photonics Engineering, Danish Technical University  
 Kristian Kidholm, associate professor, Center for Innovative Medical Technology, SDU  
 Birthe Irene Dinesen, professor, Department of Health Science and Technology, AAU



### **Course teaching methods:**

We will combine lectures, group discussions, and analytical exercises. The fifth day of the course will take form as a workshop where the participants present their own project and their use of research methods from the course and receive feedback from fellow participants and teachers.

### **Relevant Ph.D. students**

The course is relevant for Ph.D. students doing projects on design, assessment or implementation of digital health technologies such as telehealth, home monitoring, mHealth, video consultation, artificial intelligence, electronic health record systems, POCT devices etc. The course is also relevant for Ph.D. students studying methodological aspects of health technologies in general. The course is interdisciplinary and relevant for students from medical, technical and social science faculties.

### **Academic credit**

University of California students will receive 1-3 units of graduate credit with their home department or school. Danish and Scandinavian students will receive 4 ECTS points. Student completing this course will have unique and advanced skills and potential US and international research collaborations.

### **Venue**

The course takes place at Odense University Hospital, Klørvænget 6, 5000 Odense C, Denmark, entrance 93, room 4.

<https://www.google.com/maps/place/Klørvænget+6,+5000+Odense/@55.3824237,10.3675973,17z/data=!3m1!4b1!4m5!3m4!1s0x464cdf8d7697053d:0xcddd061ce1cc93a5!8m2!3d55.3824237!4d10.369786>

### **Program costs**

The course is free of charge for PhD students enrolled at the Faculty of Health Sciences, SDU.

For students from other universities from Denmark, collaborating US universities from TTRN or elsewhere the course fee is DKK 2,300 (or 360 US\$). In addition students must pay for accommodation and dinner.

### **Registration**

Use the following link to be registered: <https://fmdb1.sdu.dk/fmi/webd#DocSUNweb>

Participants must submit a five page paper one week before the course about a research question related to their Ph.D. project and feedback will be given during the course.

### **Social program**

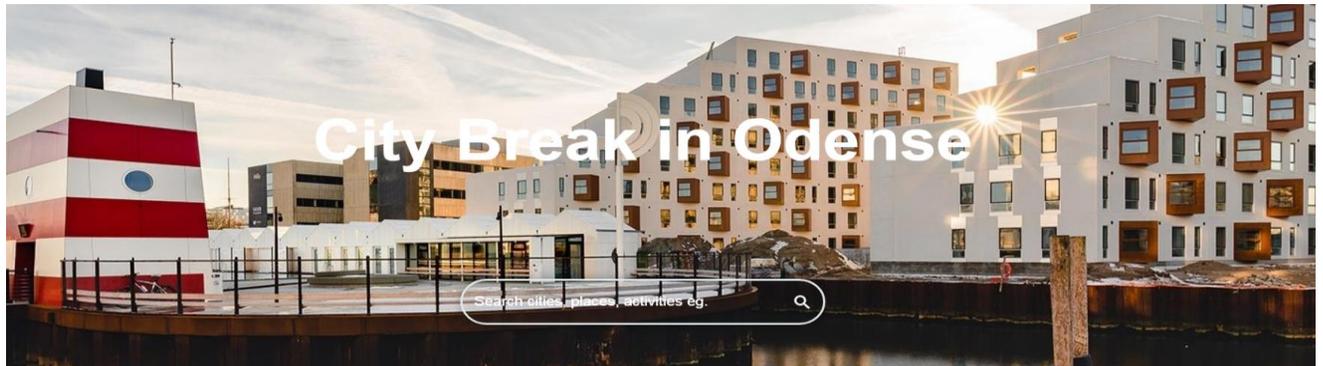
A social program will be made including visits to the city of Odense, sailing on the river Odense Å, visits to Robot Cluster (the largest group of robot producing companies in Denmark), the construction site of the New Odense University Hospital and local restaurants. More info about Odense:

<https://www.visitodense.com/In-int/odense/visitodense-0>



### Additional information

For more information: Contact Head of research, associate professor Kristian Kidholm, Center for Innovative Medical Technologies, on email: [kristian.kidholm@rsyd.dk](mailto:kristian.kidholm@rsyd.dk)



#### TTRN

Learn more about TTRN <http://citris-uc.org/telehealth/project/transatlantic-telehealth-research-network/>

#### TTRN Vision paper

Within the TTRN we have published the paper: “Personalized telehealth in the future: a global research agenda” by Dinesen, Birthe Irene; Nonnecke, Brandie; Lindeman, David; Toft, Egon; Kidholm, Kristian; Jethwani, Kamal; Young, Heather M.; Spindler, Helle; Østergaard, Claus Ugilt; Southard, Jeffrey A.; Gutierrez, Mario; Anderson, Nick; Albert, Nancy M.; Han, Jay J.; Nesbitt, Thomas. Journal of Medical Internet Research, Vol. 18, Nr. 3, e53, 2016. Can be downloaded here: <https://www.jmir.org/2016/3/e53/>