

# Nettverksbygging: Fra lokal forskningsgruppe til internasjonalt forskernettverk

**Professor Gunnar Hartvigsen**

**Helgelandssykehuset HF**

Helseinformatikk og -teknologi, Institutt for informatikk  
Universitetet i Tromsø – Norges arktiske universitet

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## HVEM ER JEG?



- Cand. Scient., Dr. scient., informatikk (AI), Univ. i Tromsø (UiT)
- Professor, Institutt for informatikk (IFI), UiT (1994-)  
Forskningsfelt: Medisinsk informatikk & telemedisin (1997-)
- Leder, forskningsgruppe for helseinformatikk & -teknologi (HIT)
- Professor II, Nasjonalt senter for telemedisin, Universitetssykehuset Nord Norge HF (UNN) (2000-2015)
- Senterleder, Tromsø Telemedicine Laboratory (SFI), UNN (2007-2015)
- Professor II, Nasjonalt senter for e-helseforskning, UNN (2016-2017)
- Professor II, Inst. for helse- og sykepleievitenskap, Fakultet for helse- og idrettsvitenskap / Senter for e-helse, Universitetet i Agder (2018-2022)
- Professor II/forsker 1, Helgelandssykehuset HF (2023-)
- Diverse lederoppgaver UiT: Instituttleder (IFI), prodekan forskning og undervisning (mat.nat.fak.) ++
- Sabbaticals: Univ. of Twente, Nederland; TU Munich, Tyskland; UC Davis, California, USA; TU Valencia, Spania; Karolinska Institutet, Sverige

Mer info: <https://uit.no/ansatte/gunnar.hartvigsen>

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# “Bakteppet”

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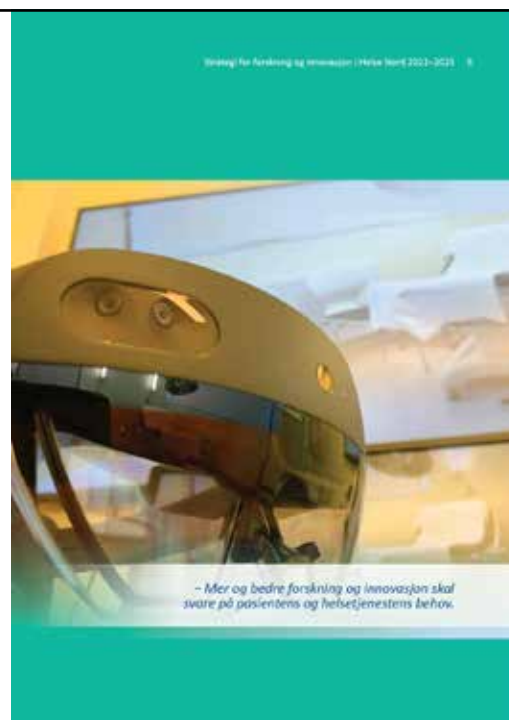
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**– Forskning må bli en enda mer integrert del av den kliniske virksomheten i sykehus.**

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## – Mer og bedre forskning og innovasjon skal svare på pasientens og helsetjenestens behov.

**Forskning er en av fire hovedoppgaver i sykehusene**, jf. spesialisthelsetjenestelovens § 3–8. Det regionale helseforetaket skal legge til rette for forskning og andre tjenester som står i naturlig sammenheng med dette, jf. helseforetakslovens § 1 og 2.



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HELGELANDSSYKEHUSET  
HELGELAANTEN SKIEMTJEGÅETIE

LOGG INN  
HELSENORGE

SØK 🔍

MENY ☰

**Er det noen tema som flere er interesserte i å forske på?**

Velkommen til Helgelandssykehuset

Behandlinger

Avdelinger

Fag og forskning

Om oss

9

HELGELANDSSYKEHUSET  
HELGELAANTEN SKIEMTJEGÅETIE

LOGG INN  
HELSENORGE

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**Klinisk virksomhet må selvsagt også ivaretas**

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Om oss

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## Fagutvikling & fagutveksling for ansatte i kliniske stillinger

- Klinisk erfaringsutveksling
- Nettverksbygging
- Forbedre egne kliniske ferdigheter
- FORSKNING og INNOVASJON



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<https://www.legeforeningen.no/>

### Medisinsk forskning og fagutvikling er fundamentet

**Medisinsk forskning og fagutvikling er fundamentet for gode helsetjenester.** Det er nødvendig for å bedre kvaliteten og sikkerheten på helsetjenestene som gis. Utvikling av kunnskap krever at kvalitets- og forbedringsarbeid prioriteres. Avvikshåndtering i trygge rammer med fokus på pasientsikkerhet og arbeidsmiljø må videreutvikles, med mål om å oppnå enda tryggere og bedre helsetjenester. Det handler om å gjøre jobben og gjøre den bedre. Fagpersoner både i lokale og sentrale kompetansemiljøer må involveres for å oppnå bedre beslutninger og resultater. Det er viktig å sikre at kunnskap raskt kommer pasienten og samfunnet til gode, og at kunnskap deles over landegrensene. Det må legges til rette for at medisinsk kunnskap vektlegges i alle helsepolitiske beslutninger. Erfaringer har vist at helse reformer oppnår best resultat når fagpersoner involveres tidlig og tiltakene piloteres.

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Sykepleiefaget i front for å gi trygge og gode helsetjenester

Wolfram for

**Sykepleiefaget i front**

Sykepleierne skal sikre at alle i Norge er trygge og gode helsetjenester skal gis i takt med behovet for å sikre et godt og trygt samfunn. Sykepleierne skal sikre at alle i Norge er trygge og gode helsetjenester skal gis i takt med behovet for å sikre et godt og trygt samfunn.

<https://www.nsf.no>

### Mer forskning i sykepleietjenesten

Forskning bidrar til å utvikle kunnskapsbasert praksis, og skape helsetjenester av høy kvalitet. Behovet for forskning i sykepleietjenesten øker i takt med oppgaver og ansvar.

Sykepleiere forsker på:

- pasienters mestring av sykdom og funksjonssvikt
- pasienters livskvalitet
- observasjoner og behandling av pasienter
- helsetjenestene
- samhandling med pasienter

Sykepleieforskere deltar også i tverrfaglig forskning.

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### Doktorgrad og førstelektorkompetanse

Sykepleiere med doktorgrad og førstelektorkompetanse er nødvendig både for utvikling og kvalitet i klinisk praksis og utdanning.

Sykepleiefaget trenger et bredt kunnskapsgrunnlag, og sykepleiere med doktorgrad utgjør det fremtidige grunnfjellet for utdanning, fagutvikling og forskning.

Norsk Sykepleierforbund arbeider for

- at flere spesialsykepleiere og Jordmødre skal utdannes på masternivå
- å øke antall ansatte i sykepleierutdanningene med doktorgrad og kompetanse som førstelektor
- karriereveier for forskere innenfor helsetjenestene
- å øke sykepleiernes andel av nasjonale midler til forskning

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# Vi starter med et par spørsmål

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## Først om forskningsgrupper



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Hva er de viktigste spørsmålene å stille når man blir med i et forskningsnettverk?

Du bør være villig til å delta (sette av tid)

Du bør synes det er nyttig å delta

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**NEMLIG –  
ETABLERINGEN AV  
FORSKNINGSGRUPPEN  
MEDISINSK  
INFORMATIKK &  
TELEMEDISIN (MI&T)**  
(som nå heter Helseinformatikk og –teknologi)

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Min  
egen  
gruppe



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**Faculty**




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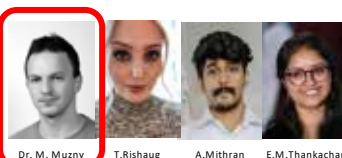
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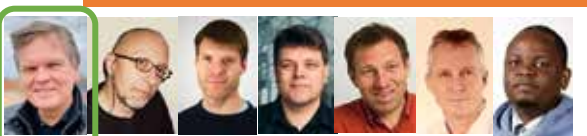


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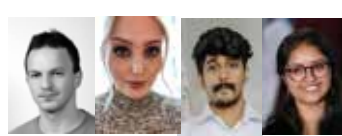
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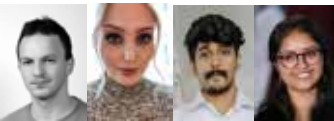
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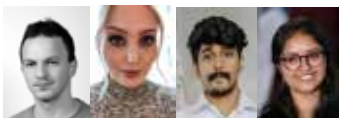


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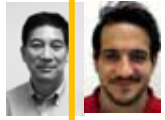
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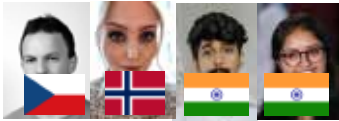
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15 nations

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PD = postdoc      PhD = PhD supervisor      MSc = MSc superv.

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**Eirik's**

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Dr. M. Muzny T. Rishaug A. Mithran E.M. Thankachan

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## Tiltak 1998 - 2012

0. Etablerte gruppen med regelmessige møter
1. Søkte samarbeid med de som var bedre enn oss
2. Sendte ph.d.-studenter, postdocs og vitenskapelig ansatte ut til gode forskningsmiljøer
3. Laget en langsiktig publiseringsplan
4. Søkte om forskningsmidler
5. Dannet en større forskningsgruppe (SFI)
6. Etablerte forskerskole
7. Drev erfaringsutveksling i gruppen: hvordan bli en bedre gruppe? (Læring)
8. Tenkte samarbeid (kontinuerlig prosess)
9. Fokuserte gradvis faglig aktivitet men var også åpne for nye ideer
10. Etablerte sosiale møteplasser
11. Deltok i internasjonale interessforeninger / WGs
12. Deltok på partnerforum
13. Arrangerte internasjonale møter og konferanser



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## 0. Etablerte gruppen med regelmessige møter



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## Oppstart 1998

- 2 ansatte (1 professor, 1 førsteamanuensis)
- 0-N siving.- og hovedfagsstudenter

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*Try to work with people you really like*



***“However, by far, the most important strategy is a very simple one: try to work with people you really like.***

*I can't emphasize enough how much this matters since this colors almost everything else. If you have a choice of places to work, I'd pick the place with one or two people you really really like, over a "higher ranked" place any day. If you are hiring people, don't fail to consider how much you'd like working with them. If you don't have people you like where you work, then work with people elsewhere who you do like. I think I've done all of these and have continually underestimated the value each time.”*

- Assoc. Professor Stefan Savage,  
Department of Computer Science and Engineering, University of California, San Diego

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Vi forsøker å rekruttere  
gode interesserte og motiverte folk lokalt

**Folk med "pasjon" for det de driver med.  
Motiverte folk!**

***"Forskere er personer som driver  
med det de drives av!"***

- Professor Gudmund Hernes

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**Alle er velkomne  
til å bli med i  
forskningsgruppen**

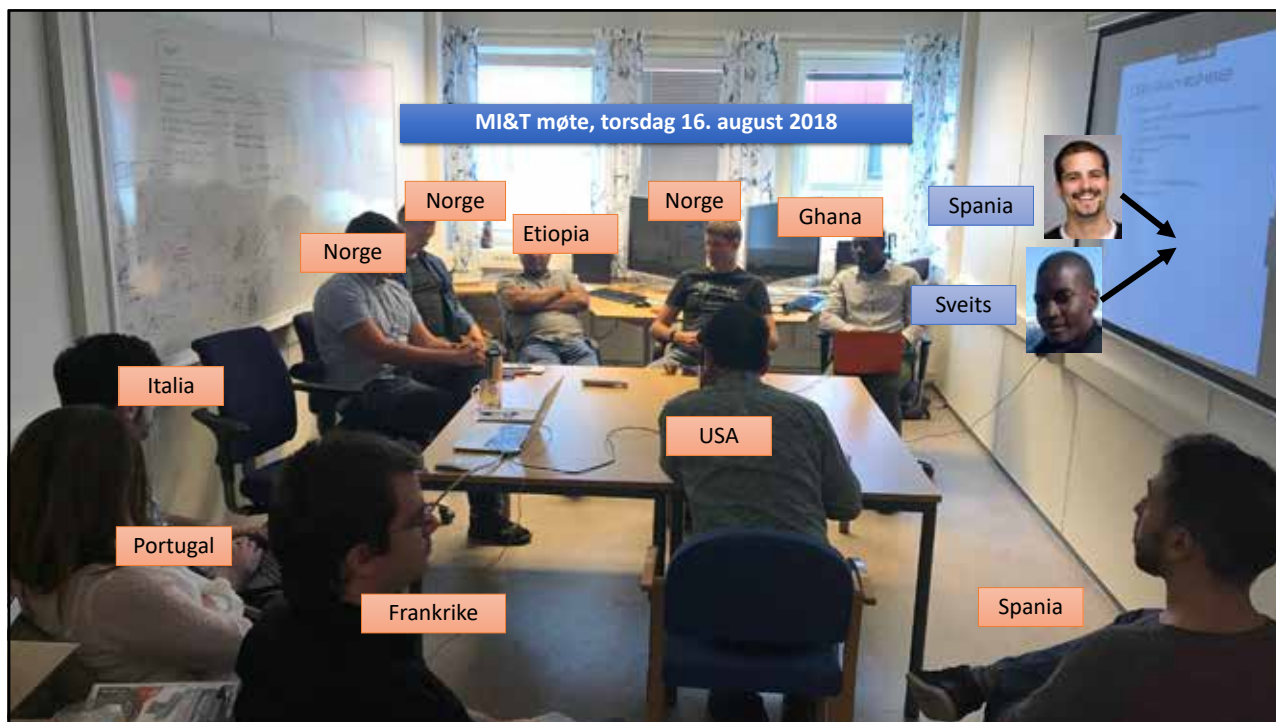
99



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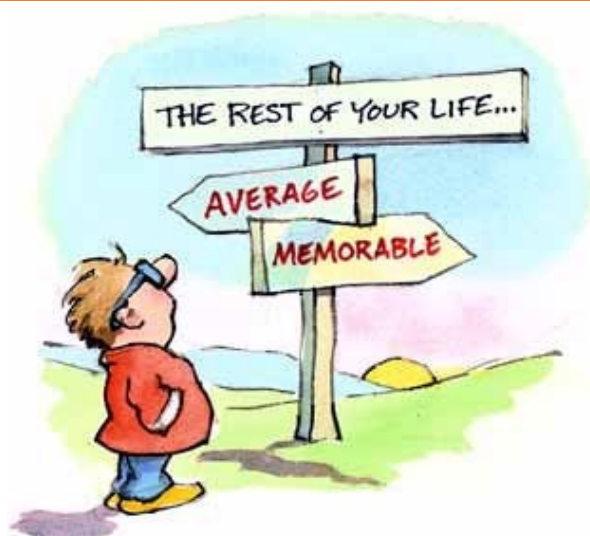
# AGENDA

Vi diskuterer resultater og publikasjoner på alle møter

1. NEWS:
  - a) MI&T Lab
  - b) MI&T group plans Fall 2018
2. Status Department of Computer Science:
  - a) Master program
  - b) National/international co-operation
  - c) Grant applications
3. Status for each group member
  - a) Achievements Spring 2018
    - I. Paper submitted and hopefully accepted/published (Journals, Conferences, book chapters, ...)
    - II. Conferences attended (Short report)
    - III. Oral presentations
    - IV. AOB
  - b) Plans Fall 2018
    - I. Papers (Journals, Conferences, book chapters, ...)
    - II. Upcoming conferences
    - III. AOB
4. Conference overview / CFP
5. AOB

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## 1. Søkte samarbeid med de som var bedre enn oss



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## 1. Søkte samarbeid med de som var bedre enn oss

### Hvordan?

- Identifiserte de gode forskningsmiljøene innen vårt forskningsfelt / -område av interesse (konferanser, WGs, tidsskrifter, siteringer, anbefalinger, ...)
- Kontakt - inviterte oss på besøk og / eller kontaktet forskere fra disse forskningsmiljøene på konferanser eller via e-post.
- **Just do it!** Vi spurte om de var interessert i samarbeid (eller ble spurt – også andre ser etter samarbeidspartnere).
- Mål: Felles prosjekt, felles publikasjoner.

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**Et utvalg av  
mine (fremragende)  
internasjonale  
samarbeidspartnere  
(som også har vært  
mine medforfattere)**

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## Data-Driven Blood Glucose Pattern Classification and Anomalies Detection: Machine-Learning Applications in Type 1 Diabetes

Ashenafi Zebene Woldaregay<sup>1</sup>, MSc; Eirik Årsand<sup>2</sup>, PhD; Taxiarchis Botsis<sup>3</sup>, PhD; David Albers<sup>4</sup>, PhD; Lena Mamykina<sup>4</sup>, PhD; Gunnar Hartvigsen<sup>1</sup>, PhD

<sup>1</sup>Department of Computer Science, University of Tromsø – The Arctic University of Norway, Tromsø, Norway

<sup>2</sup>Norwegian Centre for E-health Research, University Hospital of North Norway, Tromsø, Norway

<sup>3</sup>The Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, Baltimore, MD, United States

<sup>4</sup>Department of Biomedical Informatics, Columbia University, New York, NY, United States

### Corresponding Author:

Ashenafi Zebene Woldaregay, MSc  
Department of Computer Science  
University of Tromsø – The Arctic University of Norway  
Realfagbygget, Hansine Hansens vei 54  
Tromsø,  
Norway  
Phone: 47 77646444  
Email: [ashenafi.z.woldaregay@uit.no](mailto:ashenafi.z.woldaregay@uit.no)



### Abstract

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### Review

## App Features for Type 1 Diabetes Support and Patient Empowerment: Systematic Literature Review and Benchmark Comparison

Antonio Martinez-Millana<sup>1\*</sup>, PhD; Elena Jarones<sup>1\*</sup>, BSc Biomedical Engineering; Carlos Fernandez-Llatas<sup>1\*</sup>, PhD; Gunnar Hartvigsen<sup>2\*</sup>, Prof Dr; Vicente Traver<sup>1\*</sup>, PhD

<sup>1</sup>ITACA, Universitat Politècnica de València, Valencia, Spain

<sup>2</sup>Department of Computer Science, University of Tromsø, Tromsø, Norway

\*all authors contributed equally

### Corresponding Author:

Antonio Martinez-Millana, PhD  
ITACA  
Universitat Politècnica de València  
Camino de Vera s/n



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Samarbeid med forskere i toppligaen krever engasjement!

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Søk samarbeid med de som er bedre enn oss

**Just do it!**

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## Eksempel fra ph.d.-komité i 2014

- Prof. Jaideep Srivastava, University of Minnesota
- Prof. Keiichi Sato, Illinois Institute of Technology, Chicago
- Prof. Pieter Toussaint, NTNU



3 av mine PhD studenter  
disputerte i 2014 ☺



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**A.1 Main partner institution in Norway**

**Institution in Norway (liN)**  
The Arctic University of Norway (NO-UiT)

**Department (liN)**  
Department: Department of Computer Science




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**A.2 Main partner institution outside Norway**

**Institution outside Norway (IoN)**  
University of Minnesota (US-UMN)

**Department (IoN)**  
Department: Department of electrical and computer engineering

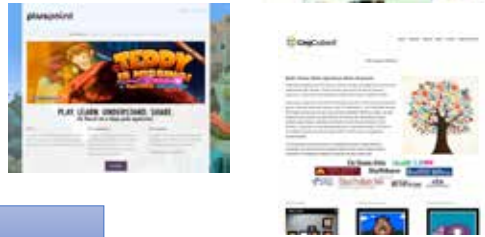


**Companies:**

Plus Point, Tromsø, Norway

CogCubed, Minneapolis, US

SIU grant (Student exchange with Minnesota)



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## David

- Jeg var biveileder for David (fra Sveits) ..
- MSc-student i helseinformatikk, Karolinska Institutet, Stockholm
- Oppholdt seg i Tromsø våren 2015 (kom til Tromsø for å lære av diabetesgruppen vår)
- 6 veiledere fra 3 land (Norge, Sverige og Sveits)



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Master Thesis Proposal  
Beginning date: 19-01-2015

David-Z. Issom

Title:

Investigating needs and barriers in developing e-health tools supporting self-management of patients with Sickle Cell Disease

Supervision:

Supervisor:

Stefano Bonacina (Karolinska Institutet – Health Informatics Centre, LIME)  
Contact: [stefano.bonacina@ki.se](mailto:stefano.bonacina@ki.se)

Co-supervisors and collaborations:

Gunnar Hartvigsen (University of Tromsø and The Norwegian Centre for Integrated Care and Telemedicine)  
Contact: [gunnar.hartvigsen@uit.no](mailto:gunnar.hartvigsen@uit.no)

Christian Kjellander (Karolinska University Hospital – Hematology Centre)  
Contact: [christian.kjellander@karolinska.se](mailto:christian.kjellander@karolinska.se)

Sabine Koch (Karolinska Institutet – Health Informatics Centre, LIME)  
Contact: [sabine.koch@ki.se](mailto:sabine.koch@ki.se)

Christian Lovis (Geneva University Hospital – Division of Medical Information Sciences)  
Contact: [christian.lovis@hcuge.ch](mailto:christian.lovis@hcuge.ch)

Kaveh Samii (Geneva University Hospital – Division of Hematology)  
Contact: [kaveh.samii@hcuge.ch](mailto:kaveh.samii@hcuge.ch)

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Master Thesis Pro  
Beginning date: 19

**BTW - hvordan kjenner jeg disse menneskene?**

Title:  
Investigating need

**Svar: Fra internasjonale konferanser og møter i faglige interessegrupper og foreninger (MIE, IMIA)**

Stefano Bonacina (Karolinska Institutet – Health Informatics Centre, LIME)  
Contact: [stefano.bonacina@ki.se](mailto:stefano.bonacina@ki.se) Unknown

Co-supervisors and collaborations:

Gunnar Hartvigsen (University of Tromsø and The Norwegian Centre for eHealth and eMedicine)  
Contact: [gunnar.hartvigsen@uit.no](mailto:gunnar.hartvigsen@uit.no)

Christian Kjellander (Karolinska University Hospital – Hematology Centre)  
Contact: [christian.kjellander@karolinska.se](mailto:christian.kjellander@karolinska.se) Unknown

Sabine Koch (Karolinska Institutet – Health Informatics Centre, LIME)  
Contact: [sabine.koch@ki.se](mailto:sabine.koch@ki.se)

Christian Lovis (Geneva University Hospital – Division of Medical Information Sciences)  
Contact: [christian.lovis@hcuge.ch](mailto:christian.lovis@hcuge.ch)

Kaveh Samil (Geneva University Hospital – Division of Hematology)  
Contact: [kaveh.samil@hcuge.ch](mailto:kaveh.samil@hcuge.ch) Unknown



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**David er veldig aktiv, spesielt med tanke på at han bare er en masterstudent**

Medinfo 2015 (poster) 19-23.8.2015, Sao Paulo

SHI 2015 (full paper) 15-16.6.2015, Tromsø



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Publisert i  
*Diabetes Management journal (Nivå 1)*

**SYSTEMATIC REVIEW**  
*For reprint orders, please contact: reprints@futuremedicine.com*

Mobile applications for people with diabetes published between 2010 and 2015

David-Zacharie Issom<sup>1</sup>, Ashenafi Zebene Woldaregay<sup>1,2</sup>, Taridzo Chomutare<sup>2</sup>, Meghan Bradway<sup>2</sup>, Eirik Årsand<sup>2</sup> & Gunnar Hartvigsen<sup>1,2,3</sup>

**Diabetes Management**

**Practice points**

- Although the related studies are well documented, they mainly focus on clinically relevant features and very little on those that affect a user's perception.
- This review highlights novel criteria like the perception of an app by users, the

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Publisert i  
*Diabetes Management journal (Nivå 1)*

**SYSTEMATIC REVIEW**  
*For reprint orders, please contact: reprints@futuremedicine.com*

Mobile applications for people with diabetes published between 2010 and 2015

**BTW – dette var en obligatorisk oppgave i et MSc kurs ved UiT**

David-Zacharie Issom<sup>1</sup>, Ashenafi Zebene Woldaregay<sup>1,2</sup>, Taridzo Chomutare<sup>2</sup>, Meghan Bradway<sup>2</sup>, Eirik Årsand<sup>2</sup> & Gunnar Hartvigsen<sup>1,2,3</sup>

**Diabetes Management**




**Practice points**

- Although the related studies are well documented, they mainly focus on clinically relevant features and very little on those that affect a user's perception.
- This review highlights novel criteria like the perception of an app by users, the

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David leverte sin MSc-avhandling i august 2015 ved Karolinska Institutet



Jeg ble med videre som bi-veileder for Davids doktorgradsprosjekt i global helse i Geneve. Vi møttes på Skype (nesten) hver uke.

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**Samarbeid**

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## David formidlet forespørsel om samarbeid med Genève Universitet

Vi samarbeider nå med

**Christian Lovis, MD MPH**  
Professor and chairman  
Division of Medical Information Sciences  
University Hospitals of Geneva (HUG)  
University of Geneva (UNIGE)



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**Vårt samarbeid  
ble etterhvert  
utvidet ...**

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### Instant detection of disease outbreaks (INDEED): Using smart technology and human sensors to detect the spread of communicable diseases

**International researchers:**

**Prof. Ole Hejlesen** (University of Aalborg, Denmark)

**Prof. Christian Lovis, MD**, (Univ of Geneva & Geneva University Hospital, Switzerland).

**Ass. prof. Lena Mamykina**, (Columbia University, N.Y., USA)

**Ass. prof. David Albers** (Columbia University, N.Y., USA)

**Prof. George Demiris** (Univ. of Washington, Seattle)

**Prof. Keiichi Sato** (Illinois Institute of Technology, Chicago, USA)

**Assoc. prof. Vicente Traver** (Technical University of Valencia, Spain)

**Norwegian researchers:**

**Prof. Pieter Jelle Toussaint** (NTNU)

**Prof. Eirik Årsand** (UNN and UiT)

**Dr. Taridzo Chomutare** (UNN)

**Prof. Carl-Fredrik Bassøe**, MD, PhD

**Internal researchers (UiT):**

**Prof. Gunnar Hartvigsen**

**Prof. Fred Godtliebsen**

**Prof. Alexander Horsch**

NEW GRANT  
APPLICATION  
2017

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### Instant detection of disease outbreaks (INDEED): Using smart technology and human sensors to detect the spread of communicable diseases

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**Prof. Carl-Fredrik Bassøe**, MD, PhD

**Internal researchers (UiT):**

**Prof. Gunnar Hartvigsen**

**Prof. Fred Godtliebsen**

**Prof. Alexander Horsch**

NEW GRANT  
APPLICATION  
2017

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2. Sendte våre ph.d.-studenter, postdoktorer og faglig ansatte til gode forskningsgrupper i utlandet



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**Eksempler på  
utenlandsopphold  
fra forsknings-  
gruppen**

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## Eirik (PhD+postdoc)



6+6 months at  
**UNIVERSITY OF WASHINGTON,  
SEATTLE**

**User-centered methods for designing patient-centric self-help tools**

**EIRIK ÅRSAND<sup>1</sup> & GEORGE DEMIRIS<sup>2</sup>**

<sup>1</sup>Norwegian Centre for Telemedicine, University Hospital of North Norway, and Department of Computer Science, University of Tromsø, P.O. Box 35, N-9038 Tromsø, Norway, and  
<sup>2</sup>Biomedical and Health Informatics, School of Medicine University of Washington, WA, USA

**Mobile Diabetes Self-Management Tools –What’s the Role of Clinicians?**

Eirik Årsand, PhD, MSE<sup>1,2</sup>; Ståle Olav Skovroth, MSc, PhD<sup>1</sup>; Jim Tafano, PhD, MBA<sup>3</sup>; Gunnar Hartvigsen, MSc, PhD<sup>3</sup>; Ragnar M. Joshiwara, MD, PhD<sup>4</sup>

<sup>1</sup>Norwegian Centre for Integrated Care and Telemedicine, University Hospital of North Norway, Tromsø, Norway  
<sup>2</sup>Institute of Informatics, University of Tromsø, Norway  
<sup>3</sup>Division of Biomedical and Health Informatics, University of Washington School of Medicine, Seattle, Washington, USA

**Designing Mobile Dietary Management Support Technologies for People with Diabetes**

Authors: Årsand E<sup>1,2</sup>, Tufano JT<sup>3,4</sup>, Ralston JD<sup>4,5</sup>, Hjortdahl P<sup>6</sup>

<sup>1</sup>Norwegian Centre for Telemedicine, University Hospital of North Norway, Tromsø, Norway  
<sup>2</sup>Department of Computer Science, University of Tromsø, Tromsø, Norway  
<sup>3</sup>University of Washington School of Medicine, Biomedical & Health Informatics, Washington, Seattle, USA  
<sup>4</sup>Group Health Cooperative, Center for Health Studies, Seattle Washington USA  
<sup>5</sup>University of Washington School of Public Health and Community Medicine, Seattle Washington USA  
<sup>6</sup>University of Oslo, Oslo, Norway.

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## Tax (postdoc)



12 months at  
**UNIVERSITY OF COLUMBIA, N.Y.**

**Home telecare technologies for the elderly**

**Taxiarhis Botsis<sup>1</sup>, George Demiris<sup>2</sup>, Steinar Pedersen<sup>3</sup> and Gunnar Hartvigsen<sup>4</sup>**

<sup>1</sup>MBIT Group, Department of Computer Science, University of Tromsø, Norway; <sup>2</sup>Biomedical and Health Informatics, University of Washington, Seattle, Washington, USA; <sup>3</sup>Norwegian Centre for Telemedicine, Tromsø, Norway

**Predicting infections in people with type-2 diabetes: the role of glycemic control during the incubation period**

TALANDEA BHOON<sup>1</sup>, AIDER DE LAI<sup>1</sup>, WALTER PRINSA<sup>1</sup>, JUSTIN B. STARNES<sup>1</sup>, GUNNAR HARTVIGSEN<sup>2</sup>, GEORGE HRIPOAK<sup>3</sup>

<sup>1</sup>Department of Biomedical Informatics, Columbia University, New York, USA  
<sup>2</sup>Department of Computer Science, University of Tromsø, Tromsø, Norway  
<sup>3</sup>Department of Medicine, Columbia University, New York, USA  
<sup>4</sup>Stamstedt Clinic Research Foundation, Wisconsin, USA

**Sixteen years of ICPC use in Norwegian Primary Care: Looking through the facts**

ROBERTA SERRA<sup>1</sup>†, CAROLINE REBER<sup>2</sup>, GEORGE DEMIRIS<sup>3</sup>

<sup>1</sup>Department of Computer Science, University of Tromsø, Norway  
<sup>2</sup>Department of Biomedical Informatics, Columbia University, New York  
<sup>3</sup>Norwegian Centre for Telemedicine, Medical Research, Section of Telemedicine, Faculty of Medicine, Norwegian University of Science and Technology, Norway

**Secondary Use of EHR: Data Quality Issues and Informatics Opportunities**

**Taxiarhis Botsis<sup>1,2</sup>, Gunnar Hartvigsen<sup>3</sup>, Ed Chen<sup>4</sup>, Chunhua Weng<sup>5</sup>**


<sup>1</sup>Department of Computer Science, University of Tromsø, Tromsø, Norway  
<sup>2</sup>Department of Biomedical Informatics, Columbia University, New York, U.S.A.  
<sup>3</sup>Norwegian Centre for Integrated Care and Telemedicine, University Hospital of North Norway, Tromsø, Norway

**Modeling prognostic factors in resectable pancreatic adenocarcinomas**

**Taxiarhis Botsis<sup>1,2</sup>, Valsamo K. Anagnostou<sup>3</sup>, Gunnar Hartvigsen<sup>4</sup>, George Hriproak<sup>1</sup>, Chunhua Weng<sup>5</sup>**

<sup>1</sup>Department of Biomedical Informatics, Columbia University, New York, NY  
<sup>2</sup>Department of Computer Science, University of Tromsø, Norway  
<sup>3</sup>Department of Pathology, Yale University School of Medicine, New Haven, CT

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## André (PhD)

50% of the time spent at  
Technische Universität München

**Aktivitätsmessungen mit multiplen Sensoren (Akzelerometern) bei COPD-Patienten mit LTOT – eine Pilotstudie**

M. Wittmann<sup>1</sup>, K. Schultz<sup>2</sup>, L. Gorzelniak<sup>1,3</sup>, A. Dias<sup>1,4</sup>, A. Horsch<sup>1,5</sup>, G. Hartvigsen<sup>6</sup>

<sup>1</sup> Klinik bei Rechenfeld Zentrum für Rehabilitation, Pneumologie und Orthopädie  
<sup>2</sup> Institut für Epidemiologie, Heinrich-Zentrum München  
<sup>3</sup> Institut für Medizinische Statistik und Epidemiologie, Klinikum rechts der Isar der TU München  
<sup>4</sup> Computer Science Department, Technological Laboratory, University of Tromsø, Norway



### Measuring Physical Activity with Sensors: A Qualitative Study

André DIAS<sup>1,4</sup>, Bernhard FISTERER<sup>2</sup>, Gregor LAMLA<sup>3</sup>, Klaus KUHN<sup>4</sup>, Gunnar HARTVIGSEN<sup>5,6</sup>, Alexander HORSCH<sup>1,5</sup>

<sup>1</sup> Norwegian Centre for Telemedicine, University Hospital of North Norway, Tromsø, Norway  
<sup>2</sup> Computer Science Department, University of Tromsø, Norway  
<sup>3</sup> Institut für Medizinische Statistik und Epidemiologie, Technische Universität München, Germany

### Assessing physical activity in the daily life of cystic fibrosis patients

André Dias<sup>1,2</sup>, Lukas Gornowik<sup>3,4</sup>, Rudolf A. Horn<sup>5</sup>, Kai-Inn Eide<sup>6</sup>, Oystein Hertzberg<sup>7,8</sup>, Alexander Horsch<sup>9</sup>

<sup>1</sup> Norwegian Centre for Integrated Care and Telemedicine, Univ. Hospital of North Norway, Tromsø  
<sup>2</sup> Institut für Medizinische Statistik und Epidemiologie, Technische Universität München, Germany  
<sup>3</sup> Department of Computer Science, University of Tromsø, Tromsø, Norway  
<sup>4</sup> Institut für Medizinische Statistik und Epidemiologie, LMU, Munich, Germany  
<sup>5</sup> Medizinische Klinik Innenstadt, LMU, Munich, Germany

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## Luis (PhD)

10 months in 2010 at

- Univ. Minnesota, Institute Health Informatics
- Intelligent Health Lab (Uni. Harvard-MIT)



### The Role of Social Media for Patients and Consumer Health

A. Y. S. Lau<sup>1</sup>, K. A. Sak<sup>2</sup>, L. Fernandez-Luque<sup>3</sup>, H. Tange<sup>4</sup>, P. Ohnonohai<sup>5</sup>, S. Y. M. Li<sup>6</sup>, P. L. Ekia<sup>7</sup>, A. Arjola<sup>8</sup>, L. Wilkowski<sup>9</sup>, C. S. Ang<sup>10</sup>, G. Eyanbod<sup>11</sup>

### HealthTrust: Trust-based Retrieval of YouTube's Diabetes Channels

Luis Fernandez-Luque  
Northern Research Institute & Computer Science Department, University of Tromsø, Norway  
luis.luque@norut.no

Randi Karlsen  
Computer Science Department, University of Tromsø & Northern Research Institute Tromsø, Norway  
randi@cs.uit.no

Genevieve B Melton  
Institute for Health Informatics, University of Minnesota, Minneapolis, USA  
gmelton@umn.edu

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## Terje (PhD)



6 months in 2010 at

- Univ. of NSW, Sydney



**Journal of Systems and Software**  
Volume 86, Issue 10, October 2011, Pages 1791-1805

**Policy-based Awareness Management (PAM): Case study of a wireless communication system at a hospital**

Amir Tasebi Khoo<sup>1</sup>, Tejo Solvoll<sup>2</sup>, Pradeep Ray<sup>3</sup>, Nandan Parmeshwaran<sup>4</sup>

<sup>1</sup>The University of New South Wales, Sydney, Australia  
<sup>2</sup>Norwegian Centre for Integrated Care and Telemedicine, University Hospital of North-H Norway, Tromsø, Norway  
Received 17 November 2010; Revised 9 April 2011; Accepted 16 May 2011; Available online 6 June 2011



**Journal of Computer and System Sciences**  
Volume 78, Issue 1, January 2012, Pages 293-291

JCCD Knowledge Representation and Reasoning


**Maintaining awareness using policies; Enabling agents to identify relevance of information**

Amir Tasebi Khoo<sup>1</sup>, Tejo Solvoll<sup>2</sup>, Pradeep Ray<sup>3</sup>, Nandan Parmeshwaran<sup>4</sup>


<sup>1</sup>School of Information Systems, Technology and Management, The University of New South Wales, No. 1539, Quad angle Building, UNSW, Sydney, NSW 2052, Australia  
<sup>2</sup>Norwegian Centre for Integrated Care and Telemedicine, University Hospital of North-Norway, Tromsø, Norway  
Received 20 November 2010; Revised 28 March 2011; Accepted 31 May 2011; Available online 6 June 2011



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## Taridzo (PhD)




12 months in 2013 at

- Univ. of Texas Health Science Center, Houston

**Designing a diabetes mobile application with social network support: A pilot study**

Chomutare, T., Årsand, E., Iyngar, S., Hartvigsen, G.  
HIC 2013 (15-18.7.2013, Adelaide, Australia)




**Persuasive attributes of medication adherence interventions for older adults: A systematic review**

Anna Xia<sup>1</sup>, Taridzo Chomutare<sup>2</sup> and Strøm Iyengar<sup>3\*</sup>


<sup>1</sup>University of Texas Health Science Center at Houston, Houston, TX, USA  
<sup>2</sup>University of Tromsø, Tromsø, Norway

Received 31 January 2014  
Accepted 18 March 2014

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## Klaske (PhD)



12 months in 2009/10 at

- Cornell University

*Health Beyond the Horizon – Get It There*  
S.K. Anderson et al. (Eds.)  
IOS Press, 2008  
© 2008 Organizing Committee of MHE 2008. All rights reserved.

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### Disease outbreak detection through clique covering on a weighted ICPC-coded graph

Klaske VAN VUURDEN<sup>1</sup>, Gunnar HARTVIGSEN, Johan Gustav BELLIKA  
*Department of Computer Science, University of Tromsø, Norway*

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## 2. Opphold deg i gode miljøer (forskningstermin)

- Dersom du har mulighet til det – reis ut!
- Om du ikke har anledning å være borte et halvt/helt år, så kan 1-3 måned også være verdifullt. (Jeg har også god erfaring med 2-ukers opphold.)
- Det finnes (kanskje) midler lokalt. Ofte midler tilgjengelig i EU og NFR



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# My own sabbaticals

University of California, Davis  
TU München  
Aalborg Universitet  
Polytechnic University of Valencia  
University of Twente, NL  
Karolinska Institutet, Stockholm



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## - Sabbatsår? Uansvarlig!

Publisert: 6. oktober 2015 Oppdatert: 6. oktober 2015, 11:34



For ett år siden ble Edvard Moser hentet av en VIP-bil ved gaten da han landet i München. Da fikk han vite at han vite at May Britt Moser og han selv hadde vunnet årets Nobelpris i medisin eller fysikk. Foto: Kristoffer Furberg/Universitetsavisen

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**- Frister det ikke med et sabbatsår?  
- Nei, vi har det bra her, og det ville  
vært totalt uansvarlig. Vi må være  
her for å holde senteret gående.**

**-Edvard Moser, nobelprisvinner**

180

**Edvard Moser er oftere på Værnes enn i butikken, og må avslå utallige foredrag og konferanser.**

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**Inviter forsker til Tromsø / din by**

- Inviter forskere til din institusjon
- Men husk – du må da ta deg av dem
- Du må være en god vert



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## Andre tiltak

- Bli medlem av og delta aktivt i internasjonale interesseforeninger innen ditt felt
- Arranger internasjonale konferanser, seminarer og møter

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 UNIVERSITY HOSPITAL OF NORTH NORWAY  
UNIVERSITETSSYKEHOSPITALET NORD-NORGE


 ILLINOIS INSTITUTE OF TECHNOLOGY


 UNIVERSITY OF TROMSØ

**Tromsø/Chicago seminar**  
**Workshop on motivational mechanisms in ehealth**  
 Exploring motivation and motivational mechanism and elements in serious games for people with diabetes and other chronic diseases

Thursday 3<sup>rd</sup> - Saturday 5<sup>th</sup> March 2016

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**Presenters:**

*Invited keynotes and panelists:*

Gerit Pfuhl, Dept. of Psychology, University of Tromsø – The Arctic University of Norway (only Thursday)

Eirik Årsand, Norwegian Centre for eHealth Research, University Hospital of North Norway & Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway

George Demiris, School of Nursing & School of Medicine, University of Washington, Seattle

George Hripesak, Department of Biomedical Informatics, Columbia University

Lena Mamykina, Department of Biomedical Informatics, Columbia University

David J. Albers, Department of Biomedical Informatics, Columbia University

Dag Johansen, Department of Computer Science, University of Tromsø – The Arctic University of Norway

Valentijn Visch, Faculty of Industrial Design Engineering, Technical University Delft, The Netherlands

Laurence Alpay, Inholland University of Applied Science and Technology, The Hague, The Netherlands

Rob Doms, Inholland University of Applied Science and Technology, The Hague, The Netherlands

Keiichi Sato, Institute of Design, Illinois Institute of Technology (IIT), Chicago

M Sriram Iyengar, Texas A&M University Health Science Center, Houston campus

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### 3. Langsiktig publiseringsplan (flere nivå 2)



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**Where to publish your TTI results in 2011?**

**JOURNALS**

**MUST be considered:**

- Medical informatics / health informatics
- 2 Artificial Intelligence in Medicine
- 2 IEEE transactions on information technology in biomedicine
- 2 IEEE Transactions on Medical Imaging
- 2 International Journal of Medical Informatics
- 2 Journal of Medical Internet Research
- 2 JAMIA Journal of the American Medical Informatics Association
- 2 Journal of Biomedical Informatics
- 2 IEEE Transactions on Biomedical Informatics and Biomedical Engineering
- 2 Pattern Recognition

**Medicine / interdisciplinary:**

- 2A Nature
- 2A Nature Medicine
- 2A New England Journal of Medicine
- 2A Proceedings of the National Academy of Science of the USA
- 2A Science
- 2A The Lancet
- 2 BMJ (British Medical Journal)

**CAN be considered:**

- Medical informatics / health informatics
- 1 BMC Medical Informatics and Decision Making
- 1 Computers, Informatics, Nursing
- 1 Electronic Journal of Health Informatics
- 1 Health Care and Informatics Review Online
- 1 Health Informatics Journal
- 1 IEEE Engineering in Medicine and Biology Magazine
- 1 IEEE Transactions on Biomedical Engineering
- 1 IEEE/ACM Transactions on Computational Biology & Bioinformatics
- 1 Informatics for Health and Social Care
- 1 Informatics in Primary Care
- 1 International Journal of Healthcare Information Systems and Informatics
- 1 International Journal of Healthcare Technology and Management
- 1 International Journal of Technology Assessment in Health Care
- 1 Journal of Cognitive Informatics
- 1 Journal of Health Informatics in Developing Countries
- 1 Journal of medical systems
- 1 On-line Journal of Nursing Informatics

- 1 Medical and Biological Engineering and Computing
- 1 Medical Computing Review
- 1 Medical decision making
- 1 Medical informatics and the Internet in medicine (Print)
- 1 Methods of Informatics in Medicine
- 1 Studies in Health Technology and Informatics
- 1 Technology and Health Care
- 1 Applied Clinical Informatics

**Statistics:**

- 1 Statistics in Medicine
- 1 Statistical Methods in Medical Research
- 1 Computer Vision and Pattern Recognition

**Telemedicine:**

- 1 International Journal of Telemedicine and Applications
- 1 Journal of Telemedicine and Teletcare
- 1 Telemedicine Journal and e-Health

**CONFERENCES**

**Conferences:**

- 1 Electronic Healthcare - Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering
- 1 IASTED International Conference, Applied Informatics Proceedings
- 1 Lectures Notes in Informatics
- 1 Lecture Notes in Computer Science
- 1 IEEE Symposium Series
- 1 IEEE Conference proceedings
- 1 ACM Press
- 1 ACM Press

(Please note that *Studies in Health Technology and Informatics* is listed as journals. This is due to the distribution in Medicine.)

The numbers (1,2, 2A) refers to the publication channel level in the Norwegian system (<http://dnh.uib.no/konster/>) (2A is used by the Health trust.)

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**Where to publish your MI&T results in 2018?**

**JOURNALS**

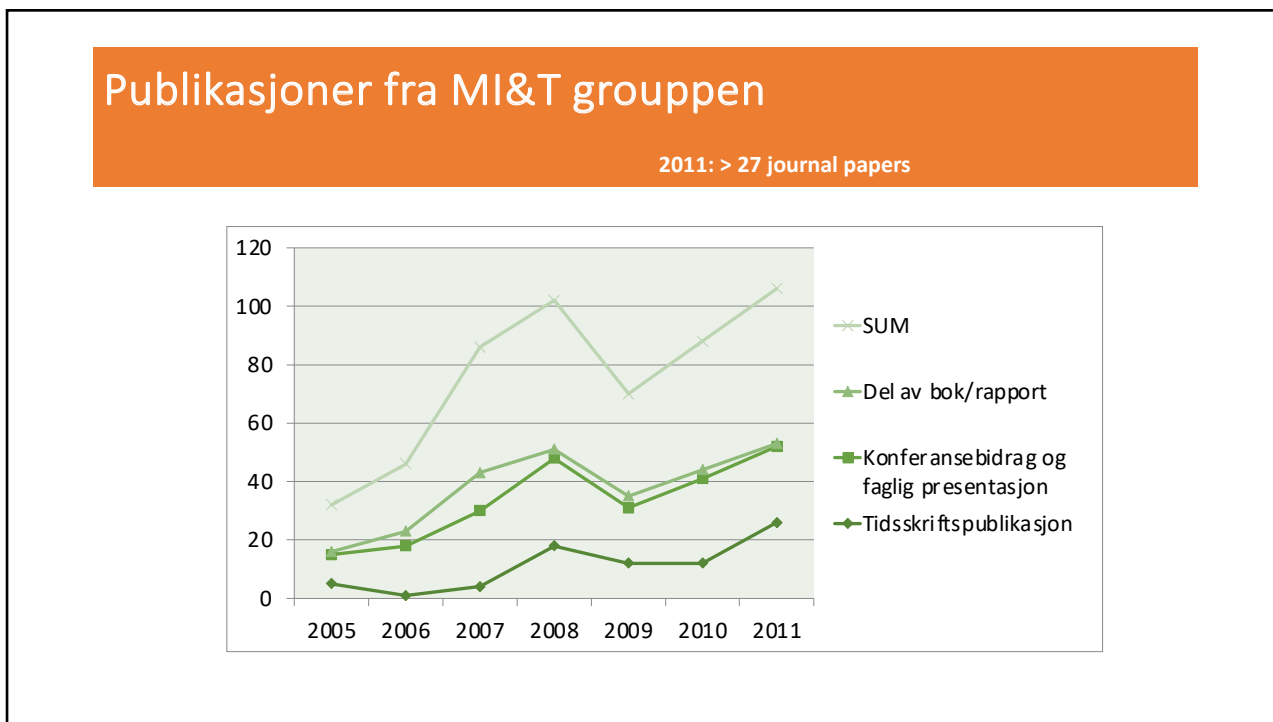
**MI&T to consider:**

- Medical informatics / health informatics:
  - 2 International Journal of Medical Informatics
  - 2 Journal of Medical Internet Research
- Medicine / interdisciplinarity:
  - 2 Nature
  - 2 Nature Medicine
  - 2 New England Journal of Medicine
  - 2 JAMA
  - 2 Science
  - 2 The Lancet
  - 2 BMJ (British Medical Journal)
- Other level 2 journals:
  - 2 Proceedings of the IEEE
  - 2 IEEE transactions on computers
  - 2 IEEE Transactions on Communications
  - 2 IEEE Transactions on Image Processing
  - 2 IEEE Transactions on Knowledge and Data Engineering
  - 2 IEEE Transactions on Software Engineering
  - 2 IEEE Transactions on Wireless Communications
  - 2 IEEE/ACM Transactions on Networking
  - 2 IEEE Transactions on Biomedical Circuits and Systems
  - 2 IEEE Transactions on neural systems and rehabilitation engineering
  - 2 IEEE Network
  - 2 IEEE Software
  - 2 IEEE Internet Computing
- CAN be considered:**
  - Medical informatics / health informatics:
    - 1 Biomedical Engineering
    - 1 BMC Medical Informatics and Decision Making
    - 1 BMC Medical Ethics
    - 1 Computers, Informatics, Nursing
    - 1 EAM Evidence-Based Transactions on Systems, Genes,
    - 1 Electronic Journal of Health Informatics
    - 1 Health Care and Informatics Review
    - 1 Health Informatics Journal
    - 1 IEEE Access
  - also:
    - 2 Games for Health Journal
  - Research in Nursing and Health
    - 2 Bulletin of the World Health Organization
    - 2 BMC Health Services Research
    - 2 PLoS Medicine
    - 2 Artificial Intelligence in Medicine
  - IEEE pervasive computing
    - 2 IEEE Security and Privacy
    - 2 IEEE wireless communications
    - 2 IEEE Inform. Processing
    - 2 ACM Transactions on Computer Systems
    - 2 ACM Transactions on Software Engineering and Methodology
    - 2 ACM Transactions on Information Systems
    - 2 ACM Transactions on Internet Technology
    - 2 ACM transactions on sensor networks
    - 2 IEEE International Conference on Distributed Computing Systems (ICDCS)
    - 2 Journal of Medical Ethics
    - 2 Pervasive Computing
  - IEEE journal of biomedical and health informatics
    - 1 IEEE Engineering in Medicine and Biology Magazine
    - 1 IEEE Transactions on Biomedical Engineering
    - 1 IEEE Transactions on Computational Intelligence and AI in Games
    - 1 IEEE Transactions on Medical Imaging
    - 1 IEEE Transactions on Systems, Man, Cybernetics
    - 1 IEEE Transactions on Big Data
  - IEEE Journal of Translational Engineering in Health and Medicine
    - 1 IEEE-ACM Transactions on Computational Biology & Bioinformatics
    - 1 Informatics for Health and Social Care
    - 1 Informatics in Primary Care
    - 1 International Journal of Healthcare Information Systems and Informatics
    - 1 International Journal of Healthcare Technology and Management
    - 1 INTERNATIONAL JOURNAL OF HEALTHCARE GAMES
    - 1 International Journal of Technology Assessment in Health Care
    - 1 International Journal of Computer-Guide Health
    - 1 Internet Journal of Medical Update
    - 1 JAMIA Journal of the American Medical Informatics Association
    - 1 JGIM Human Factors
    - 1 JMIR Medical Informatics
    - 1 JMIR mHealth and eHealth
    - 1 JMIR Public Health and Surveillance
    - 1 JMIR Rehabilitation and Assistive Technologies
  - JMIR Research Protocols
    - 1 JMIR Serious Games
    - 1 Journal of Biomedical Informatics
    - 1 Journal of Consumer Informatics
    - 1 Journal of Environmental Health Science and Engineering
    - 1 Journal of Health Informatics in Developing Countries
    - 1 Journal of medical systems
    - 1 Online Journal of Nursing Informatics
    - 1 Medical and Healthcare Engineering and Computing
    - 1 Medical Computing Review
    - 1 Medical Decision Making
    - 1 Medical informatics and the Internet in medicine (Pilot)
    - 1 Methods of Informatics in Medicine
    - 1 PLOS ONE
    - 1 Studies in Health Technology and Informatics
    - 1 Technology and Health Care
    - 1 The Computer Games Journal
    - 1 Applied Clinical Informatics
  - Statistics in Medicine
    - 1 Statistical Methods in Medical Research
    - 1 European Views and Patterns Recognition
  - Telemedicine
    - 1 International Journal of Telemedicine and Applications
  - Medicine and informatics
    - 1 Diabetes Technology & Therapeutics
  - Computational Statistics & Data Analysis
    - 1 Computational & Mathematical Methods in Medicine
  - Journal of Telemedicine and Teletext
    - 1 Telemedicine Journal and e-Health
  - Journal of Diabetes Science and Technology
  - FASTED International Conference Applied Informatics, Proceedings
  - Lecture Notes in Informatics

QR 2017-08-02

Vår liste over anbefalte publikasjonskanaler

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## Årsaken til økt publisering

- Økt fokus på forskning og publisering av resultater i MI&T-gruppen (tilknyttet NST, UNN) - vi diskuterer dette på hvert møte. (DETTE ER VIKTIG.)
- Til nå - skjermede lokaler i Forskningsparken – med stadig fokus på publisering

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## Årsaken til økt publisering (%)

- Driftsmidler fra NFR, Helse Nord, Tromsø Forskningsstiftelse, Regionalt forskningsfond, EU
- Godt støtteapparat ved NT-fak, IFI og NST
- Gode bibliotekstjenester (alle i MI&T gruppen når biblioteket via nettet)

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## Årsaken til økt publisering (%)

- Har klart å rekruttere gode ph.d.-studenter og postdoktorer
- Ph.d.-studenter finansiert gjennom NST/UNN (→ økt antall ph.d.-studenter i MI&T-gruppen)

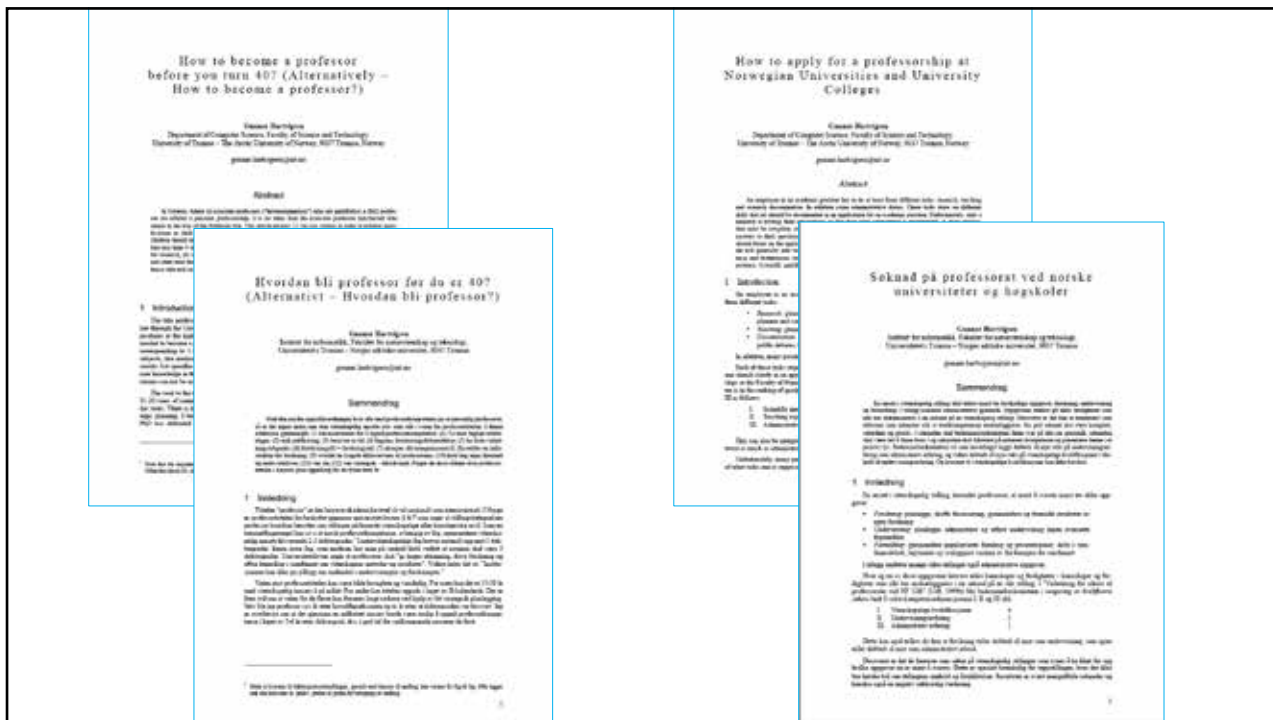
201

## Årsaken til økt publisering (%)

- Bevisst satsning på å øke internasjonalt samarbeid (muliggjort gjennom driftsmidler fra TTL)
- Miljøfremmende tiltak. Det skal være både faglig utfordrende og sosialt engasjerende å være med i MI&T gruppen.

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## Social media for academics

### Akademiske tjenester

- ResearcherID og ORCID
- Google Scholar
- Cristin (Norge)

### Sosiale akademiske tjenester

- Research Gate
- Academia.edu
- Mendeley

<http://www.uib.no/ub/72185/publiseringstatistikk#>

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## Eksempel: Prosjekt eTeam-Surgery

- Utg.pkt: Position paper
- Resultat: Bidrag innen kartlegging av prosessen for kansellering av elektiv kirurgi
- Best Paper Award
- Invitert til å publisere extended paper i tidsskrift
- Førsteforfatter ble utnevnt til eTelemed fellow (IARIA)
- NB! Publisering handler også om strategi - når publisere?



### Reduced Elective Surgery Cancellations Through Patient Involvement In Pre-Operative Planning In Norway

<p><b>Corinna Grøns</b>            Norwegian Centre for Integrated Care and Telemedicine            University Hospital of South Norway            Trossund, Norway  <a href="mailto:corinna.grons@iuh.no">corinna.grons@iuh.no</a></p>	<p><b>Kari Dyb</b>            Norwegian Centre for Integrated Care and Telemedicine            University Hospital of South Norway            Trossund, Norway  <a href="mailto:kari.dyb@iuh.no">kari.dyb@iuh.no</a></p>
<p><b>Stein Rindal Røde</b>            Norwegian Centre for Integrated Care and Telemedicine            University Hospital of South Norway            Trossund, Norway  <a href="mailto:stein.rindal.rode@iuh.no">stein.rindal.rode@iuh.no</a></p>	<p><b>Øyvind Hærryggen</b>            Norwegian Centre for Integrated Care and Telemedicine            University Hospital of South Norway            Trossund, Norway            Department of Computer Science            University of Trossund            Trossund, Norway  <a href="mailto:oyvind.haerryggen@iuh.no">oyvind.haerryggen@iuh.no</a></p>

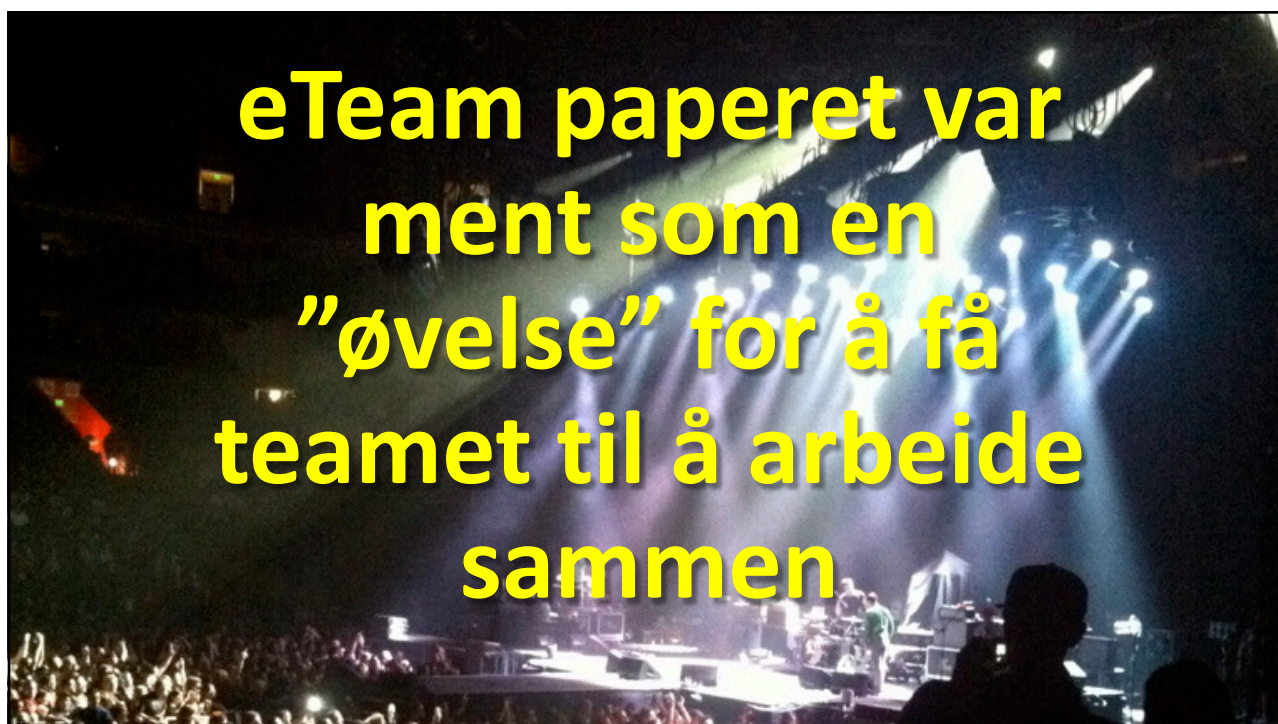
Elective surgery cancellations are undesirable in hospital settings as they increase costs, reduce productivity, and

13) Cancellations can significantly inconvenience patients and their families [14, 15]. It is also reported that patients may

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**JMIR Publications**  
Advancing Digital Health & Open Access

### Features of Mobile Diabetes Applications: Review of the Literature and Analysis of Current Applications Compared Against Evidence-Based Guidelines

...It is likely that conflicting outcomes in these and other similar studies are partially due to differences in the design of the mobile tools as interventions. Well-designed mobile tools with decision-support features [13] such as personalized education have demonstrated potential to enhance self-management outcomes [8]. We present an in-depth analysis of the features of diabetes mobile applications...

Taridzo Chomutare, Luis Fernandez-Luque, Eirik Årsand, Gunnar Hartvigsen

J Med Internet Res 2011;13(3):e65


Download Citation: [END](#) [BibTex](#) [RIS](#)

[View abstract](#)

[Download PDF](#) [Download XML](#)

This publication in **Journal of Medical Internet Research** has been cited **392 times**. 7% of its citations have been received in the past 140 years.

Compared to other publications in the same field, this publication is **extremely highly cited** and has received approximately **72 times more citations** than average.



This is the public page for a publication record in **Open Access**, a free research integrity platform that brings together information about funding, authorship, outputs, policies, grants and peers.

**The Literature and Analysis of Current Applications Compared Against Evidence-Based Guidelines**

[View abstract](#) [Download PDF](#) [Download XML](#)

**48**

**392**

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## Review papers most welcomed(!)(?)

- Mange tidsskrifter ønsker review papers pga mange siteringer
- Noen tidsskrifter publiserer ikke review papers. F.eks. PLOS ONE
- Det å skrive et review paper kan være en fin måte å starte opp et (mulig) prosjekt.

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## Review papers in journals (1)

- Lee, E.,** Tataru, N., Årsand, E., Hartvigsen, G., Review of Mobile Terminating Tools for Diabetes Diet Management. *Studies in Health Technology and Informatics*, 2011;169: 205-208. doi: 10.1186/1745-2975-169-205. PMID: 21979293
- Chomutare, T.,** Fernandez-Luque, L., Årsand, E., Hartvigsen, G. Features of Mobile Diabetes Applications: Review of the Literature and Analysis of Current Applications Compared Against Evidence-Based Guidelines. *Journal of Medical Internet Research*, 2011, (Sep 22), 13(3):e65. PMID: 21979293
- Rusin, M.,** Årsand, E., Hartvigsen, G. Functional and Usability Methods for Mobile Food Intake: A Systematic Review. *International Journal of Medical Informatics*. 2013; 83(1): 66-76. doi: 10.1016/j.ijmedinf.2013.01.007. PMID: 23415822
- Woldaregay, A.Z.,** Walderhaug, S., Hartvigsen, G. Telemedicine for the Arthritis Self-Management Program. *JMIR Medical Informatics*. 2017, 5(2): e110. doi: 10.2196/jmir.2017.5.2.e110. PMID: 29567635
- Henriksen, A.,** Mikalsen, M.H., Woldaregay, A.Z., Hartvigsen, G., Hopstock, J.A., Mužný, M., Grimsgaard, S. Using fitness trackers and smart watches to measure physical activity in residential care facilities: a pilot study with worn wearables. *Journal of Medical Internet Research*, 2018;20(3):e110. doi: 10.2196/jmir.2017.5.2.e110. PMID: 29567635

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## Review papers in journals (2)

- Martinez-Millan, A.,** Palacios, F.J., Fernandez-Ultras, C., Hartvigsen, G., Traver Salcedo, V. App Features for Type 1 Diabetes Smartphones: A Comparative Review. *Journal of Medical Internet Research*. 2018,6(11):e12237. doi: 10.2196/112237. PMID: 30463859
- Henriksen, A.,** Johansson, J., Hartvigsen, G., Grimsgaard, S., Hopstock, L. Encouraging physical activity using triaxial wrist worn Polar activity trackers: A Systematic review. *Int J Exercise Sport Sci*. 2013,4(1):1-6. PMID: 32509122
- Yeng, P.K.,** Woldaregay, A.Z., Solvoll, T., Hartvigsen, G. Cluster Detection Mechanisms for Syndromic Surveillance Systems: Systematic Review and Framework Development. *J Public Health Sci Pract*. 2020 May 26;6(2):e11512. doi: 10.2196/11512. PMID: 32357126
- Randine, P., Sharma, A.,** Hartvigsen, G., Johansen, H.D., Årsand, E. Information and Communication Technology-based Interventions for Chronic Diseases Consultation: Scoping Review. *Medical Informatics*. 2022, vol. 163, 104784 doi: 10.1016/j.ijmedinf.2022.104784
- Ghimire, S.,** Martinez, S., Hartvigsen, G., Gerdes, M. Virtual Prenatal Care: A Systematic Review of Pregnant Women's and Healthcare Professionals' Experiences, Needs, and Preferences. *Journal of Medical Informatics*, 2023, vol. 170, 104964, doi: 10.1016/j.ijmedinf.2022.104964. PMID: 36565547

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## Review papers in conference proceedings

- Tatara, N.,** Årsand, E., Nilsen, H., Hartvigsen, G. A Review of Mobile Terminal-Based Applications for Self-Management of Patients with Diabetes. Proceedings of International Conference on eHealth, Telemedicine, and Social Medicine. The IEEE Computer Society, 2009, pp. 166-175. (ISBN 978-0-7695-3532-6)
- Chomutare, T.,** Årsand, E., Hartvigsen, G. Diabetes Group Education versus Individual Counseling: Review of Conflicting Evidence. I. Granja, C., Budrionis, A. (Red.). "SHI 2015. Proceedings of the 13<sup>th</sup> Scandinavian Conference on Health Informatics (15-17. juni, 2015, Tromsø, Norge). Linköping Electronic Conference Proceedings, No. 137. Linköping, Sweden: Linköping University Electronic Press, 2015, pp. 93-97. (ISSN: 1650-3686 (print) ISSN: 1650-3740 (online) ISBN: 978-91-7685-935-8)
- Giordanengo, A.,** Bradway, M., Muzny, M., Woldaregay, A., Hartvigsen, G., Årsand, E. Systems integrating self-collected health data by patients into EHRs and medical systems and commercial wearables: a State-of-the-art review. I. Granja, C., Budrionis, A., Bygholm, A., Fossum, M., Hartvigsen, G., Hägglund, M., Moe, C.E., Thygesen, E., Vimarlund, V. (Eds.). SHI 2017. Proceedings of the 15<sup>th</sup> Scandinavian Conference on Health Informatics 2017. Linköping Electronic Conference Proceedings, No. 151. Linköping, Sweden: Linköping University Electronic Press, 2017, pp. 43-49. (ISSN: 1650-3686 (print) ISSN: 1650-3740 (online) ISBN: 978-91-7685-364-1)
- Yeng, P.K.,** Woldaregay, A.Z., Solvoll, T., Hartvigsen, G. A Systematic Review of Cluster Detection Mechanisms in Syndromic Surveillance: Towards Developing a Framework of Cluster Detection Mechanisms for the DM System. I. Frøholm, A., Pape-Haugaard, L., Niss, K., Hejlesen, O., Zhou, C. (Red.). Proceedings from the 16<sup>th</sup> Scandinavian Conference on Health Informatics 2019. Linköping Electronic Conference Proceedings, No. 151. Linköping, Sweden: Linköping University Electronic Press, 2019, pp. 1-6. (ISSN: 1650-3686 (print) ISSN: 1650-3740 (online) ISBN: 978-91-7685-213-2)
- Johannessen, E.,** Henriksen, A., Hartvigsen, G., Horsch, A., Årsand, E., Johansson, J., Collecting health-related research data using consumer-based wireless smart scales: A scoping review of connected consumer-based smart scales. In: Henriksen, A., Gabarron, E., Vimarlund, V. (Eds.). SHI 2022: Proceedings of the 18<sup>th</sup> Scandinavian Conference on Health Informatics 2022. Linköping Electronic Conference Proceedings, No. 187. Linköping, Sweden: Linköping University Electronic Press, 2022, pp. 1-6. (ISSN: 1650-3686 (print) eISSN: 1650-3740 (online) ISBN: 978-91-7929-344-4)

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## Review papers in books (book chapters)

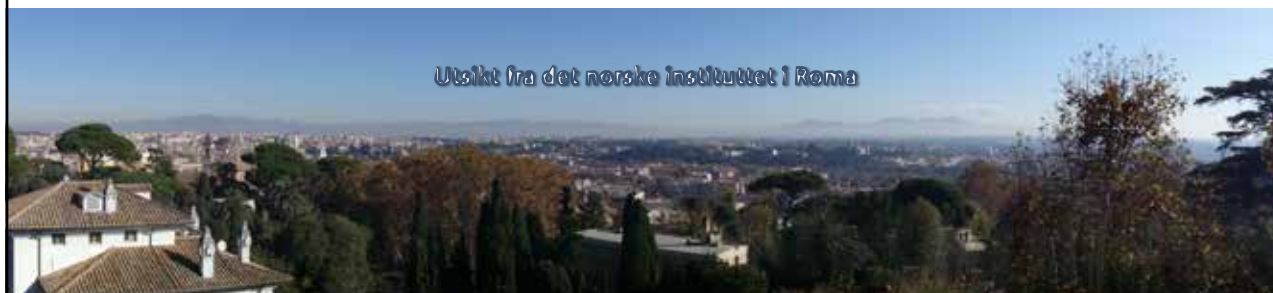
**Årsand, E.**, Tatara, N., Hartvigsen, G. Wireless and Mobile Technologies Improving Diabetes Self-Management. In: Maria Manuela Cruz-Cunha (Ed.), *Handbook of Research on Ubiquitous Computing and Computing: Evolving Technologies and Ubiquitous Impacts*. IGI Global, 2011. pp. 149–156. (ISBN: 1609600428; ISBN-13: 978-1609600426)

**Makhlysheva, A.**, Årsand, E., Hartvigsen, G. Review of Serious Games for People with Diabetes. Book chapter in: Novak, D., Tulu, B., Brendryen, H. (Eds.), *Handbook of Research on Health Informatics and Informatics for Clinical Practice*. pp. 412–447). Hershey, PA: IGI Global, 2016. (DOI: 10.4018/978-1-4666-9522-1.ch019) (ISBN13: 9781466695221)

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## Vi har gradvis økt ambisjonsnivået vårt

(Som sagt – Rom ikke bygget på en dag)



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## 4. Søke forskningsmidler



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## Forskningsmidler (2005-2014) (Tall i mill kr)

- Norges forskningsråd (82)
- Helse Nord (17,4)
- Regionalt Forskningsfond, Fondsregion Nord-Norge (3)
- EU (via NST)
- Tromsø forskningsstiftelse (Mohn-fondet) (1,2)

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## Søknadsskriving tar tid (og må dessverre ofte sendes på nytt i revidert form)

“Re-submission”



**Should I always revise and resubmit if I didn't succeed?**

No. First determine whether your problems are fixable.

We have more on this topic in [What to Do if You Get Bad News in the Strategy for NIH Funding](#).

**How can I tell whether my problems are fixable?**

Read [What to Do if You Get Bad News in the Strategy for NIH Funding](#).

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**NB! De fleste av våre søknader  
blir ikke finansiert!**



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**5. Dannet større forskningsgruppe (med  
NST/UNN)**



**"No calls for an hour, Edna. I'm going to rest on  
my laurels."**

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## Forskningsstrategi

**1998–** : (Vår første plan – 2 medlemmer)

- (1) Etablere en solid forskningsgruppe,
- (2) Gjøre gruppen synlig innen (bio)medical informatics og telemedisin;
- (3) Besøke relevante forskningsgrupper & institusjoner og forsøke å etablere samarbeid med ledende forsker-grupper / forskere innen vårt felt.

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## Forskningsstrategi

**2007–** (revisjon):

- (1) Etablere MI&T gruppen i “the ‘upper division’ of research groups in MI and telemedicine”;
- (2) Øke kvaliteten på våre publikasjoner – 50% av publikasjonspoeng skal komme fra nivå 2 publikasjoner (En liste med publikasjonskanaler gjøres kjent for alle);
- (3) Styrke tilknytning til forskningsavdelingen ved NST;
- (4) Styrke samarbeidet med internasjonale forskningsgrupper.

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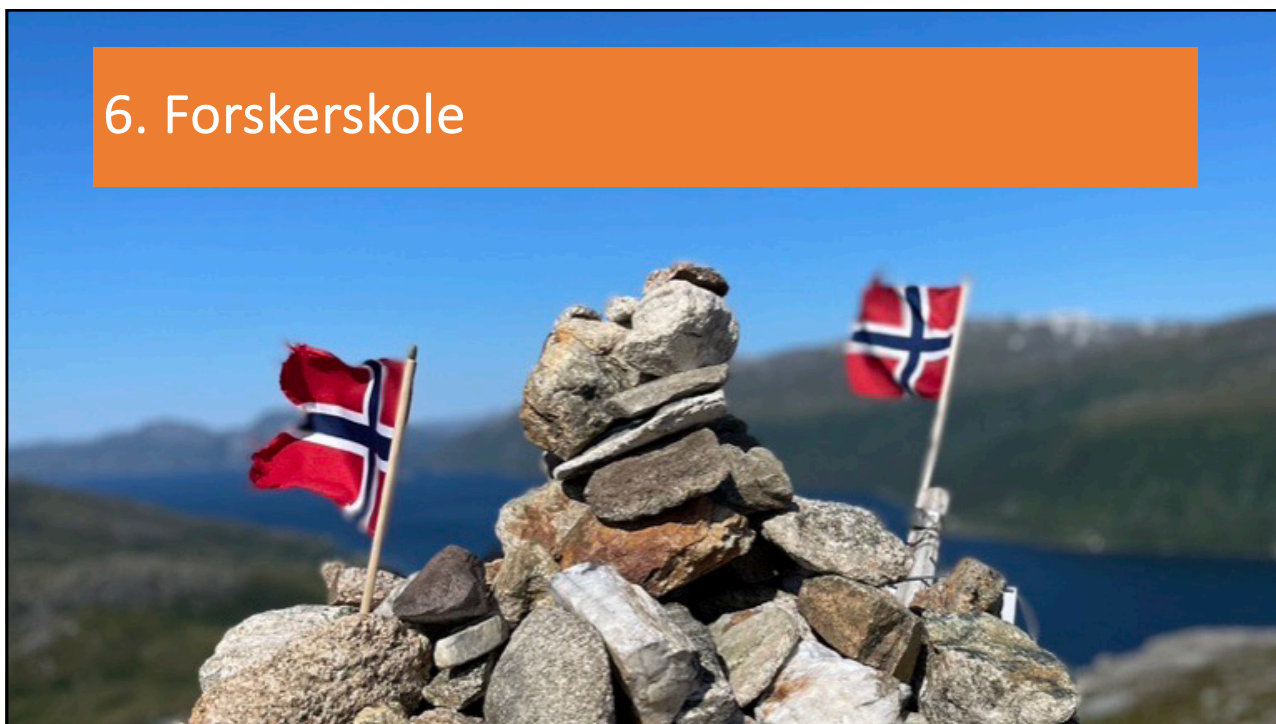
## Forskningsstrategi 2010- (revisjon)

- Etablere MI&T gruppen i “the ‘upper division”
- 50% Nivå 2 publikasjonspoeng
- Styrke tilknytning til forskningsavd ved NST
- Styrke samarbeidet med internasjonale forskningsgrupper (TU München; Aalborg University; UC Davis; Univ of Washington, Seattle; Columbia University; Univ of Texas, Houston; Illinois Univ of Technology, Chicago; Technical University of Valencia)



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## 6. Forskerskole



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# PhD-school in Telemedicine and e-health



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## Topics PhD school

1. What is a good dissertation?
2. What is a good research paper?
3. How does a good referee report look like?
4. Are Karl Popper's theories useful or even correct? (Philosophy of Science)
5. Do we need a code of ethics?
6. The Vancouver agreement
7. Do scientists cheat? (Research fraud)
8. What is a good PhD supervisor?
9. What exactly does a SPC member?
10. IPR – Intellectual Property Rights
11. Others:  
Regular meetings and seminars

2015-: PhD-seminarer i MI&T gruppen  
(etterlivet til TTL)

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## PhD seminars in the MI&T group, Fall 2016

- The starting point for the seminars is: **What every member of the MI&T group should know about science**. The topics are addressed in a number of full day seminars. All group members are invited. However, the headlines indicate the targeted audience. (The postdoc seminar is an open seminar that takes place at Research park.)
- The PhD seminar gives an introduction to science and science communication. The main audience for this seminar is new PhD students and junior researchers. The seminar covers, ethics and research fraud, research reports, the role of the supervisor, the PhD program, writing a dissertation, the research paper, making presentations at scientific conferences, and the role of the referee.
- (We will in a later seminar address research processes and methods and philosophy of science.)

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## PhD seminars in the MI&T group, Fall 2016

**PhD seminar, part 1. Date: 3.11.2016**

MI&T lab (A136), Science building (Realfagbygget)

### Agenda

09:00-09:15	Introduction to the seminar
09:15-10:15	The PhD test
10:15-10:45	How to write a PhD dissertation
11:15-12:30	How to write a PhD dissertation
13:00-13:30	How to write a PhD dissertation
13:30-14:00	The research paper
14:15-15:15	The research paper
14:15-16:00	The research paper

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## PhD seminars in the MI&T group, Fall 2016

### PhD seminar, part 2. Date: 4.11.2016

MI&T lab (A136), Science building (Realfagbygget)

#### Agenda

09:00-10:00	Code of ethics & guidelines for research ethics
10:15-11:00	Code of ethics & guidelines for research ethics
11:15-12:00	Code of ethics & guidelines for research ethics
12:30-13:15	Code of ethics & guidelines for research ethics
13:15-13:45	Giving a talk at a conference
14:00-15:00	Giving a talk at a conference
15:15-16:00	Giving a talk at a conference

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## PhD seminars in the MI&T group, Fall 2016

### PhD seminar, part 3. Date: TBD

MI&T lab (A136), Science building (Realfagbygget)

#### Agenda

09:00-10:00	Research fraud
10:15-11:00	The task of the referee
11:15-12:00	The task of the referee
12:30-13:15	Discussion: What is a good referee report?
13:15-13:45	Discussion: What is a good PhD dissertation?
14:00-15:00	Discussion – What is needed to get a PhD?
15:15-16:00	Discussion – What is needed to get a PhD?

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The "PhD-school in Telemedicine and e-health" is established by the University of Tromsø as both an interfaculty initiative (Faculty of Science and Faculty of Medicine) and cross institutional initiative (University of Tromsø and University Hospital of North Norway / Norwegian Centre for Telemedicine). The PhD-school is rooted in Tromsø Telemedicine Laboratory (TTL), one of 14 Norwegian centers for research-based innovation. Through TTL, the PhD-school cooperates with Norat, Telesor R&D, IBM, DPS, Northern Norway Regional Health Authority (Helse Nord IKT) and Norwegian Healthnet. The industrial partners contribute with research facilities and funding. The PhD-school is administrated by the Faculty of Science, University of Tromsø, but is a joint effort among research groups in medical sensors, personalized healthcare, health intelligence, computer aided diagnosis, workflow management, clinical decision support, and telemental health.

The aim of the PhD-school is to provide excellent training environments and facilities in telemedicine and e-health. The PhD-school and the responsible research groups are providing projects within a wide range of telemedicine and e-health topics. The goal is to train PhD students and young scientists to become experts of highest international standards within the field of telemedicine and e-health. The PhD-school offers training courses and workshops.

**NST News**

- Sensors not good enough  
André Serra Dias from Portugal is doing important research on the relationship between activity levels...
- Everything goes to the cloud - even your health...  
"The way we think of health information systems will be changing dramatically during the next..."
- Maritime telemedicine must be standardized  
Internet-based communication between the maritime industry and health workers onshore is becoming more important. Cooperation...

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## Hvorfor forskerskole?

- Møteplass for alle ph.d.-studentene (i TTL og MI&T Gruppen)
- Samarbeid mellom veiledere
- Organisering av kurs, seminarer og gjesteforelesninger
- (NB! Vi har ikke fått ekstra midler fra UiT men bruker av SFI-bevilgningen)

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## Forskerskoler

- Er forskjellige
  - Lokale
  - Nasjonale
  - Internasjonale
- Forskningspolitisk virkemiddel
- Begunstiges med midler

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*From 2015:  
Postdoc-school  
in Telemedicine  
and e-health*



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## Topics postdoc school

- |  |  |
|--|--|
| THEME 0: Discussion of personal short- and long-term research goals and ambitions            | THEME 7: How to create an international network?   |
| THEME 1: A good (working) climate for research: What characterizes a good research group?    | THEME 8: Publish or perish? Publication strategies - What can be communicated, when and how? |
| THEME 2: Supervision of Ph.D. students   | THEME 9: Application for funding   |
| THEME 3: What exactly does a professor? (Docent or professor - two different career ladders) | THEME 10: Intellectual Properties and DOFI   |
| THEME 4: Twelve advices on the way to the professorship – how to work strategically?         | THEME 11: Cultural differences – who cares?  |
| THEME 5: Application to a professorship  | THEME 12: PLENARY DISCUSSION – How to become a global player in research?                    |
| THEME 6: The Career Plan   | Follow ups – status seminars every 6 months  |

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## Postdoc seminars in the MI&T group, Fall 2016

- The starting point for the seminars is: **What every member of the MI&T group should know about science**. The topics are addressed in a number of full day seminars. All group members are invited. However, the headlines indicate the targeted audience. (The postdoc seminar is an open seminar that takes place at Research park.)
- The aim of the postdoctoral seminar is to give postdocs and talented young researchers the opportunity to further develop as researchers and research leaders, enhancing their opportunities to participate and be visible on the international research arena. The seminar was initially planned for postdocs affiliated with the MI&T research group. In agreement with the leadership at NSE, the seminar is taken place in Vrimle and open for everybody that find the topics of interest. The plan is to stick to the timetable, but this might change on short notice depending on the discussions that hopefully will take place during the seminar.
- The seminar is given in English.

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## Postdoc seminars in the MI&T group, Fall 2016

**Postdoc seminar, part 1. Date: 14.10.2016**

Vrimle, NSE/KVALUT (3<sup>rd</sup> floor, Research Park – main building)

### Agenda

09:00-10:00 Discussion of personal short- and long-term research goals and ambitions

10:15-11:00 Discussion of personal short- and long-term research goals and ambitions

11:15-12:00 A good (working) climate for research: What characterizes a good research group?

12:30-13:15 A good (working) climate for research: What characterizes a good research group?

13:30-14:15 A good (working) climate for research: What characterizes a good research group? How to create an international network?

14:30-15:00 Supervision of MSc and Ph.D. students

15:00-15:30 "Don't be such a scientist"

15:30-16:00 International professional societies

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## Postdoc seminars in the MI&T group, Fall 2016

**Postdoc seminar, part 2. Date: 21.10.2016**

Vrimle, NSE/KVALUT (3<sup>rd</sup> floor, Research Park – main building)

### Agenda

09:00-10:00 Application for funding / writing grant applications

10:00-10:30 DISCUSSION - personal experiences

#### ACADEMIC CAREER

10:30-11:15 What exactly does a professor?

11:30-12:30 Twelve advices on the way to the professorship – how to work strategically?

13:00-13:45 Twelve advices on the way to the professorship – how to work strategically?

14:00-14:30 Application for a professorship

14:30-15:15 Application for a professorship

15:30-16:00 Discussion

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## Postdoc seminars in the MI&T group, Fall 2016

**Postdoc seminar, part 3. Date: TBD**

Vrimle, NSE/KVALUT (3<sup>rd</sup> floor, Research Park – main building)

### Agenda

09:00-10:00 Publish or perish? Publication strategies - What can be communicated, when and how?

10:15-11:00 Publish or perish? Publication strategies - What can be communicated, when and how?

11:15-12:00 Intellectual Properties and DOFI

12:30-13:15 Cultural differences – who cares?

13:30-14:15 The Career Plan

14:30-15:30 Group work

15:30-16:00 DISCUSSION – How to become a global player in research?

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## 7. Erfaringsutveksling i gruppen



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## Erfaringer fra utenlandsopphold



- Harvard: "Ikke bedre enn oss, men langt mer strategisk mht publiseringer. Obligatorisk oppmøte med signering av protokoll."



- UW: "Flink til å gi ros for store og små prestasjoner."



- UNSW: "Fokuserer på publisering i de beste tidsskriftene iht intern liste."



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## Erfaringer fra utenlandsopphold

- MEN – ikke alle har et fruktbart utenlandsopphold. Kritiske suksessfaktorer:
  - Integreres i lokal forskningsgruppe
  - Kontorplass/arbeidsplass på campus
  - Midler til å delta på konferanser (sammen med lokale forskere)
  - Deltar på felles publikasjoner



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## Erfaringer fra utenlandsopphold

**DU MÅ REGNE MED Å BRUKE  
MANGE UKER PÅ PAPIR-  
ARBEID & LOGISTIKK**

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## SWOT

### Strengths

- Dominant international research group in Tromsø Telemedicine Laboratory (centre for research-based innovation)
- Group is embedded in a strong eHealth environment in Tromsø with 200+ staff in hospitals / companies (UNN, Helse Nord IKT, NHN, DIPS, IBM, Telenor, Norut)

### Weaknesses

- Weak sustainability of group: 2 permanent vs. 13 temporary members / totally dependent on external funding
- Teaching few courses in medical informatics and eHealth / still weak on recruitment to master program / options for continuing education limited

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## SWOT

### Opportunities

- To substantially contribute to eHealth services for healthy ageing as a major global challenge
- To establish the group in the upper division of the field and sustain it there

### Threats

- Unexpected loss of permanent research group members
- To lose momentum in the competition with other groups world-wide

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## 8. Tenker samarbeid (nesten hele tiden)



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**sf**  Sentre for forskningsdrevet innovasjon

**Vision TTL**  
**2007-14**

To become a world leading centre for research and innovation in the field of advanced telemedicine and eHealth systems for chronic, age, and lifestyle related diseases.

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## Partnersamarbeid i senteret

- TTL prosjekt marathon (alle forskere og PhD studenter presenter sine prosjekter)
- Forskningsgruppemøter
- Forskerseminarer
- Sosiale arrangementer
- Vertsinstitusjonen (NST) har vært en viktig fasilitator for TTLs forskning og innovasjonsprosesser



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### TTL Open International Seminar on Making Multicultural Research Groups Work: How to be a Foreign Researcher in Norway?

Monday 8 December 2014  
Vrimle area, NST, 12:30-15:30

#### Agenda

Time	Topic	Presenter
12:30 - 12:35	Welcome & introduction	Gunnar Harvigsen
12:35 - 13:15	Making multicultural research group work: Who shall adapt to whom? (Might it be that it is us – the Norwegians – who are different?)	Gunnar Harvigsen
13:15 - 13:25	Personal experiences – My three worst and best experiences in the meeting with Norwegian culture?	Meghan Bradway
13:25 - 13:35	Personal experiences – My three worst and best experiences in the meeting with Norwegian culture?	Kassaye Yiribarek Yigzaw
13:35 - 13:55	Personal experiences - How to be a foreign researcher in Norway?	Luís Marco Ruiz
13:55 - 14:05	Personal experiences – My three worst and best experiences in the meeting with Norwegian culture?	Mark Muzny
14:05 - 14:15	Break	
14:15 - 14:35	Personal experiences - How to be a foreign researcher in Norway?	Alexander Boisch
14:35 - 14:50	Personal experiences – My three worst and best experiences in the meeting with Norwegian culture?	Conceicao Graça
14:50 - 15:30	Discussion	Gunnar Harvigsen

#### Presenters

Gunnar Harvigsen, professor, Norway  
 Meghan Bradway, Fulbright fellow, USA  
 Kassaye Yiribarek Yigzaw, PhD scholar, Ethiopia  
 Luis Marco Ruiz, PhD scholar, Spain  
 Mark Muzny, PhD scholar, Czech Republic  
 Alexander Boisch, professor, Germany  
 Conceicao Graça, postdoc, Portugal

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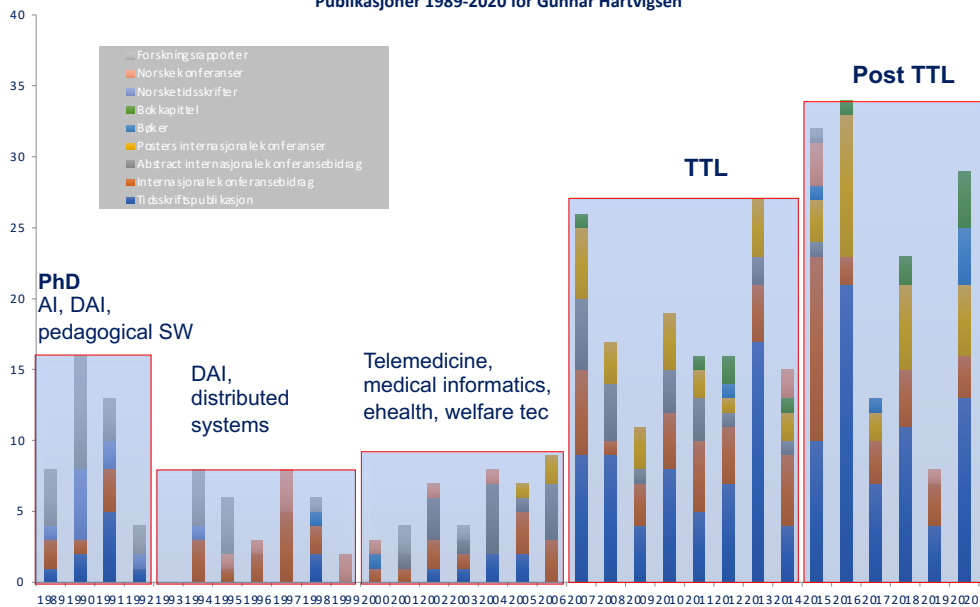
# Publications TTL

Publication channel	Initial goal 2007-2014	Results 2007-2009	Revised goal 2007-2014	Slutt- resultat pr 31.12.2014
Scientific journals	32	50	130	197
Conference proceedings	36	29	70	134
Workshop papers		26	60	66
International lectures (incl. abstracts)		69	180	183
National lectures (incl. abstracts)		65	150	157
International posters		17	40	47
Book chapters		1	5	24
Prototypes (artefacts)		22	40	
Patents applications		1	3	

Med 10 ph.d. i løypa så vil vi i tillegg publisere >> 40 artikler.

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Publikasjoner 1989-2020 for Gunnar Hartvigsen



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## Effekt av TTL

TTL har gjort muligjort etablering av

- Solide forskergrupper
- Omfattende internasjonale relasjoner
- Langsiktig forskning
- Økt samarbeid mellom forskerinst., SMB og multinasjonale selskaper

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Søk til / sammen med  
større grupper

*“Vi var 2 på universitetet,  
nå er vi 100 i Tromsø”*

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Deler av diabetesgruppen ved NST



← **UIT**      **UNN** →

(Plutselig ble jeg del av en større gruppe)

The image shows a group of approximately 12 people of various ages and ethnicities. A red diagonal line runs from the top left to the bottom right, dividing the group. Above the line, the word 'UIT' is written in red with a blue arrow pointing left. Below the line, the word 'UNN' is written in red with a blue arrow pointing right.

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9. Gradvis fokusert faglig aktivitet men også vært åpen for nye ideer



The image shows a single incandescent lightbulb against a black background. The bulb is illuminated from within, and the word 'IDEA' is written in a glowing orange-yellow font across the middle of the glass. The base of the bulb is also glowing yellow.

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## Noen av våre forskningsfelt

- Varslingssystemer for spredning av smittsomme sykdommer
- Selvhjelpssystemer for kronikere (diabetes)
- kontekst-sensitiv kommunikasjon i sykehus
- Sosial media-baserte spill for personer med kroniske sykdommer
- Medisinske sensor systems & velferdsteknologi
- Reduksjon i kanselleringer ved planlagte operasjoner

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DN Dagens Næringsliv Oslo Børs 14:16 Indeks 2014,1 -0

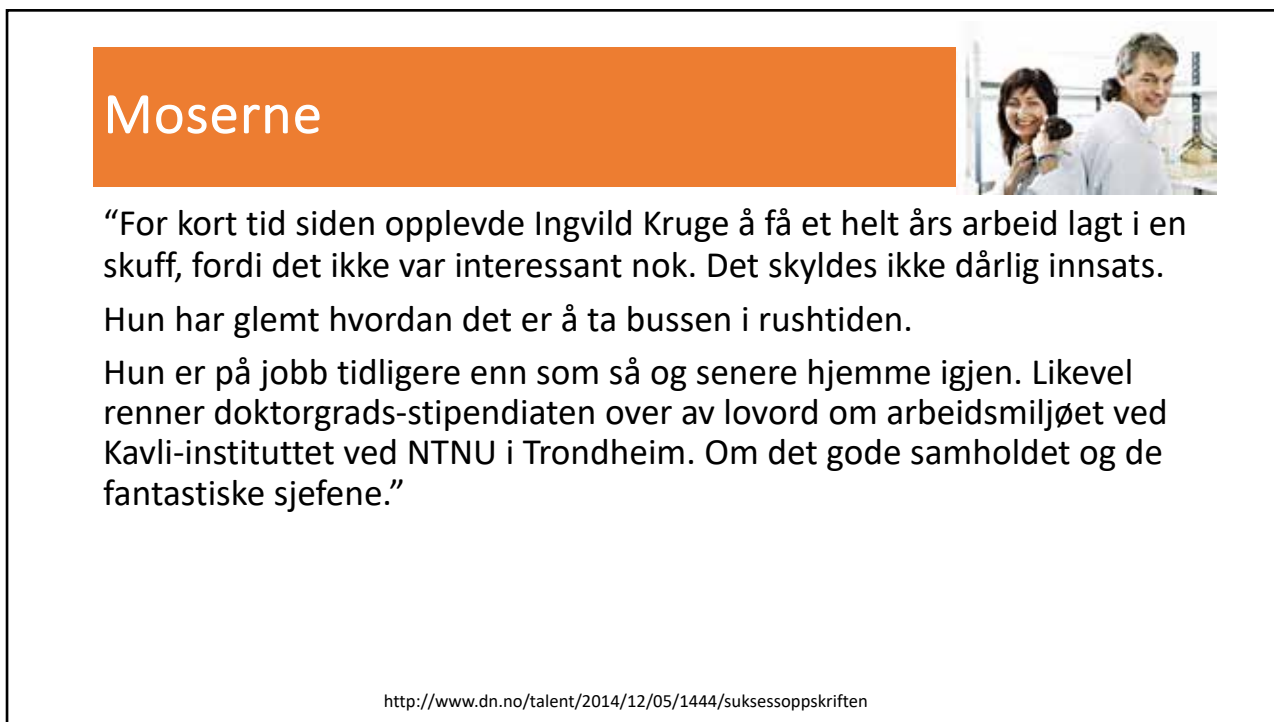
May-Britt Moser ser ut til å behandle sine ansatte som rotter, det vil si med omhu, ros og belønninger, skriver kommentator Eva Grinde. Foto: Wil Lee-Wright

Talent  
**Suksessoppskriften**  
Midlertidige lavlønnskontrakter og 70 timers arbeidsuker. Og nobelpris.

**“Suksessoppskriften**  
Midlertidige lavlønnskontrakter og 70 timers arbeidsuker. Og nobelpris.”

**“May-Britt Moser ser ut til å behandle sine ansatte som rotter, det vil si med omhu, ros og belønninger.”**

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## Moserne

“For kort tid siden opplevde Ingvild Kruge å få et helt års arbeid lagt i en skuff, fordi det ikke var interessant nok. Det skyldes ikke dårlig innsats. Hun har glemt hvordan det er å ta bussen i rushtiden. Hun er på jobb tidligere enn som så og senere hjemme igjen. Likevel renner doktorgrads-stipendiaten over av lovord om arbeidsmiljøet ved Kavli-instituttet ved NTNU i Trondheim. Om det gode samholdet og de fantastiske sjefene.”

<http://www.dn.no/talent/2014/12/05/1444/suksessoppskriften>

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## Moserne

“Foruten nødvendige akademiske evner skårer de fleste høyst sannsynlig høyt på persontrekk som **stamina**, **nysgjerrighet** og **indre motivasjon**. Her nytter det antagelig enda mindre enn andre steder å sette seg ned og si: motiver meg.”



<http://www.dn.no/talent/2014/12/05/1444/suksessoppskriften>

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## Moserne

“Nobelprisvinnerne er også kjent for sin **faglige kompromissløshet**. Derfor kan det drøye både ett, to og tre år over tiden før de lar doktorandene disputere. Men da er forskningskvaliteten på nivå med kravene i de internasjonale prestisjetidsskriftene Nature og Science.”



<http://www.dn.no/talent/2014/12/05/1444/suksessoppskriften>

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## Moserne



“Alle de talentfulle, hardt arbeidende doktorgradsstipendiatenes arbeidskraft gires inn mot dette formålet.

Og med sjefer som jobber minst like mye som dem og til enhver tid har detaljert oversikt over stipendiatens «graf på side 66», er det mulig å dyrke et tett fellesskap.

Å bli sett og anerkjent av ledere man har dyp faglig respekt for er motiverende i seg selv.”

<http://www.dn.no/talent/2014/12/05/1444/suksessoppskriften>

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## 10. Etabler sosiale møteplasser



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I arbeidstiden

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Instituttets hemmelige våpen ...

My cup

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En del av MI&T gruppa på middag hjemme hos meg

Tsjekkia  
 Hamna  
 Myreng  
 Kaldfjorden  
 Nederland  
 Italia  
 Litauen

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## Pizza (+ movie night) (In TTL)

**YONAS**  
Pizzeria & Catering

Pizzeria - Spise i restaurant på Yonas

1. Varesås	119,- 229,- 339,-	2. Toppa	119,- 229,- 339,-	3. Stroganoff	119,- 229,- 339,-	4. Næringsrik	119,- 229,- 339,-	5. Toppa	119,- 229,- 339,-	6. Vegetar	107,- 207,- 307,-	7. Stroganoff	119,- 229,- 339,-	8. Toppa	119,- 229,- 339,-	9. Toppa	119,- 229,- 339,-	10. Toppa	119,- 229,- 339,-	11. Toppa	119,- 229,- 339,-	12. Toppa	119,- 229,- 339,-	13. Toppa	119,- 229,- 339,-	14. Toppa	119,- 229,- 339,-	15. Toppa	119,- 229,- 339,-	16. Toppa	119,- 229,- 339,-	17. Toppa	119,- 229,- 339,-	18. Toppa	119,- 229,- 339,-	19. Toppa	119,- 229,- 339,-	20. Toppa	119,- 229,- 339,-	21. Toppa	119,- 229,- 339,-	22. Toppa	119,- 229,- 339,-	23. Toppa	119,- 229,- 339,-	24. Toppa	119,- 229,- 339,-
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**FOKUS**  
TV-STUDIER I LILLEHAMMER

DOKUMENTARFILM OG FLERKAMERA  
MED FORFATTER, REGI OG REDAKSJON  
PRODUKSJON- OG PROSJEKTLÆDELSE

BILLETTER OG PROGRAM KOMMERSIELLE PLASER OM KINONEN SPESIALFORSLINGER UTLÅN KINOSOHNET

KINOSOHNET

Årsring 2018

Årsring 2019

Årsring 2020

Årsring 2021

Årsring 2022

Årsring 2023

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Burger night

- Friday 18.10.2013, 18:00 –



The logo for Blå Rock Cafe Tromsø is circular with a blue electric guitar in the center. The text 'Blå Rock CAFE TROMSØ' is written around the guitar. The top of the circle says 'STAY SICK!' and the bottom says 'THIS AIN'T NO DISCO. THIS AIN'T NO FOOLIN' AROUND!'.

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## 11. Delta i internasjonale interessforeninger / WGs

- Meld din interesse i å delta i Working Groups (WG) og/eller Special Interest Groups (SIG)



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## IMIA GA Cape Town, 2010



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## 12. Delta på partnerforum

- EU arrangerer ofte partnersøk
- Signaliser at du ser etter samarbeidspartnere



<https://cordis.europa.eu/partners/web/guest/home>

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## Seminar nov – søknad mars

**THE BARENTS EURO-ARCTIC REGION**

**Research and Innovation within the Barents Region**  
Final agenda for the H2020 workshop in Brussels

Date: November 19-20, 2014

Time:  
 • November 19: 08:00-18:00 (lunch at 13:00)  
 • November 20: 08:00-13:45

Location: **Radisson Blu Hotel, Rue d'Edouard 17 Brussels**  
Tel: +32 2 620 83 31 / 84 120 Fax: +32 2 426 81 82

**Background**  
A First Horizon Horizon 2020 workshop was held in St. Petersburg November 6, 2014. **PHC** is a joint effort with **PHC** and **Northwest European Office** - we plan an important day follow-up workshop. To bring on your proposal development in selected areas and calls in Horizon 2020 for 2014 and 2015.

**For more information, please contact:**

**Elaine Zachariae**  
Deputy Vice-Director of International Cooperation  
Horizon (Europe) Federal University (FSUEU)  
tel: +1 800-311-4672 / 11-46-46-04-141  
e-mail: [ElaineZachariae@fsueu.ru](mailto:ElaineZachariae@fsueu.ru)

only to:  
**Lars Wilman**  
Special Advisor to European Affairs / North Arctic European Office  
Malmö +46 30 5115 117  
E-mail: [lars.wilman@ec.europa.eu](mailto:lars.wilman@ec.europa.eu)  
Homepage: [ec.europa.eu/north-arctic](http://ec.europa.eu/north-arctic)

European Commission - Research - Partnerships  
Proposal Submission Forms

Horizon 2020  
Call: H2020-PHC-2014-single-stage  
Topic: PHC-26-2014  
Type of action: RIA  
Proposal number: SEP-210164070  
Proposal acronym: MASH

Table of contents

Section	Title	Index
1	General information	
2	Participants & contacts	
3	Budget	
4	Other	
5	Call specific questions	

From 16.09.2014 10:00:00  
The administrative forms must be filled in for each proposal using the templates available in the submission system. Some data fields in the administrative forms are pre-filled based on the previous steps in the administrative record.

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## 13. Arranger internasjonale møter og konferanser

- Egne arrangementer er utmerket for å gjøre seg selv synlig
- Sørg for å selv holde innlegg samt delta i vitenskapelig komite / programkomite (SPC)
- NB! Benytt profesjonelle konferansearrangører

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### Organization

**Scientific Program Committee:**

Ann Bygholm (Denmark)  
 Johan Gustav Bellika (Norway)  
 Mette Dencker (Denmark)  
 Mariann Fossum (Norway)  
 Carl Erik Moe (Norway)  
 Bert Galster (Denmark)  
**Gunnar Hartvigsen, Co-Chair (Norway)**  
 Ole Højlesen (Denmark)

Daniel Karlsson (Sweden)  
 Sabine Koch (Sweden)  
 Monika Johansen (Norway)  
 Kassaya Yibarek Yigzaw (Norway)  
 Luis Luque (Norway)  
 Conceicao Granja, Chair (Norway)  
 Kari Dyb (Norway)  
 Luis Marco Ruiz (Norway)  
 Andrius Budronis (Norway)  
 Urban Fossum (Sweden)  
 Martinez Santiago Gil (Norway)  
 Tarizdo Chomutare (Norway)  
 Ståle Walderhaug (Norway)

**Local Organizing Committee**

Monika Johansen, UIT/NST  
 Kassaya Yibarek Yigzaw, UIT  
 Luis Luque, Norut  
 Conceicao Granja, NST  
 Kari Dyb, NST  
 Luis Marco Ruiz, NST  
**Andrius Budronis, NST**  
**Gunnar Hartvigsen, Chair, UIT/NST**

## Scandinavian Health Informatics conference 2015 (SHI 2015)

15-16 June 2015, Tromsø



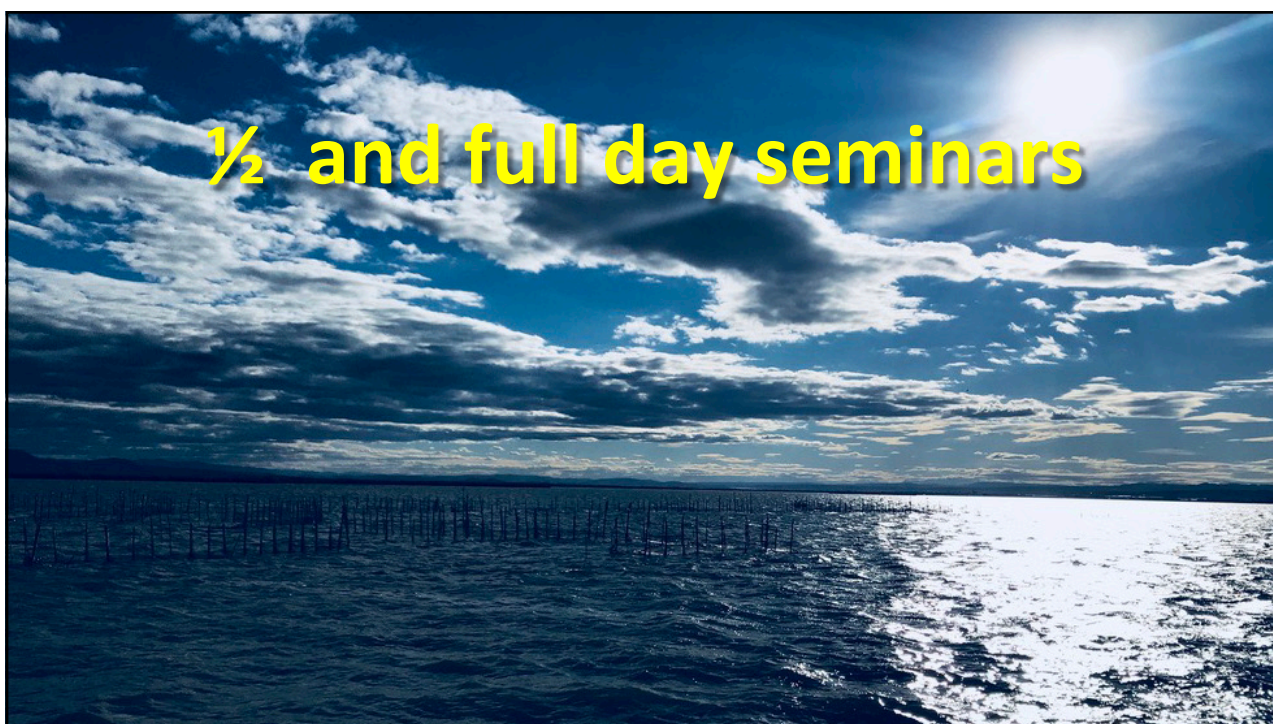
The screenshot shows the website for the Scandinavian Health Informatics conference 2015 (SHI 2015). The header includes the logo for the Norwegian Centre for Integrated Care and Informatics (NST). The main content area features a welcome message, a photograph of a landscape, and a list of goals for the conference: exchange of experience, cooperation, and networking. The footer mentions the development, implementation, use and evaluation of informatics in the health sector (eHealth), with a special focus on the clinical use of information and on the patient's role in health care.

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**Tromsø E-health Week seminar / PRE SHI 2015 seminar**  
**Research in Health Informatics, Digital ecosystems, and on-going MSc and PhD projects in health informatics**

Friday 12<sup>th</sup> June 2015



Vi får besøk av:

Prof. Dr. Achim P. Karduck, Faculty of Computer Science, Furtwangen University, Germany

Professor Hervé Pingaud, Director, Champollion University, France


Friday 12 June		
09:00-09:05	Welcome	G. Hovvigen
09:05-09:50	Lecture Digital Ecosystems and Smart Technologies for Social Economic and Ecologic Development	A.P.Karduck
09:50-10:00	Discussion	
10:00-10:10	Break	
<i>On-going PhD projects</i>		
10:10-10:50	CADMO5 (Serious games)	Svein Gunnar
10:50-11:30	Telemontoring	Andreas
11:30-12:10	Secure Multi-party Computation	Kassim
12:10-12:40	Lunch	
12:40-13:20	PhD NN1	
13:20-14:00	PhD NN2	
14:00-14:10	Break	
<i>On-going MSc projects</i>		
14:10-14:30	Self-management system for Sickle Cell Disease	David
14:30-14:50	Diabetes automate	Aleksander
14:50-15:10	Serious game for children with diabetes	Mats
15:10-15:20	MSc NN3	
15:20-15:30	Break	
<i>Panel of researchers</i>		
15:30-17:00	What are the most promising areas for doing research in health informatics? (5-10 min presentation)	T. Chomutare C. Granja E. Arvand A.P.Karduck A. Horvath G. Hovvigen

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**TTL International Seminar on Social Media in Health Care**  
 15 May 2014

Private area, Norwegian Centre for Integrated Care and Telematics



**TTL International Seminar on telemedicine and e-health**  
 2-3 April 2014

Private area, Norwegian Centre for Integrated Care and Telematics

Thursday 15 May		
10:00-10:15	Welcome	Prof. G. Hovvigen
10:15-11:45	Social media in health care	Prof. J. Strømstedt
11:45-12:15	Lunch	
12:15-13:30	Social media in self-management tools for people with diabetes	Dr. E. Arvand
13:30-13:40	Break	
13:40-14:10	Suicidelines in Type 2 Diabetes Group Education Programs	Dr. T. Chomutare
14:10-14:20	Break	
14:20-15:05	Role of Social Media for Sense Making in Healthcare System Design	Prof. K. Sato
15:05-15:15	Break	
15:15-16:00	Do social media have a place in healthcare?	Prof. G. Hovvigen
16:00-16:30	"Sjuktid" - use of social media for promotion and user recruitment	Mrs. S. Gaborum
16:30-17:00	Discussion	
17:00-	Pizza at Yoker	

Wednesday 2 April		
10:00-10:15	Welcome	Prof. G. Hovvigen
10:15-11:00	E-health in Germany	Prof. R. Trill
11:00-11:15	Break	
11:15-12:00	E-health in the Czech Republic	Dr. J. Musik
12:00-12:45	Lunch	
12:45-13:30	E-health in Norway	Prof. G. Hovvigen
13:30-13:45	Break	
13:45-14:30	Acceptance and Engagement of e-health applications	Prof. R. Trill
14:30-14:45	Break	

Vi forsøker å arrangere faglige seminarer i forbindelse med doktorgradsdisputaser

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**"Crazy" new ideas workshop**

**Thursday 16<sup>th</sup> March 2017**

**Organisers**

*Gunnar Hattvigsen, Department of Computer Science, University of Tromsø - The Arctic University of Norway (UIT) & Norwegian Centre for eHealth Research (NSE), University Hospital of North Norway (UNN)  
Eirik Arstad, Norwegian Centre for eHealth Research (NSE), University Hospital of North Norway (UNN)  
Kenichi Sato, Institute of Design, Illinois Institute of Technology (IIT), USA*

**Background**

The workshop will discuss potential new research projects in the M&T group and affiliated research groups. The participants are encouraged to propose "research projects I wish I've have started".

What is the most "crazy" (i.e., innovative) idea you can think of (that we might be able to address in our research group)?

If you are in any doubt whether an idea is new, it's new!

Workshop deliverable: New potential research projects, both capstones, MSc, PhD, research projects.

*M&T Lab (A136), Science building (Realfagbygget),  
University of Tromsø - The Arctic University of Norway*

Thursday 16 <sup>th</sup> March		
09:00-09:05	Welcome	Gunnar Hattvigsen, UIT/NSE
09:05-12:00	My "Crazy" new ideas	Gunnar Hattvigsen, UIT/NSE Eirik Arstad, NSE/UIT

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**Workshop on wireless communication in eHealth**

**Tuesday 21<sup>st</sup> February 2017**

**Organisers**

*Gunnar Hattvigsen, Department of Computer Science, University of Tromsø - The Arctic University of Norway (UIT) & Norwegian Centre for eHealth Research (NSE), University Hospital of North Norway (UNN)  
Eirik Arstad, Institute of Design, Illinois Institute of Technology (IIT), USA  
Ab Elmaghrabi, Ecole Centrale Marseille, France*


**Background**


The workshop will discuss the need for and use of wireless communication technology in eHealth applications. Workshop deliverable: New knowledge on wireless communication in eHealth.

*M&T Lab (A136), Science building (Realfagbygget),  
University of Tromsø - The Arctic University of Norway*

Tuesday 21 <sup>st</sup> February		
12:41:08:58	Welcome & presentation of participants	Gunnar Hattvigsen, UIT/NSE
13:04:21:00	eHealth in all about (research, communication)	Gunnar Hattvigsen, UIT/NSE
13:19:21:30	Discussion	
13:26:21:00	Communication challenges in Tromsø	Alejo José G. Sison, VIT
13:46:21:00	Discussion	
13:58:21:00	Short break	
	Refreshment	
14:09:21:45	Mobile Lab Communication: Computational Technology in IT for Medical Applications	Ab Elmaghrabi, Ecole Centrale Marseille
14:43:21:00	Discussion	
14:09:21:15	Coffee/Tea break	
14:15:21:15	Early area networks from a design perspective	Kenichi Sato, IIT
14:35:21:45	Discussion	
14:43:24:05	Wireless communication in disease surveillance	Alejo José G. Sison, VIT
14:53:24:15	Discussion	
14:53:24:25	Short break	
14:53:24:45	Communication challenges in emergency	Enrico Feltri, Politecnico di Milano
14:43:24:35	Discussion	
14:53:24:15	Research report: Wireless + IaaS to increase clinical activity	Markus Mikkelsen, IIT
15:11:21:30	Discussion	
15:20:21:30	Closing remarks	

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Norwegian Centre for  
E-health Research



ILLINOIS INSTITUTE  
OF TECHNOLOGY



## Workshop on wireless communication in eHealth


Tuesday 21<sup>st</sup> February 2017

**Organizers**

Gunnar Hartvigsen, Department of Computer Science, University of Tromsø – The Arctic University of Norway (UiT)  
& Norwegian Centre for eHealth Research (NSE), University Hospital of North Norway (UNN)  
Keiichi Sato, Institute of Design, Illinois Institute of Technology (IIT), USA  
Ali Khalighi, Institut Fresnel, Ecole Centrale Marseille, France

**Background**

The workshop will discuss the need for and use of wireless communication technology in eHealth applications. Workshop deliverable: New knowledge on wireless communication in eHealth.



*MI&T Lab (A136), Science building (Realfagbygget),  
University of Tromsø – The Arctic University of Norway*

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### UIT Living Lab seminar

Wednesday 30 November 2016

Address: Vindla area, KVALEIT & Norwegian Centre for E-Health Research, Forskningsparken i Revfiska (Research Park), 3. Floor, Sjøkollveien 21, 9019 Tromsø

**Background**

At University of Tromsø – The Arctic University of Norway (UiT), a plan for a new building on campus exists. The general floor will (generally) be shops. On the 3<sup>rd</sup> (and generally second) floor, UiT wants to build a number of smaller units / apartments / smaller apartments that can be used for lecturers and other guests to the university who need housing on campus for one to two weeks/months.

All units proposed outlined as living laboratory, i.e., they should be equipped with communication infrastructure, various medical equipment, medical sensors, technical infrastructure, telemedicine solutions, personal tracking, health records / health records / robot technology equipment for Ambient Assisted Living (AAL), pervasive computing in health, technology for rehabilitation, intelligent furniture and sensors, and more. It is also desirable to experiment with smart deliveries from the rooftop on the ground floor.

There are a number of living labs around the world, many are not habitats. To the extent that they are outlined and furnished like real homes, there is often only one of them. At UiT we might get up to 50 apartments which gives a completely different opportunity to conduct controlled experiments. By using these apartments for research and education when they are not occupied by guests of UiT, the use for building and testing the experiments will be totally different as if there were dedicated laboratories. It should also be possible to involve accommodations for experiments for shorter or longer time.

A Low-Power Wide-Area (LPWA) network will be available for sensor equipment. This will provide new opportunities to include traffic outside the apartments (outdoor) in the experiments.

The units are both teaching, research and competence development. In addition to UiT, partners may include UNN, Helse Nord, Directorate for eHealth, Health Directorate, business and organizations and international partners. UiT, together with partners, can realize a unique concept where we can do research on health technology and "smart cities". UiT students and staff members might have a close link to specialist care as well as community health services since both groups are based/represented on campus.

It has the last 20 years been researched extensively in smart home technology, especially for the elderly. The trend has shifted in the direction of more Ambient Assisted Living (AAL) pervasive computing, big data analysis, personalized medicine and artificial intelligence (AI). This opens up for a continuous analysis of everything that goes on in the home, both in terms of enabling, trend analysis and forecasting / predictions.

Wednesday 30 November		
12:00-12:15	Introduction & presentation of participants	Gunnar Hartvigsen, UiT/UNN, IAH
12:15-12:20	Teatime Living Lab	Gunnar Hartvigsen, UiT/UNN, CNS
12:30-13:15	Ambient Assisted Living	George Demiris, I of Washington
13:15-13:30	Discussion	
13:30-13:45	Break	
14:00-14:05	Living lab in Tromsø	Stein Pedersen, KVALEIT, UNN
14:05-14:15	Discussion	
14:15-14:25	Break	
14:25-14:40	Session group 1: Elderly and dementia	Catherine Pelissier, Galesburg, Virginia, Research Park, San Francisco
14:40-14:50	Discussion	
14:50-15:15	Session group 2: Stroke and Multiple Sclerosis	John Hanel, Tully, Tully Rehabilitation, East Ann, Knoxville, Ohio, Lehigh, North Dakota, Minnesota
15:15-15:25	Discussion	
15:25-15:35	Break	
15:35-15:45	Controlled mobility in interactive system design	Keiichi Sato, IIT, US, IT
15:45-16:00	Discussion	
16:00-16:30	What's new for Tromsø Living Lab?	Gunnar Hartvigsen, UiT/UNN, IAH

The seminar is open to everyone who would like to take part in this exciting planning process. Together, we are in a position of making a unique living laboratory for doing experiments with all kinds of medical technology in a home environment.

**Contact person:**  
Gunnar Hartvigsen, professor, E-mail: gunnar.hartvigsen@uit.no, Phone: +47 98827737

**Professors:**  
George Demiris, School of Nursing & School of Medicine, University of Washington, Seattle  
Keiichi Sato, Institute of Design, Illinois Institute of Technology (IIT), Chicago  
Gunnar Hartvigsen, Department of Computer Science, University of Tromsø – The Arctic University of Norway  
Erik S. & Norwegian Centre for eHealth Research (NSE), University Hospital of North Norway (UNN)  
Bjørn Pedersen, KVALEIT, University Hospital of North Norway

**MI&T Lab:**  
Martin Steiger, M&IT Lab, Department of Computer Science, University of Tromsø – The Arctic University of Norway  
Catherine Pelissier, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
Zoran Lalic, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
John Hanel, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
Erik Sato, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
Pavlos Karakostas, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
John Hanel, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
Tully, Tully Rehabilitation, Department of Clinical Medicine, University of Tromsø – The Arctic University of Norway  
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# Hva jeg mener

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Min modell er ...



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## Min egen modell for MI&T gruppen

- **Snakk om hva målet for forskningen er så ofte som mulig.**
- (Dette betyr publikasjoner og artefakter (programvare). Jeg antar at alle forstår hvordan, i hvert fall til en viss grad, de kan gå fra problem (START) til resultat (MÅL). Dette skaper også "press" for å publisere.) (MEN – vi ønsker samtidig ikke å publisere resultatene for tidlig.)

568

## Min egen modell for MI&T gruppen

- **Fokusere på positive resultater - se etter noe som er bra for prosjektgruppen.**  
(Hvor tror du det er mulig å oppå noe?)
- **Ikke vær uhøflig/frekk.** (Det er lett å unngå å være uhøflig - bare tenk på hvordan du vil bli behandlet selv. ☺)

569



570

<http://pahoyden.no/2017/03/glade-mennesker-forsker-bedre>

## Glade mennesker forsker bedre

**Alle lykkelige familier ligner hverandre, skrev Tolstoj. Det gjør også de aller ypperste forskningsmiljøene, mener Liselotte Højgaard, styreleder i Danmarks Grundforskningsfond.**



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<http://pahoyden.no/2017/03/glade-mennesker-forsker-bedre>

## Glade mennesker forsker bedre

- Oppskriften på god forskning har vært formulert slik: "Ta dine beste menn, gi dem det det ypperste utstyret du har råd til å gi dem, og la dem være i fred."



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<http://pahoyden.no/2017/03/glade-mennesker-forsker-bedre>

## Glade mennesker forsker bedre

- – Den glade atmosfæren i de ypperste forskningsmiljøene preger forskerne. Når man kommer inn, merker man at man er blant engasjerte, positive og hardtarbeidende mennesker. De har en helt egen boblende dynamikk, hvor man deler ideer, tar forskerretreats og samarbeider med hverandre.



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## Min egen modell for MI&T gruppen

- **Ikke vær negativ.** (Jeg tror ikke dette vil være til noen hjelp. Om du vil at folk skal bidra og jobbe mye (og mer enn de opprinnelig hadde planlagt/tenkt), fordi de erfarer at forskning er morsomt, så er en negativ atmosfære svært ødeleggende.)
- **Etablere en sosial arena.** (Jeg tror sosial aktivitet er positivt for motivasjonen. Det skaper tilhørighet. Spesielt for utlendinger.)

576

## Min egen modell for MI&T gruppen

- **Skape en vennlig atmosfære.** (Ingen trives i en fiendtlig atmosfære.)
- **Ha en åpen dør.** (Alle som ønsker å delta i vår gruppe er velkommen til å gjøre det. Jeg er også villig til å dele de ressursene vi har til rådighet i gruppen med nye medlemmer.)

578

## Min egen modell for MI&T gruppen

- Jeg har aldri sagt til noen, og kommer aldri til å si til noen, som per definisjon har den nødvendige faglige bakgrunnen, at:

**"Du er ikke flink nok til å være med i vår gruppe"**  
(... på en direkte eller indirekte måte).

582

**HVORDAN  
FUNKERER  
EGENTLIG DENNE  
MODELLEN?**

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## My own model for the MI&T group

Feedback from a previous group member:

*"I could not have been that successful in terms of publications and contacts without the impulse you gave me with the MI&T group. You definitely have influenced me much more than the rest of (...) or my supervisors..."*

585

# “Vad är en bra forskarmiljö?”



592

<http://www.sulf.se/Universitetslararen/Arkiv/2002/Nummer-7-021/VANLIG-ANTAGONIST-BRA-FOR-FORSKARE/>

## Vad är en bra forskarmiljö?

Sociologen Mats Benner som kartlagt forskarmiljöerna vid Lunds universitet svarar generellt:



- Bra forskarmiljöer kan se olika ut. Men vissa saker tycks gemensamma. Man har en klar bild av vad man gör. Kontakterna inåt är socialt och intellektuellt täta men också öppna utåt. Och någonstans finns en drivande, socialt begåvad och icke-auktoritär person som startat verksamheten.

593

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## Seniora forskares närvaro är viktig för doktorandens karriär



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## Seniora forskares närvaro är viktig för doktorandens karriär

– Vi har tagit fram ett unikt material där vi kopplar villkoren under utbildningen till fortsatta karriärvägar och vetenskaplig framgång i form av publiceringar och citat, förklarade projektledare Anders Broström när han presenterade resultaten vid en konferens i Stockholm i slutet av september.

Samtliga 1 700 personer som tog ut doktorsexamen år 2006 i medicin, teknik, naturvetenskap och vissa samhällsvetenskapliga ämnen fick en enkätförfrågan fem år efteråt. Drygt hälften besvarade frågorna om situationen före, under och efter disputationen.

<http://www.sulf.se/Documents/Pdfer/Universitetsläraren%20pdf/20121615%20Sulf%20nr17-12%20läg.pdf>

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## Seniora forskares närvaro är viktig för doktorandens karriär

**DET SOM FRAMSTÅR som avgörande är forskar-gruppens storlek och sammansättning.**

Den som doktorerat i en miljö med dålig tillgång till seniora forskares kunskap, kompetens och handledning visade sig ha 50 procent färre citeringar i internationella vetenskapliga tidskrifter än andra forskare.



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# Seniora forskares närvaro är viktig för doktorandens karriär

En bra och utvecklande forskningsmiljö var en balanserad grupp där cirka 40-50 procent av medarbetarna var doktorander och där det rådde nära kontakt med disputerade forskare.



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**“Spør ikke hva forskningsgruppen kan gjøre for deg, spør hva du kan gjøre for forskningsgruppen.”**

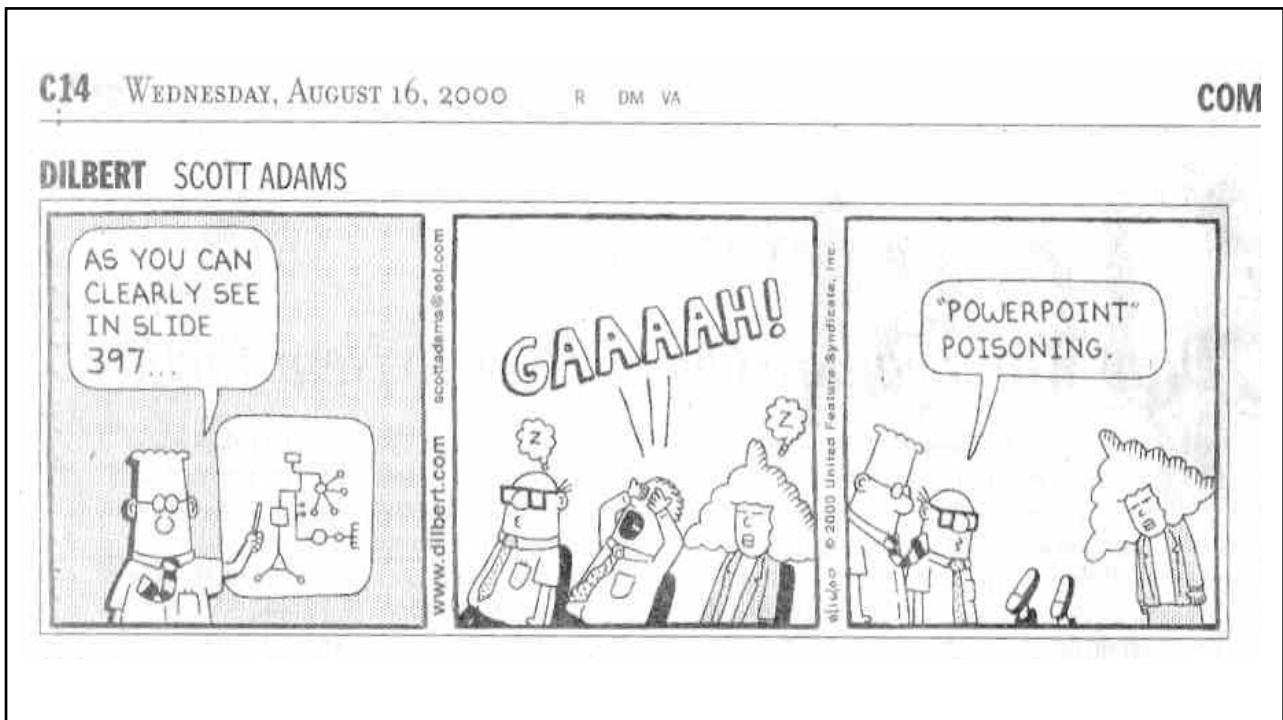
- Fritt etter president John F. Kennedy



(“My fellow Americans, ask not what your country can do for you, ask what you can do for your country.” John F. Kennedy)

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