

# TDT39

# Empirical Research Methodology

Autumn 2022



# Course staff

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- Hamid Mehmood
- Nora Othilie Ringdal
- Morteza Moalagh

- <https://www.ntnu.no/wiki/display/tdt39/> .



# What is TDT39?

The course is for students who are interested in research in 'real world' settings. You will learn methods for exploring *how* and *why* various information/computer systems are *designed, implemented* and *used*.

Two variants:

- IT3010 - Full course mandatory for master of science (Spring term)
- TDT39 (this course) - Elective course for M.Tech. (Autumn)
- You cannot take both courses!

**Based heavily on self-study!**

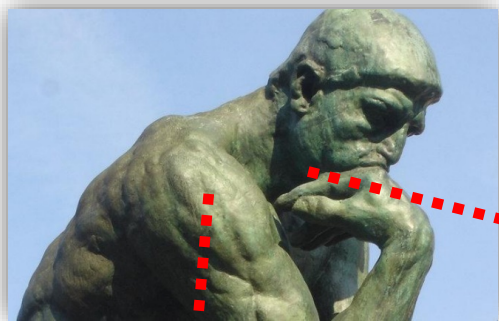
## Students Assigned to Theory Modules

*Students* listed for each module, is number of students who have edited their within the last 8 months. The numbers are continually updated according to

Click on the number in the *student* column to get a list of participants.

Code	Name	Students
TDT01	Arkitekturer for beregningssystemer	14
TDT02	Avanserte, distribuerte systemer	13
TDT03	Avanserte emner i visuell databehandling	4
TDT04	Avanserte bioinspirerte metoder	10
TDT05	Selv-veiledet maskinl�ring	35
TDT06	L�ringsteknologi	8
TDT07	L�ringsanalyse	8
TDT08	Algoritmer for rettferdig fordeling	7
TDT10	Likestilling og mangfold i programvareutvikling	5
TDT11	Digitalisering i offentlig sektor	4
TDT12	Datamaskinell kreativitet	14
TDT13	Avansert tekstanalyse og spr�kforst�else	20
TDT16	Utvidet virkelighet (XR)	20
TDT17	Visuell Intelligens	37
TDT20	Virksomhetsarkitektur, Smarte byer og verdibaserte tjenester	3
TDT24	Parallele milj� og numeriske metoder	9
TDT28	Forskning i data undervisning	2
TDT29	Samhandlingsteknologi og l�ring	3
TDT30	Klinisk prosess- og beslutningsst�tte	9
TDT39	Empiriske studier i IT	57
TDT40	Avanserte emner i programvareprosesserforbedring	8
TDT41	Fra nettverk til kausale modeller innen kunstig intelligens	22
TDT42	Spilldesignteori	11
TDT50	IT for b�rekraftig utvikling	11
TDT55	Kunnskapsintensiv CBR	1
TDT63	Kvalitet av modeller og modelleringsspr�k	3
TDT71	Utvikling av spill	29
<b>Selections:</b>		365
<b>Students:</b>		189

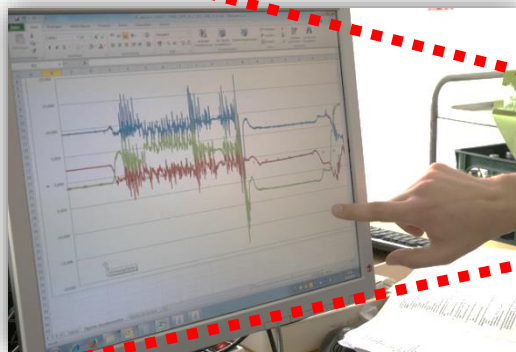
# The thinking man



You

Rigor

Relevance



Your research

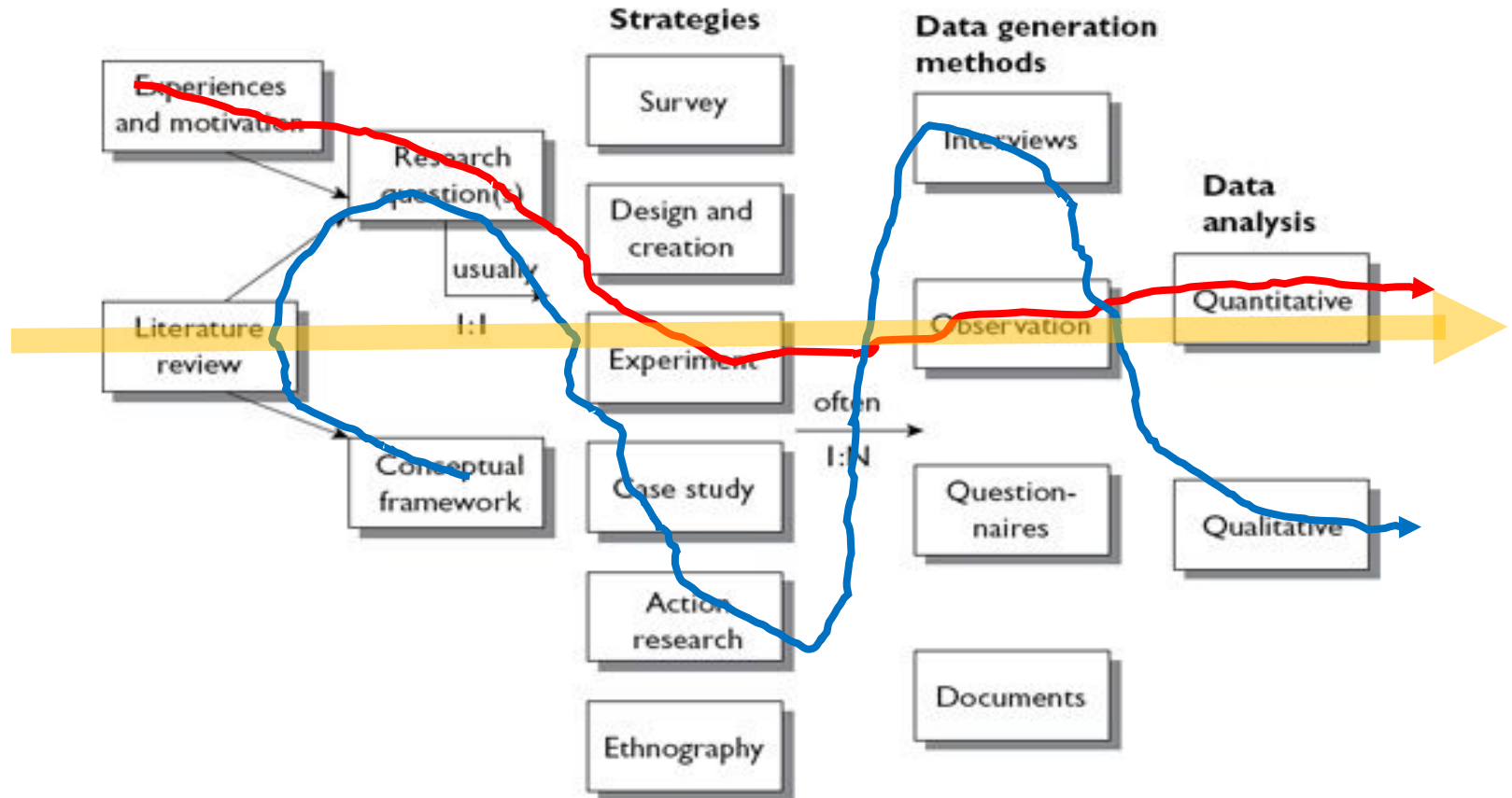


Practice



Other researchers

# The framework



# The course textbook

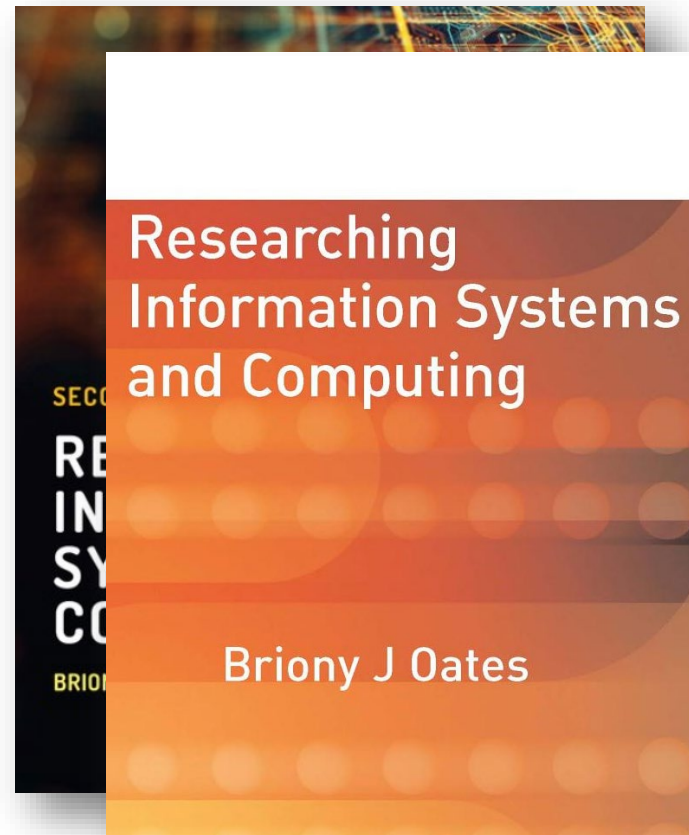
Briony J Oates; Marie Griffiths; Rachel McLean

*Researching Information Systems  
and Computing.*

London: Sage Publications,

Second edition 2022

(or first edition 2006).



# An ex-student of the course



Hjem / Student

## Martes forskning om svake låsemønstre på mobil vekker internasjonal oppsikt

Marte Løge (23) analyserte 3 400 låsemønstre på smarttelefoner. Nå får den tidligere NTNU-studenten stor oppmerksomhet i internasjonale medier for svakhetene hun avdekket.



Selv i Waterloo Normannen  
Mobil: 469 19 530

Publisert: 25 august 2015 15:44  
Sist oppdatert: 25 august 2015 16:06

Det viser seg nemlig at valgene vi gjør for slike låsemønstre har like mange svakheter som de vi gjør når vi velger passord. Det gjør oss sårbar overfor hackerangrep, og det var nettopp på **Defcon**, verdens største hackerkonferanse, at Løge gjorde passordforskningen sin på Android Lock Patterns (ALP) kjent tidligere i sommer.

### På verdens største hackerkonferanse

Der var det 18 000 til stede, og nå er hun omtalt i en meget lang liste publikasjoner verden over (se nederst i saken)

Hun er glad for oppmerksomheten.

- Det er jo slik at når man sitter og jobber med en masteroppgave, så melder spørsmålet seg fra tid til annen om noen i det hele tatt bryr seg om dette. Men nå har det jo eksplodert. Etter konferansen i Las Vegas i juli tok det jo helt av, sier Løge.

I likhet med passord er låsemønstre en sikkerhetsmekanisme på skjermen. Mens passord gjerne er navn på familiemedlemmer, kjæledyr og/eller fødselsdatoer, er låsemønstret et visuelt eller grafisk bilde. Marte Løge har

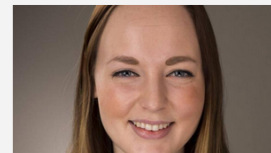
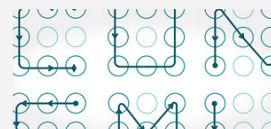


FOTO: KAI T. DRAGLAND

**Avslørte svakheter. - Jeg er ikke overrasket i det hele tatt, men det er interessant å se hvor forutsigbare vi er, sier Marte Løge til UA.**



# An ex-student of the course



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**Chapter**  
 Ambient Intelligence  
 Volume 9425 of the series Lecture Notes in Computer Science pp 313-327  
 Date: 30 October 2015

## Designing an Application Store for the Internet of Things: Requirements and Challenges

Simon Stastrny, Babak A. Farshchian ✉️, Thomas Vilarinho



<p><input type="button" value="Buy chapter"/></p> <p>\$29.95 / €24.95 / £19.95 *</p>	<p><input type="button" value="Buy eBook"/></p> <p>\$64.99 / €47.59 / £32.99*</p>
<p><input type="button" value="Get Access"/> <span style="float: right;">* Final gross prices may vary according to local VAT.</span></p>	

### Chapter Metrics

<input type="button" value="📖 Readers"/>	8
<input type="button" value="⬇️ Downloads"/>	424

Provided by **Bookmetrix**



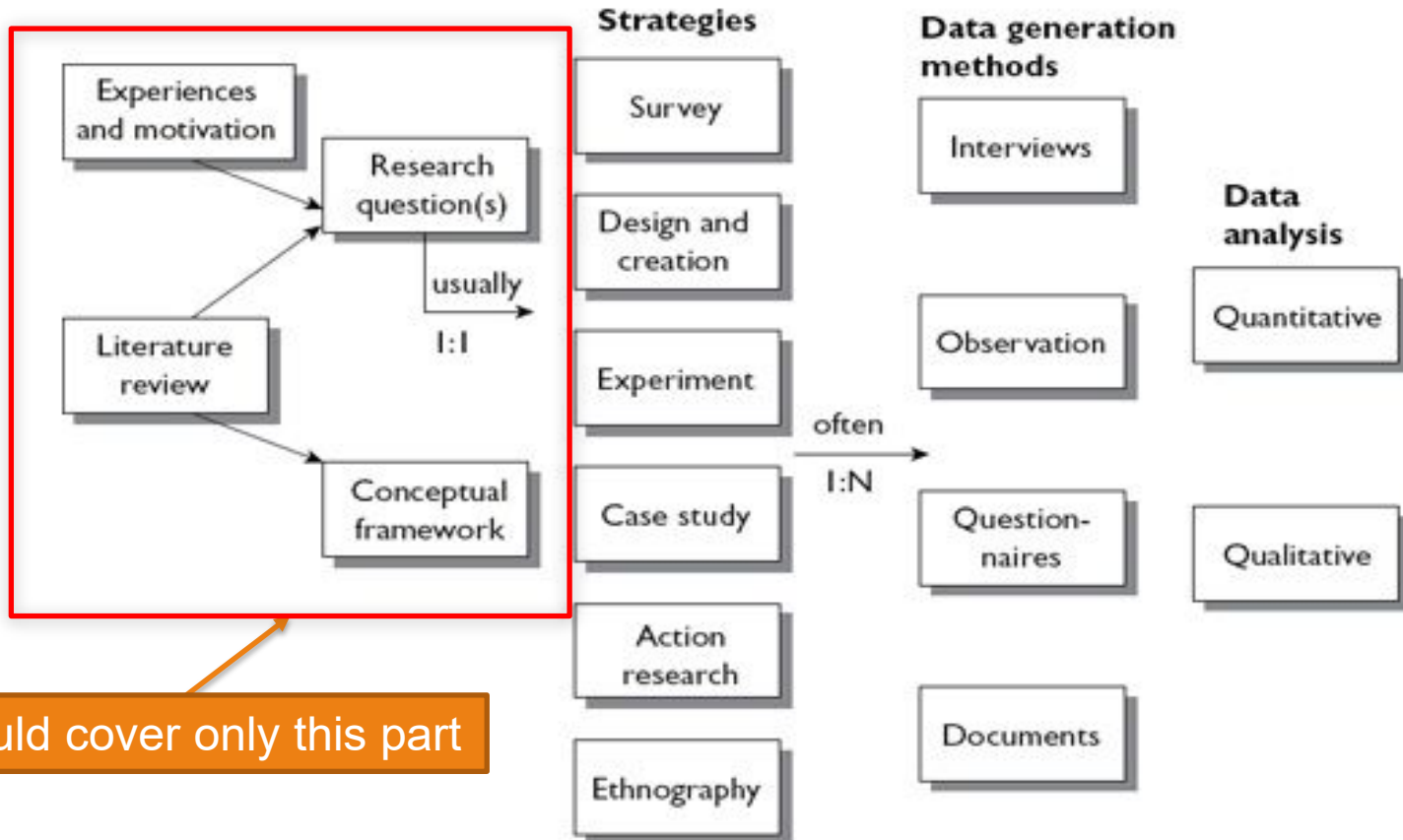
# Course deliverable

- A research plan for a realistic empirical research project.
  - Voluntary version 1.0 ready by October 3.
  - Can be submitted for review by course staff and feedback session.
- A template is provided, along with some example plans. See course web pages.
- Contents:
  - **Purpose:** Why you want to do this research? What is the relevance?
    - Heavily based on research literature.
  - **Contributions:** What new knowledge/product will you produce?
  - **Research method:** What research strategy/method will you use?
  - **Participants:** Who do you need for your research? What resources do you need?
  - **Research paradigm:** Is this a positivist, interpretivist, or critical research project?
  - **Deliverable:** What is the form of the final deliverable?

# Meetings during the semester

- We will have one additional meeting after the feedback to version 1.0 of the research proposal.
  - Date to be announced.

# About version 1.0



Should cover only this part

# About version 1.0

- Deadline: October 3, 16:00 CET.
- Maximum 500 words, excluding the administrative front-page and references to literature.
  - Chapters 1-4 in the textbook are necessary reading for v.1.0.
- Version 1.0 is mainly the "Purpose" part of the final plan, but you can also deliver the other parts if you need feedback on those.
- Send v1.0 using the same procedure for the final deliverable [documented on course web page](#).
  - Do not copy Berit for this one!
- You will receive written feedback.
- This is **not mandatory but recommended**.

# Final deliverable

- More information about deadline will be provided on the course web pages.