

# PhD Midway Seminar

## Simulation Tool and its application

Raju Rimal

### **Supervisors**

Solve Sæbø, Tryge Almøy

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Norges miljø- og  
biovitenskapelige  
universitet

# Introduction

- Make a simulation Tool

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- Extend the simulation tool for model with background information

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- Apply it to test multi-matrix extension of PLS models such as LPLS and UPLS

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- Properly document what I have done

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- A competitive study of different estimation technique by using the data simulated from the tool

# `simrel-m`: A versatile tool for simulating multi-response linear model data

- Uses the idea of reduction of random regression model by separating latent space of  $\mathbf{X}$  into subspaces that is relevant and irrelevant for predicting each response

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- The underlying concept is based on reparameterizing the population model,

$$\mathbf{y}_j = \mu_{y_j} + \boldsymbol{\beta}_j^t (\mathbf{x} - \mu_x) + \epsilon_j$$

where,  $\epsilon_j \sim N(0, \sigma^2)$

# Underlying procedure





# A comparative study of different estimation methods using simulated data





# Conclusion

grow

shrink

fade-out

fade-up (also down, left and right!)

visible only once

blue only once

highlight-red

highlight-green

highlight-blue

simulatr

salamat Dakujem Teşekkür ederim  
 GRACIAS ASANTE TAK hvala salamat  
 धन्यवाद TAKK mersi لي زج اركش  
 HVALA Euχαριστώ 감사합니다 GRAZAS kiitos merci  
 GRAZZii DANKE salamat TAKK MAHALO  
 Paxmet kiitos Thank You arigato  
 ARIGATO takk  
 suwun धन्यवाद HVALA GRAZIE DAKJEM  
 MERCI teşekkür ederim kiitos hvala TAKK  
 mahalo GRACIAS  
 ありがとう DANKE GRAZAS  
 Благодарам grazie salamat SUWUN  
 TAKK ASANTE 多謝 SALAMAT  
 спасибо gracias

# References



