



# IMPROVING PROJECT ESTIMATION WITH CASE-BASED REASONING

**Norconsult Informasjonssystemer**

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# Who are you?

- [Norconsult AS](#) (Mother company)
- [Norconsult Informasjonssystemer](#) (NOIS) – IT Division
- [Fundator](#) – IT Consulting department
- [ML/AI team](#) – 14 consultants
- Thomas H. Thoresen – Team Lead ML/AI
- Consulting experience on ML/AI projects for
  - Equinor
  - DNV GL
  - Lånekassen
  - Digitaliseringsdirektoratet (Difi)
  - BNBank
  - Statens Vegvesen
  - Norconsult AS
  - ++
- MSc Computer Science from NTNU – AI programme

# Problem Description

- NOAS has about 20 000 projects each year
- The estimation process when bidding for these projects are largely based on individual experience of the estimator, thus subject to bias.
- We have a hypothesis that we may improve this process by reusing information about historical projects, thus providing a better, data-driven estimate for new projects.
- This will lead to improved basis for making decisions with regards to whether we should bid for a project or not, as well as setting a reasonable price.
- We think CBR is the best way to approach this problem based on the need to know what previous projects a new proposal is based on. There are many aspects of projects that might render some previous projects irrelevant in a specific context.

# Data

- Structured dataset in .csv-format for 80+ carefully picked projects
- Financial data for each project
- Time spent per employee for each activity of the project
- Each project enriched with 35 categorical and numerical variables given from project leader
  - Customer
  - Building type
  - New/rehab
  - Complexity
  - BIM-level
  - Team Competence
  - Inter-disciplinary?
  - +++

# Tasks / Challenges

- Review the literature on CBR for project estimation purposes
- Propose a solution for improving the project estimation process with CBR
- EDA for identifying most relevant features and possible additional features
- Propose and evaluate similarity measures for retrieving most similar projects
- Implement a prototype of the solution to be tested by pilot-users.