

Title: Validation and filtering method of a real-time locating system for monitoring dairy cow activity

Company/Institution: SLU

Supervisor: Lars Rönnegård, SLU

Background: In our research project, we examine how social interactions among cows affect welfare, production and disease transmission.

The overall aims of the research project are:

- To develop tools for summarizing animal movement and social interactions in dairy farms.
- To develop decision-support tools for minimizing disease transmission within dairy farms based on knowledge gained from animal movement and social interactions.
- To develop methodology for breeding on indirect genetic effects, ie inherited social effects.

The research project is a collaboration between SLU in Uppsala, RISE, Växa Sverige, Högsolan Dalarna and University of Copenhagen. Seven senior researchers, three postdocs and two PhD students are currently involved in the project. For more information see <https://www.slu.se/en/faculties/vh/research/forskningsprojekt/not/precision-livestock-breeding/>

Goals: The time spent by the cows lying or feeding plays a vital role in terms of milk production. In this project, we used CowView systems to provide data on positions and zone-related behaviour (feeding, resting in a cubicle, walking or standing in the alley) for individual animals. We would like the students of this project in scientific computing to validate the accuracy, sensitivity and specificity of cow activity data provided by the CowView system. The validation will be performed by comparing data automatically obtained from the CowView system with those obtained by a previously performed observation study. We also would like the students to develop an efficient filter to improve the quality of the cow activity data in the feeding and cubicle areas, by removing short glitches of incorrect activities.