# AB Ludvig Svensson: Doctoral student research project

## The company and its needs

AB Ludvig Svensson is a 132-year old, fourth generation family owned textile company (www.ludvigsvensson.com). Ludvig Svensson specialize in textile climate solutions, designed with insights from the contract (end users like offices, hospitals, schools) and horticultural markets, providing plants better conditions to grow and people better environments to work, travel, meet, recover and study. The company has continued to be successful by constantly evolving, embracing new technology and entering new markets.

The new industrialisation in Sweden can bring Ludvig Svensson opportunities for a more digitalised, knowledge-intensive and sustainable product realisation. The company aims to optimally benefit from the digital transformation to become world leading within digitalised and sustainable industrial product realisation of fabrics which create and contribute to a comfortable indoor environment for different types of users (i.e., plants, humans). Prerequisite is that the company’s knowledge regarding computational modelling of greenhouses and fabrics reaches the State-of-the-Art knowledge level, subsequently followed by the process of case validations which create digital models of existing products gradually moving into a process of solely generating lifelike digital solutions before real-time production.

**Contact person** **at the company**: Mr. Per Holgerson, R&D Manager at AB Ludvig Svensson, [Per.Holgerson@ludvigsvensson.com](mailto:Per.Holgerson@ludvigsvensson.com), +46 320 20 92 06

**Doctoral student mentor at the company**: Same as above.

## Purpose and expected results of the research project

The starting point of the doctoral student research project is to bring the company’s knowledge regarding the computational modelling of greenhouses and fabrics to the current State-of-the-Art knowledge level.

Concurrently, the process of creation and validation of digital model(s) of textile/fabric in its physical environment and the effect of the product on the physical environment including its users (i.e., plants, humans) is started (purpose-specific lighting simulations). This process will generate digital models of currently existing products and, by comparison with the performance of the actual product, the process for digital modelling is methodised, validated, and further optimised.

Methodization and validation via multiple case studies of digital product and environment is broadened by going from a ‘bottom-up’ approach focusing on how the ‘ideal’ condition can be created using a particular fabric towards a ‘top-down’ approach focusing on how the ‘ideal’ textile can be drafted and manufactured to design a comfortable indoor environment for a variety of users and activities.

## Academic affiliation for the doctoral student

**Subject area for admission:** Machine Design at Jönköping University (JU)

**Supervisor team:** Prof. Dr. Myriam Aries, full professor in Lighting Science at JU School of Engineering, [Myriam.Aries@ju.se](mailto:Myriam.Aries@ju.se), +46 36 10 15 22; Dr. Peter Johansson, associate professor in ICT-BIM in construction, [Peter.Johansson@ju.se](mailto:Peter.Johansson@ju.se), +46 36 10 15 63

## Entry requirements

The basic eligibility for doctoral education (third-cycle education) has:

* been awarded a degree of second-cycle level,
* achieved at least 240 credits, of which a minimum of 60 credits must have been achieved on second-cycle level, or
* otherwise acquired equivalent knowledge in Sweden or abroad.

In addition to this minimum level, specific entry requirements apply to the subject area, which at JU correspond to a degree of second-cycle level in connection with the subject area in question.

## Assessment ground

You are an engineer/master mathematics, (building) physics, building technology, mechanical engineering, civil engineering, product development, industrial production or equivalent. You have previous knowledge in mathematics, physics, building technology, building construction and/or installation technology.

Meriting is practical experience in building construction and knowledge in industrial construction, lean production and/or product platforms. We are looking for you who are self- driven, curious and analytical to your nature. You can concretise visions and ideas in practically feasible ways of working and methods. You are systematic in your way of working and stimulated by collaborating as well as taking great responsibility and pursuing tasks in goals.

Excellent language proficiency (speaking and writing) in English and willing to learn Swedish.

You are willing to move to Kinna, Borås or their close surroundings, and have the intention to continue working at the company after the doctoral education is successfully finalised.

## Contacts Smart Industry Sweden

Prof. Dr. Fredrik Elgh, full professor in Product Development - specialization Computer Supported Engineering Design, and responsible for third-cycle subject area Machine Design at JU School of Engineering, Fredrik-Elgh@ju.se, +46 36 10 16 72

Responsible for the industrial graduate school Smart Industry Sweden:

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