

PROF. DR. DIRK JAEGER

## Advanced Virtual Aptitude and Training Application in Real Time (AVATAR)

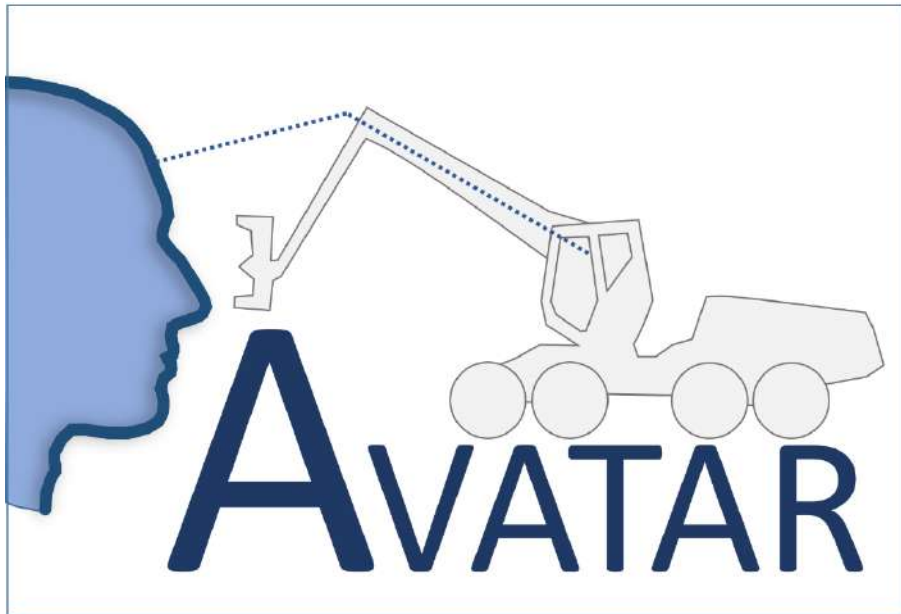
Context, Goal, Objectives



## Super complex work environment of machine operators



## Context and Goal



- In Europe, more than 400 million m<sup>3</sup> of timber are harvested every year
- Modern forestry machinery makes harvesting process more efficient and safe – but also requires lengthy training
- Graduates of current training programs and even experienced machine operators show productivity differences of up to 40%
- **Within the project AVATAR, a digital coaching, assistance and feedback system is designed for improving productivity and job satisfaction of forest machine operators**

## What will AVATAR do? – Project Objectives

- Reduce training and skills demands on new operators while reducing workload on skilled operators
- Broaden the operator base by contributing to a more accessible, balanced and attractive work environment for both genders
- Clarify which data are most closely associated with individual performance and how these can be gainfully used within the GDPR framework
- Unlock the full potential of current production systems and thereby substantially reduce cost of biomass supply
- Increase detail data capture on European forests through promotion of CTL systems running StanForD
- Promote R&D cooperation within and between Scandinavia and central-Europe application examples

## What is AVATAR contributing to?

- efficiency improvements of Cut-To-Length operations for enhanced timber utilization at higher value added resource recovery
- alongside occupational health and safety, AVATAR supports the implementation of a sustainable and competitive bio-economy in Europe.



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## The selected approach

- Individual improvement potential on operator level will be identified and characterized by definition of personal work patterns
- Trainers of forest machine operators will be involved for work patterns identification
- Data on work execution (i.e. joystick, crane and machine movement) will be gathered continuously from on-board-systems including sensor and scanners and analyzed in order to detect beneficial and detrimental work patterns
- Quantitative measurements of work performance in timber harvesting will be derived
- Methods from Cognitive Ergonomics will be used to develop the prototypical operator interface

## Cooperation is the way to the goal

- Direct cooperation with forestry training centres
- Continuous exchange of experience and knowledge between research and practice as well as machine manufacturers via workshops
- Based on this the goal is instant implementation of project results into training and further education via professional competence centers

## AVATAR – available at

- <https://twitter.com/AVATAR02673222>
- [avatar.uni-goettingen.de](http://avatar.uni-goettingen.de)



## ForestValue

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### AVATAR

#### Advanced Virtual Aptitude and Training Application in Real Time

The overall objective of AVATAR is to increase operational efficiency and perceived job satisfaction in mechanized timber harvesting - while reducing mental workload. Through this, the project contributes to efficiency improvements of CTL operations for enhanced timber utilization at higher value added resource recovery, alongside occupational health and safety, and thus supports the implementation of a sustainable and competitive bio-economy in Europe. Knowhow from work method instructors will be used to define quantitative measures of work performance. These measures will be further elaborated in order to investigate options to include machine on-board systems but also sensor and scanner-based technology of data generation and sharing to be utilized for performance evaluation and how it can be incorporated in an

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## Project partners

Landesbetrieb Wald und Holz  
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NIBIO

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skogforsk



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THANK YOU FOR  
YOUR ATTENTION!

