

WORKSHOP PROGRAM

Date: 15 October, 2024

Time 12:30 – 15:00

Place: Kīpsalas 6B - 422, Riga LV-1048

Workshop held by Prof., Dr.sc.ing. **Yordan KYOSEV**, Chair of Development and Assembling of Textile Products *Technische Universität Dresden, Faculty of Mechanical Science and Engineering*

The **workshop aims** to introduce students to the fundamentals of scan data processing and open-source 3D animation tools, focusing on applications related to human body surface modeling. This workshop is particularly tailored for students with interests in mechanics, textiles, ergonomics, human performance, and working environment optimization. By the end of the workshop, participants will gain hands-on experience in processing scan data, creating accurate 3D models of the human body, and exploring how these models can be applied in various fields such as garment design, ergonomic assessments, and human performance analysis.

EXPECTED OUTCOMES:

- Understanding of Scan Data Processing, 3D and 4D Scanners, and Formats for scanned data
- Students will gain practical skills in using open-source software ParaView, MeshLab, MakeHuman and Blender to animate and manipulate human body models.
- Participants will explore how these models can be applied to their areas of interest, including textile design, ergonomics, and performance analysis.
- Students will gain an appreciation of how 3D modeling intersects with various disciplines, enhancing their understanding of its applications in real-world scenarios.

WORKSHOP PROGRAM SCHEDULE:

12:30-12:40 Registration and Welcome	- Don't forget to sign in the participant list! - Introduction to the workshop objectives, schedule, and expected outcomes.
12:40-13:40 Overview of Scanning Technologies	- Introduction to different scanning technologies (3D and 4D body scanners, laser scanning, photogrammetry). - Discussion on the principles of scan data acquisition and its applications in various fields.
13:40-14:20 Basics of Scan Data Processing and 3D Modeling	- Step-by-step guide to processing raw scan data using open-source software (MeshLab, ParaView, Blender). - Techniques for cleaning, refining, and preparing scan data for 3D modeling. - Basics of 3D modeling using open-source tools (Blender). - How to create accurate representations of human body surfaces. - Practical exercise: Importing and processing scan data to create a basic 3D model.
14:20-15:00 Wrap-Up and Feedback	- Summary of key learnings and outcomes. - Open discussion and feedback from participants.

PARTICIPANTS:

- Students with interests in mechanics, textiles, ergonomics, human performance, and workplace environment.
- No prior experience with scan data processing or 3D modeling is required, but basic computer skills are recommended.

MATERIALS AND SOFTWARE:

- Laptops with pre-installed open-source software (MeshLab, Paraview, MakeHuman, Blender) to be taken with participant.
- Access to sample scan data for practical exercises will be provided.