Comenius University Bratislava
Faculty of Mathematics, Physics and Informatics

THESIS ASSIGNMENT

Name and Surname:	Bc. Erik Róbert Ján Jakubovský
Study programme:	Applied Computer Science (Single degree study, master II. deg., full time form)
Field of Study:	Computer Science
Type of Thesis:	Diploma Thesis
Language of Thesis:	English
Secondary language:	Slovak

Title: Structured Point Clouds for Machine Learning Processing of Human Body Data

Annotation: 3D data structures present an effective input data type for machine learning methods. Standard unorganized point clouds provide real 3D coordinates of data points, however they lack the spatial topology and information on local neighborhoods. Operations like convolution cannot be directly used, therefore it requires different ways of processing in neural networks. Introducing the grid structure to the point clouds opens new possibilities for processing, and brings new challenges to various areas, such as human body and motion-related tasks.

Aim: The aim of the thesis is to explore the benefits and, possibly, the drawbacks of the grid-structured point clouds as an input data type for human body-related tasks. Use machine learning methods, as analytical approaches have been outperformed in these tasks.

Keywords: structured point clouds, neural networks, human body

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Assigned: 19.09.2022

Approved: 20.09.2022 prof. RNDr. Roman Ďurikovič, PhD.
Guarantor of Study Programme

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