

PUBLIC LECTURE EVALUATION

Masaryk University

Faculty	Faculty of Informatics
Procedure field	Informatics
Applicant	RNDr. Jan Sedmidubský, Ph.D.
Lecture date	15. 10. 2021
Lecture topic	<i>Action Recognition in Human Motion Data</i>
Persons present	29
Designated evaluators (board members)	prof. RNDr. Ivana Černá, CSc. prof. RNDr. Roman Ďurikovič, PhD. prof. Ing. Adam Herout, Ph.D. doc. RNDr. Barbora Kozlíková, Ph.D. Univ.-Prof. Dr. Tobias Schreck, M.Sc.

The public lecture focused on presenting different approaches to the recognition of actions in human motion data. First, the applicant informed about the process of data acquisition and digitization, followed by motivation of the problem of recognition of human actions in diverse fields, such as sports or healthcare. Next part was dedicated to the problem of modeling the similarity of actions, followed by presenting two main streams of approaches to the action recognition - k-nearest neighbor (kNN) classifiers and deep-learning (DL) classifiers. Both streams were discussed in more detail, with examples of different algorithms and architectures. At the end, the applicant presented his experimental results and a demo application for action recognition, and concluded the talk by outlining possible future research directions in this area.

The lecture was followed by the discussion with the board members and the audience. Questions were related to the more detailed discussion about the architecture of neural networks, recognition of specific people along with their actions, detection of actions, similarity of motions, or explainable AI. Additionally, several concerns were raised and discussed, related to the generation of the presented 2D motion images, comparison of presented classification methods, and selection of the appropriate neural network for the presented tasks.

Some questions posed during the discussion indicated that the taxonomy of approaches was not perfectly right, the results did not contain the state-of-the-art research information, and that some experiments done by the applicant may have required a second, closer look. The applicant was able to respond to these questions and to provide adequate feedback.

The board members finally concluded that as the lecture was meant to be focused on the general public, the lecture should better balance both sides: own results of the applicant and the presentation of the state-of-the-art in the respective field.

The lecture had a hybrid form. Two members of the habilitation board were present in person, and three members were connected online.

Conclusion

The lecture delivered by Jan Sedmidubský, entitled “*Action Recognition in Human Motion Data*” **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Informatics.

Date: 15.10.2021

Ivana Černá

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Barbora Kozlíková

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