

Posudek diplomové práce

Matematicko-fyzikální fakulta Univerzity Karlovy

Autor práce Bc. Miroslav Krabec
Název práce 3D object classification using neural networks
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Studijní program Informatika **Studijní obor** Umělá inteligence

Autor posudku doc. Ing. Jaroslav Křivánek, Ph.D. **Role** Vedoucí
Pracoviště KSVI

Text posudku:

The goal of this diploma thesis was to provide an survey and an independent, unbiased evaluation of the existing neural network based approaches for 3D object classification. To this end, the student has built a testing and evaluation framework, which can process the input data and convert them into the formats accepted by the various neural networks, and has managed to run many of the existing networks. He has attempted to reproduce the results reported by the various publications on the standard 3D model database ModelNet. Interestingly, he has found out that the measured results are consistently lower than those reported in the original publications. In addition, he has tested the approaches on the ShapeNet dataset, on which many of the approaches have never been run before. The ShapeNet results confirm the overall performance rankings obtained through the ModelNet results.

The work is documented in a report of exceptionally high quality, providing a general overview of neural networks, a survey of the various 3D object classification approaches, a detailed documentation of the testing environment and the tests themselves, as well as an insightful discussion of the obtained results.

Práci doporučuji k obhajobě.

Práci nenavrhují na zvláštní ocenění.

Pokud práci navrhuje na zvláštní ocenění (cena děkana apod.), prosím uveďte zde stručné zdůvodnění (vzniklé publikace, významnost tématu, inovativnost práce apod.).

Datum 3. June 2019

Podpis