FACULTY
OF INFORMATION
TECHNOLOGY
CTU IN PRAGUE

Assignment of master's thesis

Title:	Material Picker: tool for detecting material properties
Student:	Bc. Anh Viet Tran
Supervisor:	Ing. Tomáš Nováček
Study program:	Informatics
Branch / specialization:	Knowledge Engineering
Department:	Department of Applied Mathematics
Validity:	until the end of summer semester 2023/2024

Instructions

Chaos Corona, a CPU-based rendering company, is looking for ways to create physically real materials from images. They want to create Material picker, a tool which would use artificial intelligence to detect the right material properties from the image, like roughness, bump or index of refraction.

The goals of the thesis:
1) Analyze the possibilities of extraction material properties from images.
2) Survey current state-of-the-art approaches and tools that extract material properties from any input source.
3) With the use of artificial intelligence, design a method to detect at least three material properties from an image or, if such methods already exist, choose one and extend/ improve it.
4) Experimentally evaluate your solution in terms of precision and accuracy and demonstrate results using one type of material (e.g. carpets).

References:
Jurčák Filip, Material picker: Material recognition in images using deep learning, Comenius University in Bratislava Faculty of Mathematics, Physics and Informatics (2020)

Electronically approved by Ing. Magda Friedjungová, Ph.D. on 20 January 2023 in Prague.