



Comenius University in Bratislava  
Faculty of Mathematics, Physics and Informatics

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## THESIS ASSIGNMENT

**Name and Surname:** Filip Jurčák  
**Study programme:** Computer Science (Single degree study, bachelor I. deg., full time form)  
**Field of Study:** Computer Science  
**Type of Thesis:** Bachelor's thesis  
**Language of Thesis:** English  
**Secondary language:** Slovak

**Title:** Material picker: Material recognition in images using deep learning

**Annotation:** One of the important steps in modeling realistic 3D scenes is setting material appearance of the various scene objects. The goal of this project is to simplify this -- often tedious -- task by providing the 3D artist with an intelligent material picker tool. The tool will allow to 'pick' a material from any given input image by simply pointing to an object. A deep neural network will be trained to achieve this nontrivial goal. An extensive set of training data will be provided, where the complex correspondence between the image pixels and the underlying object material will be available. The network will be trained to recover this pixel-material correspondence from new, previously unseen images.

**Supervisor:** prof. RNDr. Roman Ďurikovič, PhD.  
**Consultant:** Mgr. Petr Vévoda  
**Department:** FMFI.KI - Department of Computer Science  
**Head of department:** prof. RNDr. Martin Škoviera, PhD.

**Assigned:** 29.10.2019

**Approved:** 30.10.2019 doc. RNDr. Daniel Olejár, PhD.  
Guarantor of Study Programme

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Student

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Supervisor