

# Predicting Visual Perception of Material Structure in Virtual Environments

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## SUPPLEMENTAL MATERIAL

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This document provides supplemental material to the paper *Predicting Visual Perception of Material Structure in Virtual Environments* published in Computer Graphics Forum (revised version submitted on 12/10/2015).

It comprises the following information:

- **Fig.1.** Overview of the 25 material samples used in the experiment, in real-size scaling with a white frame denoting estimated size of the largest structure elements.
- **Fig.2 - 8.** Stimuli images used in the *Experiment B*: 25 materials + 2 control chessboard patterns.
- **Fig.9** A psychometric functions evaluating perceptual differences for six materials mapped on a cylinder in three different directions ( $0^\circ$ ,  $45^\circ$ ,  $90^\circ$ ).
- Accompanying video showing dynamic stimulus for *Experiment C* (material *leather05*).

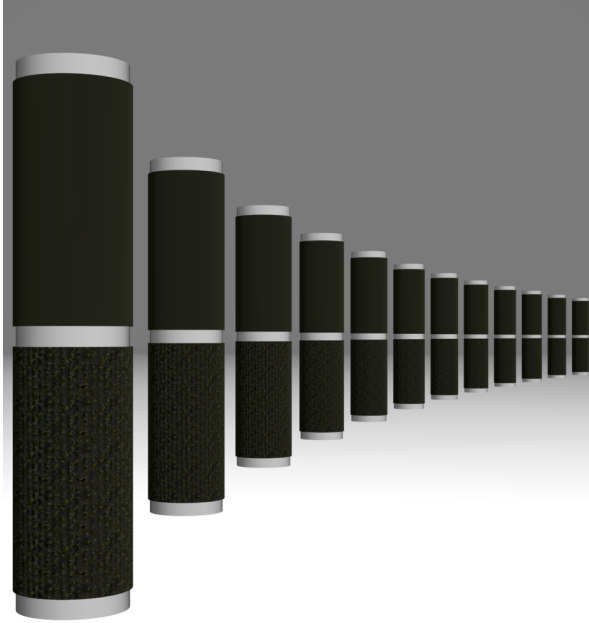
### 1. Real-sized Material samples



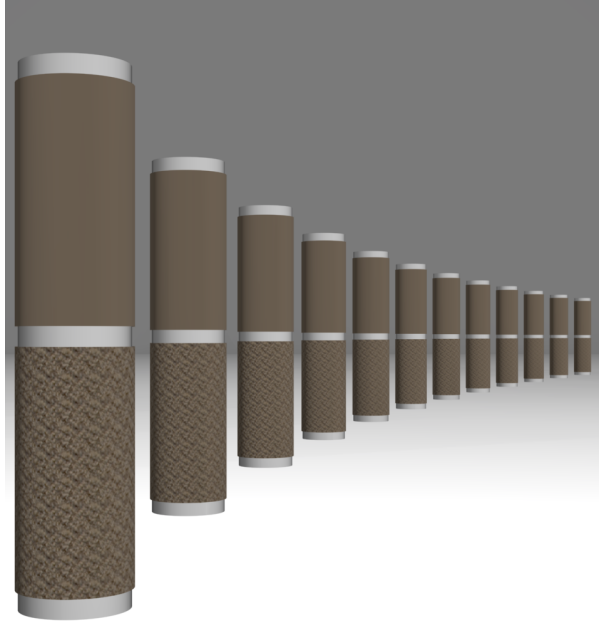
**Figure 1:** Overview of 25 materials used in our study show in the same resolution as in reality (image sizes 1 inch=25.4 mm). White frame denotes estimated size of the largest structure element.

## 2. Stimuli Images – Experiment B

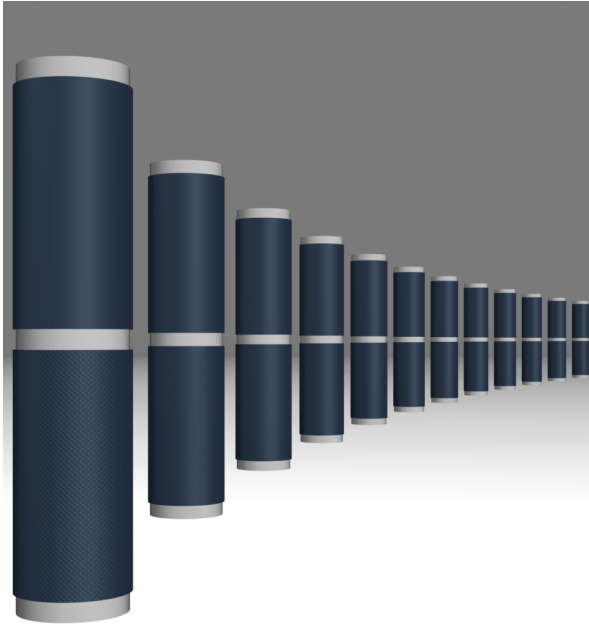
carpet01



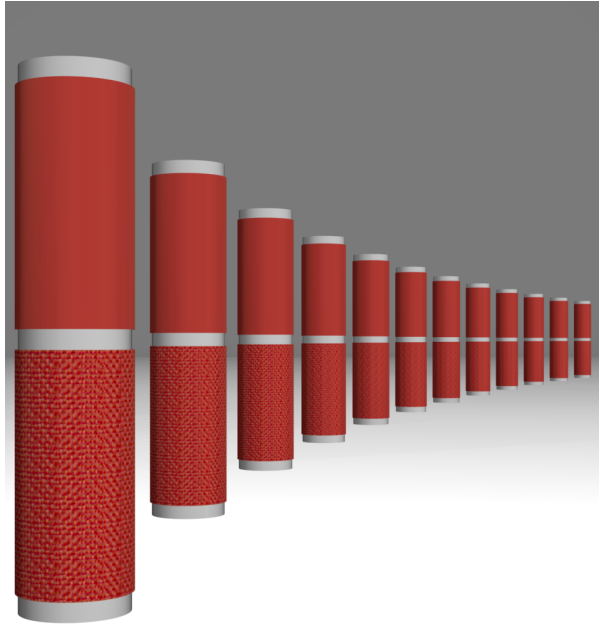
carpet04



fabric03

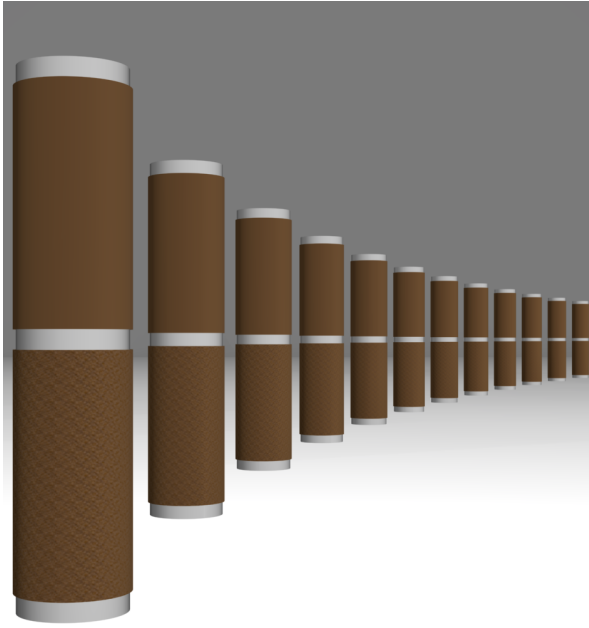


fabric41

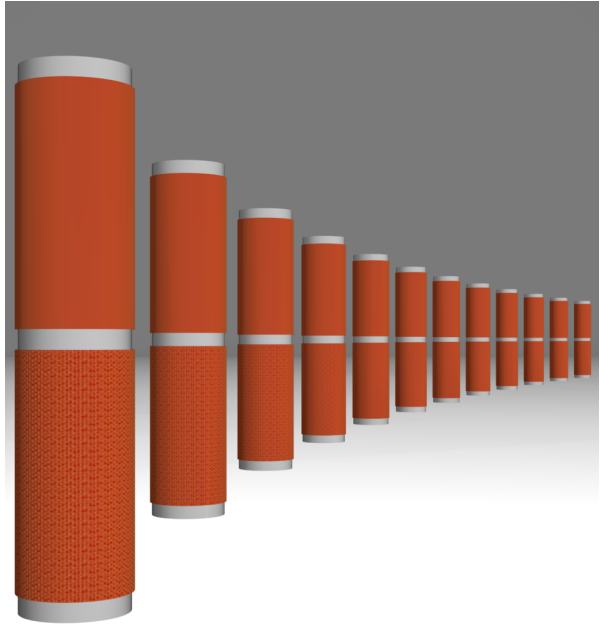


**Figure 2:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

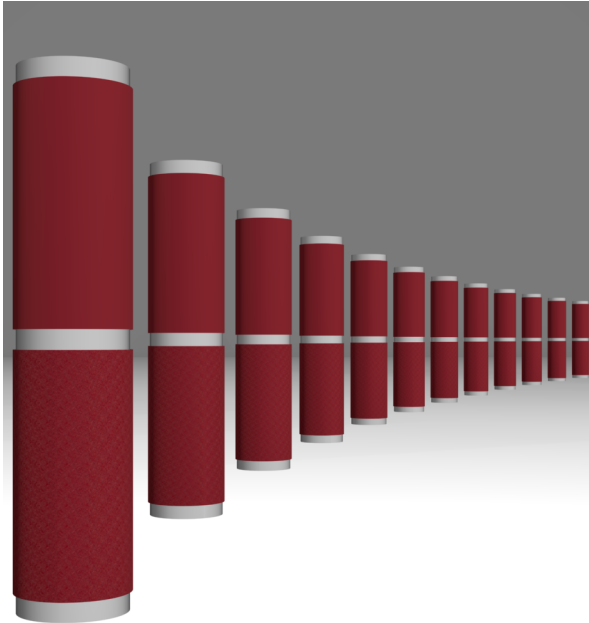
fabric048



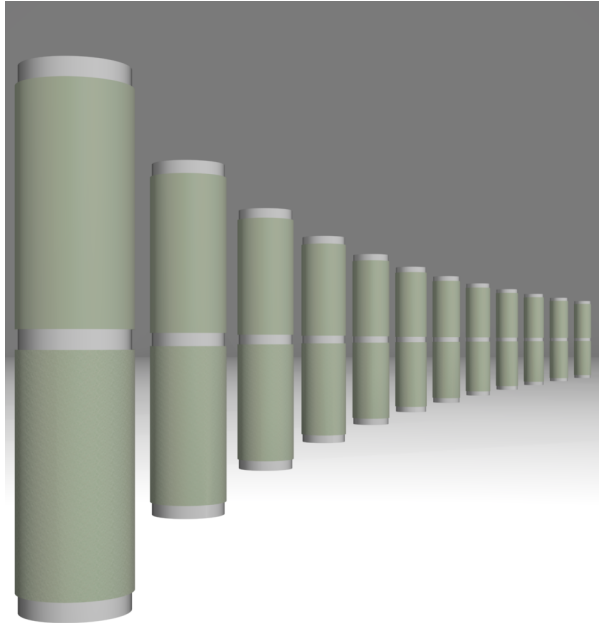
fabric075



fabric082

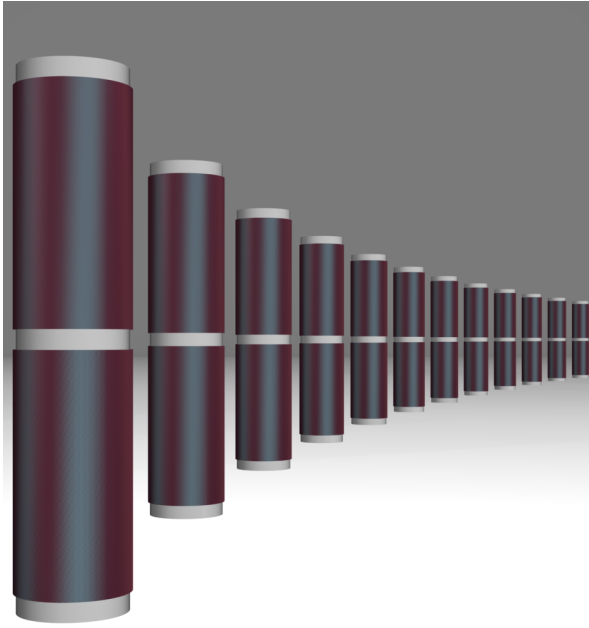


fabric102

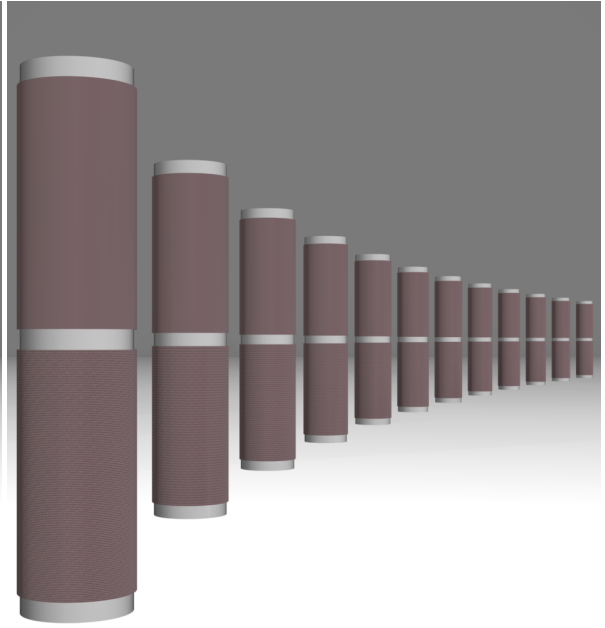


**Figure 3:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

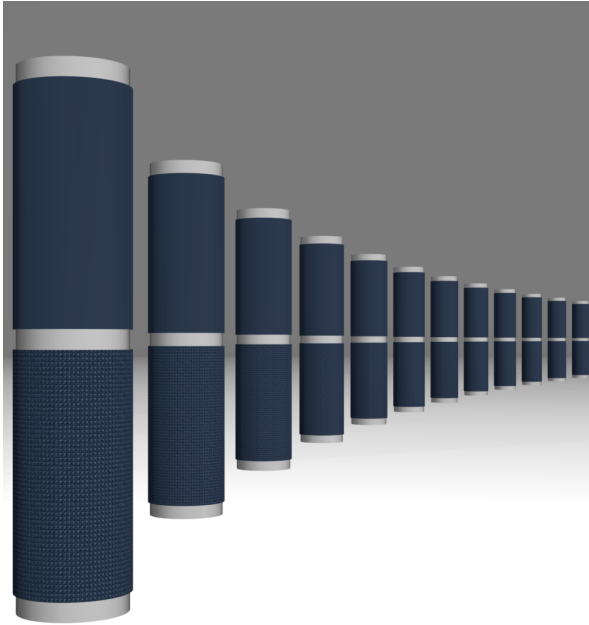
fabric106



fabric110



fabric120

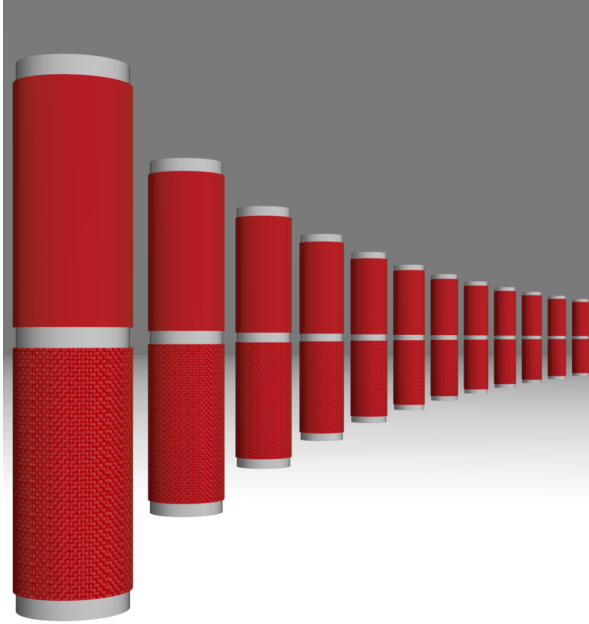


fabric122

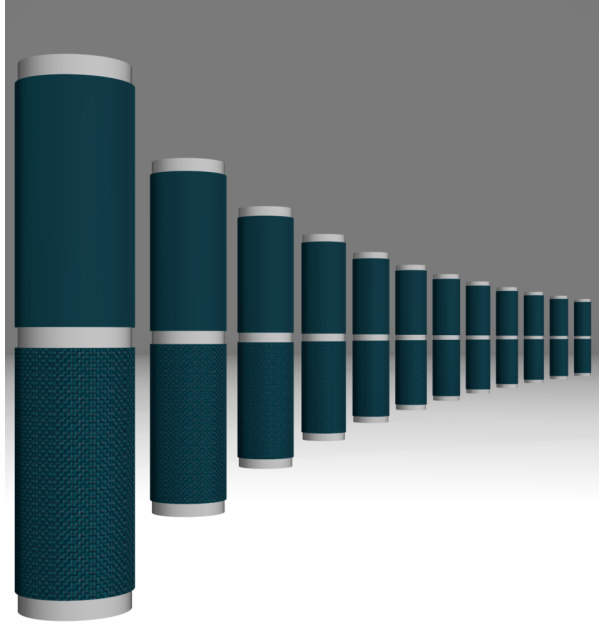


**Figure 4:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

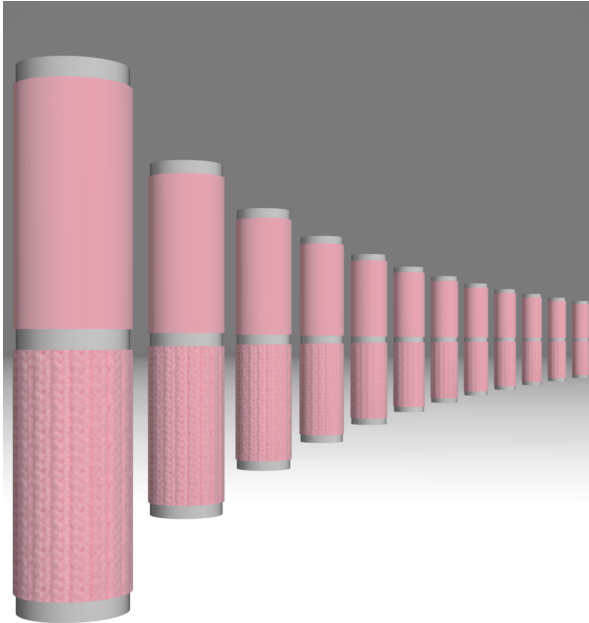
fabric129



fabric131



fabric146

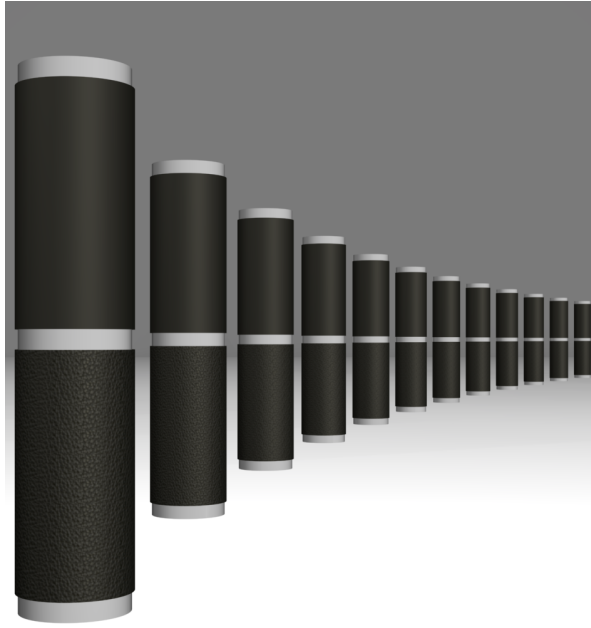


leather01

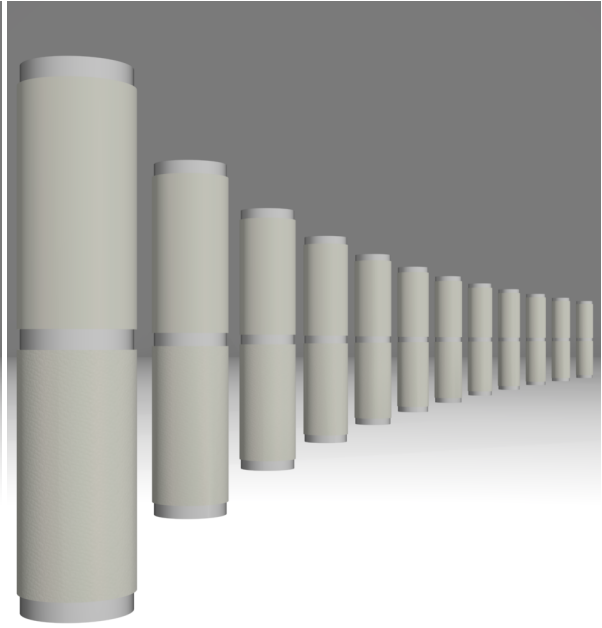


**Figure 5:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

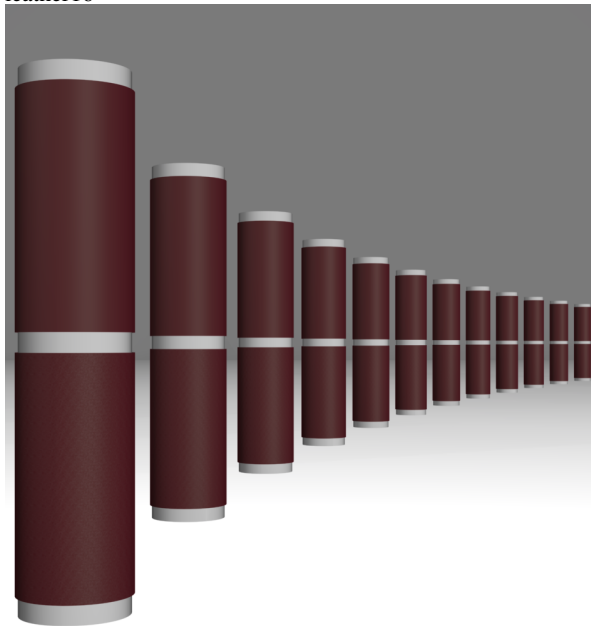
leather05



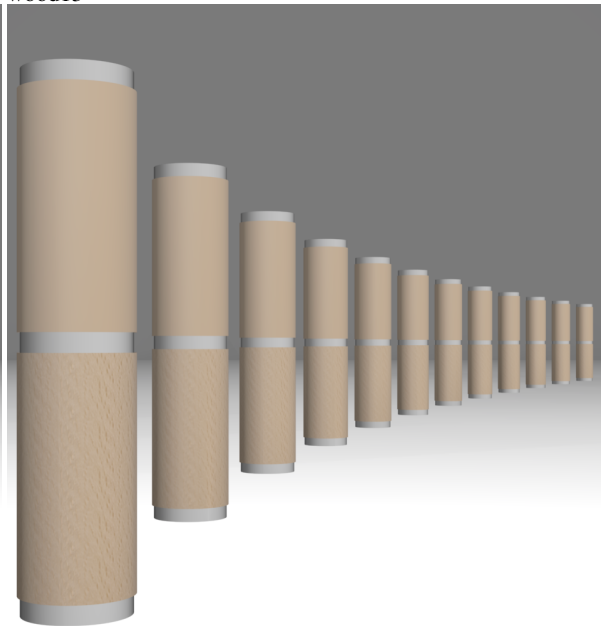
leather07



leather16

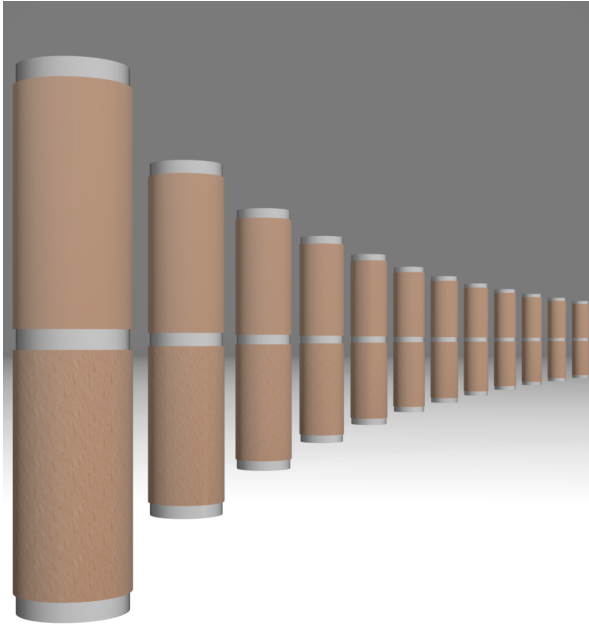


wood13

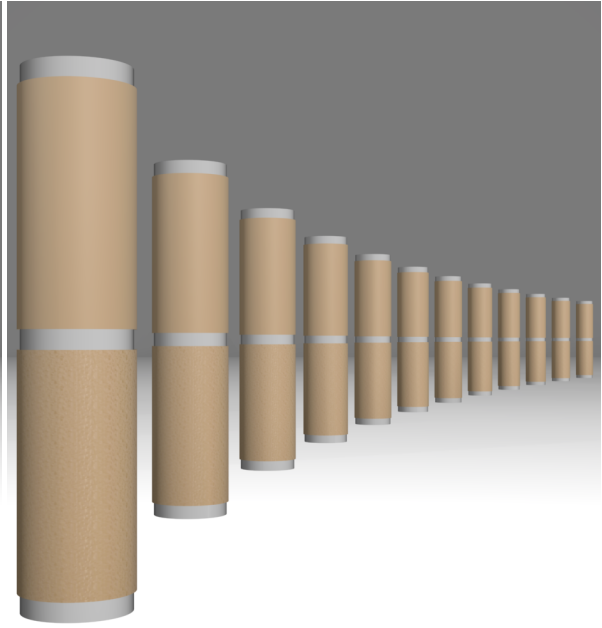


**Figure 6:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

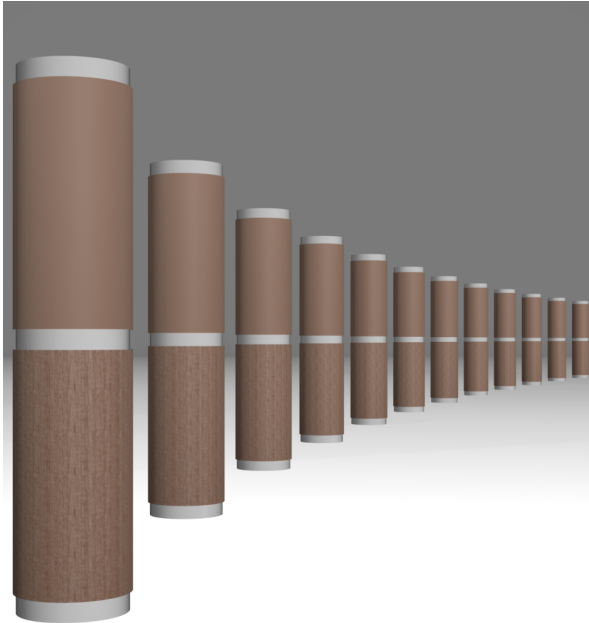
wood14



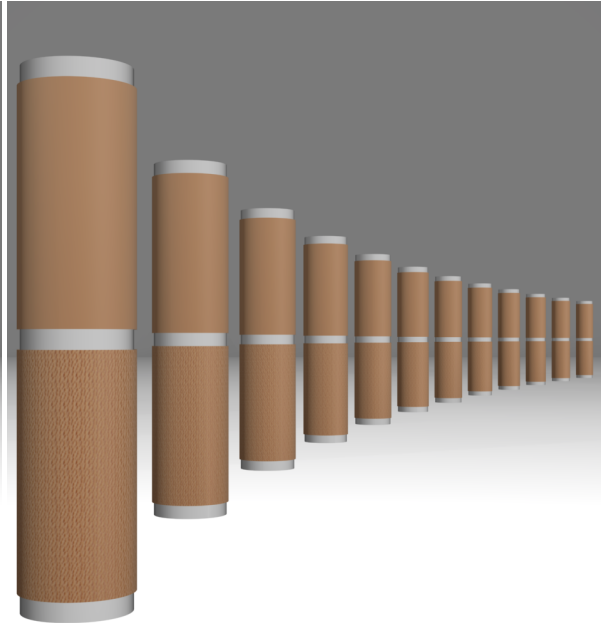
wood36



wood46



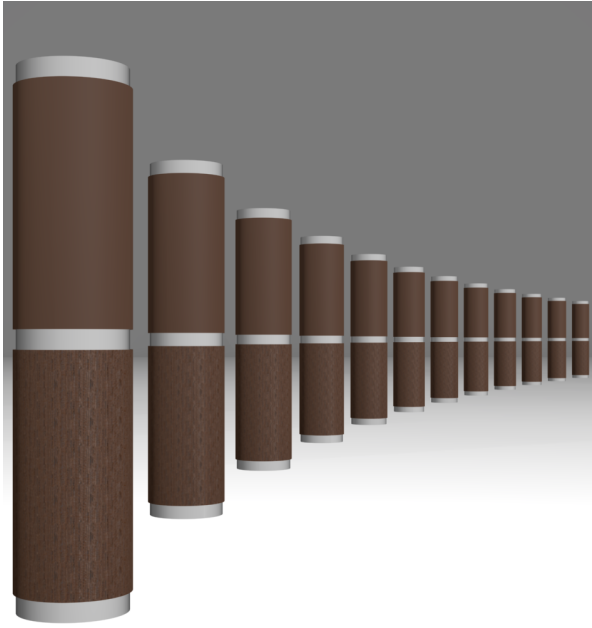
wood55



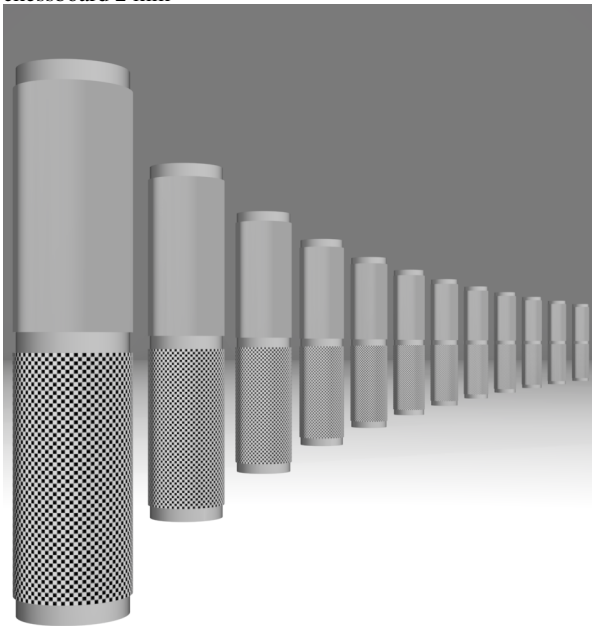
**Figure 7:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.



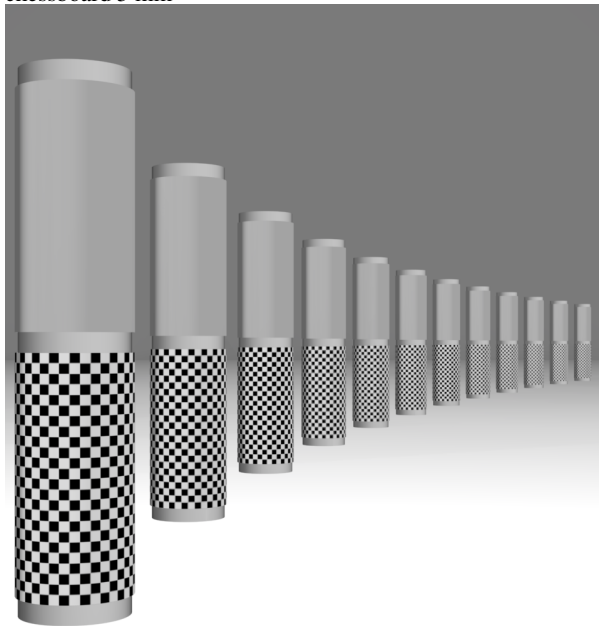
wood65



chessboard 2 mm

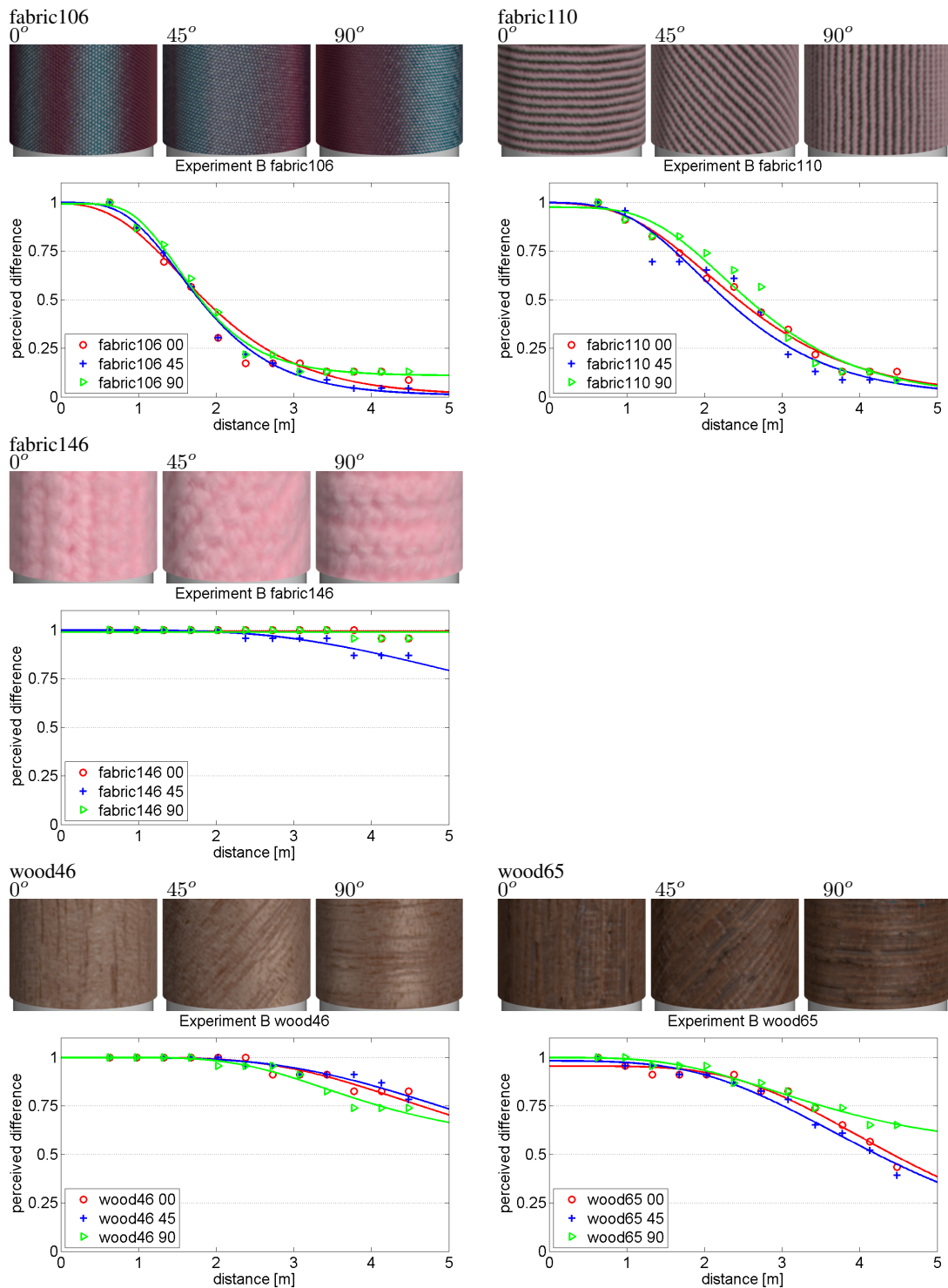


chessboard 5 mm



**Figure 8:** Stimuli Images used in the Experiment B. Physical width of images during the experiment was set to 29.5 cm.

### 3. Psychometric Functions



**Figure 9:** Psychometric data and functions documenting relatively low impact of material anisotropy on a perceived difference.