

6.11.2023 – ÚTIA AV ČR, Pod Vodárenskou věží 4, room 3

Perception-aware appearance digitization of fabric

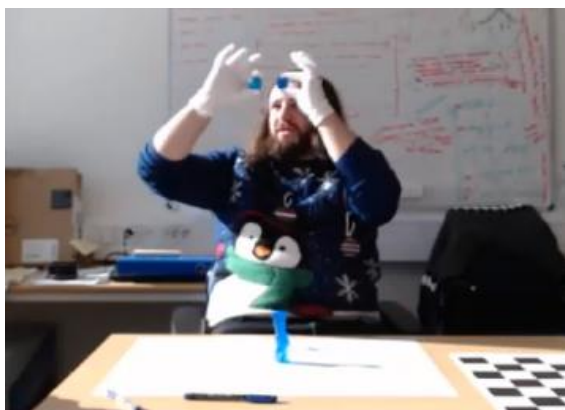
Jorge Lopez Moreno Universidad Rey Juan Carlos, Madrid, Spain



One of the core problems in computer graphics research is acquiring and modeling the appearance of real-world materials. Fabrics in particular, are composed of fibers, and their macroscopic appearance is very correlated with their constituent microstructures, often exhibiting complex mechanical and optical behaviors. For instance, transmittance and phase anisotropy affect the captured image, generally blurring small geometric details and increasing the color saturation and luminance for certain illumination directions. In this talk we will describe the acquisition methods developed by SEDDI and MSLab to digitize fabrics, and how we considered human perception in the choice of optical and mechanical simulation models, and the automatic estimation of their parameters.

What does human behavior tell us about material appearance?

Davit Gigilashvili Norwegian University of Science and Technology



Perception of material appearance plays a significant role in our lives. For instance, we may rely on glossiness when assessing whether a sidewalk is slippery or not. We have a remarkable ability to understand visual properties of objects and materials, but little is known about the exact mechanisms of such ability. Material perception research broadly relies on psychophysical experiments that are usually designed for quantitative testing of different research hypotheses.

We gave physical objects to human observers that they could freely interact with and asked them to perform simple visual tasks. We videotaped the process to collect observations on human behavior associated with each task. We noticed interesting patterns that helped us to formulate relevant research hypotheses on potential cues to appearance attributes as well as on external factors contributing to appearance.

You are welcome to attend, no registration is required.

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2nd Workshop on Perception of Material Appearance

Monday 06/11/2023

09:00-09:10 – Welcome & introduction

Material appearance capture & visualization

09:10-9:40 – **Jakub Čech** (CTO & Co-Founder, jakubcech.net, tmac.dev) – [PBR maps authoring: from textures to realism](#)

09:40-10:20 – INVITED TALK: **Jorge Lopez Moreno** (Universidad Rey Juan Carlos, Madrid, Spain) – [Perception-aware appearance digitization of fabric](#)

10:20-10:50 – Coffee Break

Human perception of material appearance

10:50-11:30 – INVITED TALK: **Davit Gigilashvili** (Norwegian University of Science and Technology, Norway) – [What does human behavior tell us about material appearance?](#)

11:30-12:00 – **Roland W. Fleming** (University of Giessen, Germany) – [The impact of shape and material properties on human grasping actions](#)

12:00-12:30 – **Filipp Schmidt** (University of Giessen): [Perceiving materials in context](#)

12:30-13:30 – Lunch Break

Towards perceptual dimensions of materials

13:30-14:00 – **Jiří Filip** (UTIA - Institute of Information Theory and Automation, CAS) – [Perceptual dimensions of wood materials](#)

14:00-14:30 – **Jiří Lukavský** (Institute of Psychology, CAS) – [Reliability of perceived similarity ratings of materials in videos and static images](#)

14:30 – Coffee + lab tour (UTIA goniometer) = end of the workshop

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Contact info: Jiri Filip filipj@utia.cas.cz

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