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# Supplemental Material: On-Site Example-Based Material Appearance Acquisition

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**Table 1:** *BRDF estimates for varying shapes of exemplar.*

| | $\rho_d$ | $\rho_s$ | $\sigma$ |
|---|---|---|---|
| ground truth | [0.3000, 0.0500, 0.0500] | 0.060 | 0.05 |
| shape 1 | [0.3058, 0.0544, 0.0554] | 0.055 | 0.04 |
| shape 2 | [0.3106, 0.0583, 0.0585] | 0.060 | 0.05 |
| shape 3 | [0.3082, 0.0553, 0.0548] | 0.055 | 0.04 |
| shape 4 | [0.3093, 0.0555, 0.0561] | 0.054 | 0.04 |
| shape 5 | [0.3083, 0.0546, 0.0559] | 0.060 | 0.05 |
| shape 6 | [0.3063, 0.0553, 0.0560] | 0.060 | 0.05 |
| shape 7 | [0.3026, 0.0506, 0.0511] | 0.061 | 0.05 |
| shape 8 | [0.3069, 0.0541, 0.0552] | 0.060 | 0.05 |

Table 1 lists the estimated BRDF parameters and the ground truth for the various shapes of exemplars in the *Shape ablation study*, corresponding to Figure 15 in the main paper. As can be seen, shape variation has no effect on the accuracy of BRDF estimation.

Table 2 lists the estimated BRDF parameters and the ground truth for the eight least accurate examples (out of 72 in the Aittala database) in the *Mesostructure ablation study*, corresponding to Figure 16 in the main paper. As can be seen, mesostructure variation has very little (if any) effect on the accuracy of BRDF estimation. However, strongly directional/anisotropic mesostructure can in some cases bias the estimated parameters.

**Table 2:** *BRDF estimates for the eight least accurate cases of surface mesostructure from the Aittala database.*

| | $\rho_d$ | $\rho_s$ | $\sigma$ |
|---|---|---|---|
| ground truth | [0.3000, 0.0500, 0.0500] | 0.060 | 0.05 |
| meso. 1 | [0.3128, 0.0596, 0.0598] | 0.039 | 0.02 |
| meso. 2 | [0.2993, 0.0480, 0.0513] | 0.048 | 0.03 |
| meso. 3 | [0.3009, 0.0494, 0.0501] | 0.048 | 0.03 |
| meso. 4 | [0.3075, 0.0507, 0.0513] | 0.043 | 0.03 |
| meso. 5 | [0.3108, 0.0549, 0.0560] | 0.047 | 0.03 |
| meso. 6 | [0.2969, 0.0432, 0.0466] | 0.069 | 0.07 |
| meso. 7 | [0.3096, 0.0568, 0.0575] | 0.048 | 0.03 |
| meso. 8 | [0.3053, 0.0527, 0.0530] | 0.049 | 0.03 |

Table 3 lists the estimated BRDF parameters and the ground truth for the various illumination environments in the *Illumination ablation study*, corresponding to Figure 17 in the main paper. As can be seen, the BRDF estimation is mostly very robust to illumination variation. However, the estimation is slightly inaccurate under the Uffizi gallery lighting environment (probe 8) which does not have sufficient color variation, and exhibits low frequency lighting which hinders robust estimation of the BRDF parameters using our proposed shape-agnostic RGB color profile matching.

**Table 3:** *BRDF estimates for varying illumination.*

| | $\rho_d$ | $\rho_s$ | $\sigma$ |
|---|---|---|---|
| ground truth | [0.3000, 0.0500, 0.0500] | 0.060 | 0.05 |
| probe 1 | [0.3054, 0.0546, 0.0541] | 0.061 | 0.05 |
| probe 2 | [0.3054, 0.0546, 0.0541] | 0.061 | 0.05 |
| probe 3 | [0.3067, 0.0531, 0.0512] | 0.061 | 0.05 |
| probe 4 | [0.3142, 0.0584, 0.0587] | 0.061 | 0.05 |
| probe 5 | [0.3078, 0.0587, 0.0570] | 0.069 | 0.04 |
| probe 6 | [0.3099, 0.0545, 0.0571] | 0.055 | 0.04 |
| probe 7 | [0.3140, 0.0597, 0.0577] | 0.060 | 0.05 |
| probe 8 | [0.2973, 0.0475, 0.0475] | 0.063 | 0.07 |