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Cuttlefish, Cuttlfish::Eye, Cuttlefish::Tooth, Cuttlefish::Proof

Cuttlefish® controls multi-material 3D printers to reproduce the shape and appearance (color, translucency, gloss) of input 3D models.

Cuttlefish® is a printer-agnostic 3D printer driver controlling a wide range of multi-material 3D printers at native voxel resolution to reproduce the shape and appearance of 3D models. Cuttlefish::Eye and Cuttlefish::Tooth are data-driven design tools for realistic eye prostheses and dentures. Cuttlefish::Proof creates physically accurate print previews.

Cuttlefish® takes a volumetric approach to natively provide robustness to 3D assets containg holes or open surfaces, and allows adaptive thickening of thin parts. It supports displacement mapping at printer resolution, enriching low-poly models with fine geometrical details. Shape dithering prevents staircase artifacts due to geometric quantization caused by finite print resolution. Cuttlefish® delivers high color accuracy, enabling color-critical applications. An example is Cuttlefish::Eye for printing prosthetic eyes in which their appearance must match a reference. Translucency, from fully opaque to fully transparent, can be seamlessly controlled for spatially varying joint color and translucency prints.

This is particularly relevant for Cuttlefish::Tooth to produce biomimetic, shade-accurate dentures. Cuttlefish® saves money by automatically hollowing models to reduce the build material used, which can save hundreds of Euros in build material for large prints. Adjusting the thickness of support material layers provides additional savings for each tray. Cuttlefish® saves time with an automated »hot folder« workflow, reducing technician workload up to 60% compared to loading and placing parts individually. Cuttlefish::Proof is a tool to save even more time and money: A physically accurate softproof directly integrated with Cuttlefish®, which simulates light transport on the exact slicing result to avoid surprises when printing.

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exhibit overview