LucidShape Modules
Automotive Lighting Design Software

**Base Module**
The LucidShape Base Module includes the following functionality:

- LucidStudio, an interactive environment for design and simulation
- Basic geometry features
- Simulation kernel
- Analysis functions:
  - Measurement tables for automotive lighting for ECE, SAE and JIS regulations
  - Light data analysis and operations: gradients, filter, addition, subtraction, scale, mirror, etc.
  - Light data display properties such as log/linear scale and color mode
  - CIE TC4-45 headlamp benchmark
- CAD import and export
- Material/medium assignment and management, including surface and volume scattering modeling

All other LucidShape modules are fully integrated in the Base Module.

**FunGeo MacroFocal Module**
Supports the design of all automotive lighting functions, including headlamps:
- Freeform reflectors and lenses
- Automatic cut-off calculation
- Freestyling definition via base grids

**FunGeo Procedural Surface / Poly-Curve System Module**
Supports the design of all automotive lighting functions, including headlamps:
- Freeform reflectors and lenses
- Projector module headlight design
- Smooth and pillowed reflectors and lenses for signal functions

**FunGeo Optimizer Module**
Automatically changes geometry parameters to achieve the best design solution.

**FunGeo Backlighting Module**
Supports the design of automotive backlighting systems:
- Prism bands for light pipes
- Dot masks
- Retroreflectors
- Light guides

**Visualize Module**
Delivers high-speed photorealistic renderings of lit and unlit appearance. Includes:
- Environment light source
- Backward ray trace simulations
- Backward luminance camera
- High-Dynamic Range (HDR) Viewer

**LucidCOM Module**
Provides a programming API to automate LucidShape operations and develop custom solutions.

**GPUTrace Module**
Accelerates LucidShape illumination simulations using NVIDIA graphics cards.

**SmartStart Library Module**
Provides access to a library of materials and media commonly used in the design of automotive lighting systems. Includes refractive index and absorption data as well as pre-defined volume scatter and BSDF materials.

For more information, visit synopsys.com/optical-solutions/lucidshape.html

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