

RELUXVIVALDI

THE RADIANCE HDR FORMAT GOES MAINSTREAM

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*** PDF version, reduced content (no live demos...) ***

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PROJECT PARTNERS



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TIMELINE

1988 **RADIANCE HDR FORMAT**

...and then ?

2005 **VIVALDI CONCEPT BY T-G**

Idea: User-friendly tool for dynamic lighting simulation based on HDR image superposition

2006 **1. VIVALDI RELEASE BY ZUMTOBEL AND T-G**

Due to limited availability of suitable HDR images, the first release was equipped with the option to work with LDR images. This meant combining the picture with further data (e.g. luminance tables and/or falsecolor images) on import.

2008 **RELUX HDR EXPORT AND IMPORT IN VIVALDI**

General Problem at that stage:

Tedious data acquisition, multiple individual calculations needed for producing sets of images separated by switching group and daylight date and time

2011 **VLP EXPORT RELUX->VIVALDI**

Automatic switching group and multiple daylight date and time calculation in Relux (with Radiance/Radzilla 'rzpict') and export in combined form ('VLP format') to Vivaldi

2012 **RELUXVIVALDI BY ZUMTOBEL, T-G AND RELUX**

2 programs in 1:

- automatic switching group and multiple daylight date/time calculation
- plus the Vivaldi module for dynamic simulation & evaluation

AUTOMATED MULTIPLE CALCULATIONS

EXTERNAL VIEW:

IMPLEMENTATION SHIELDS THE USER FROM THE COMPLEXITY OF THE CALCULATION

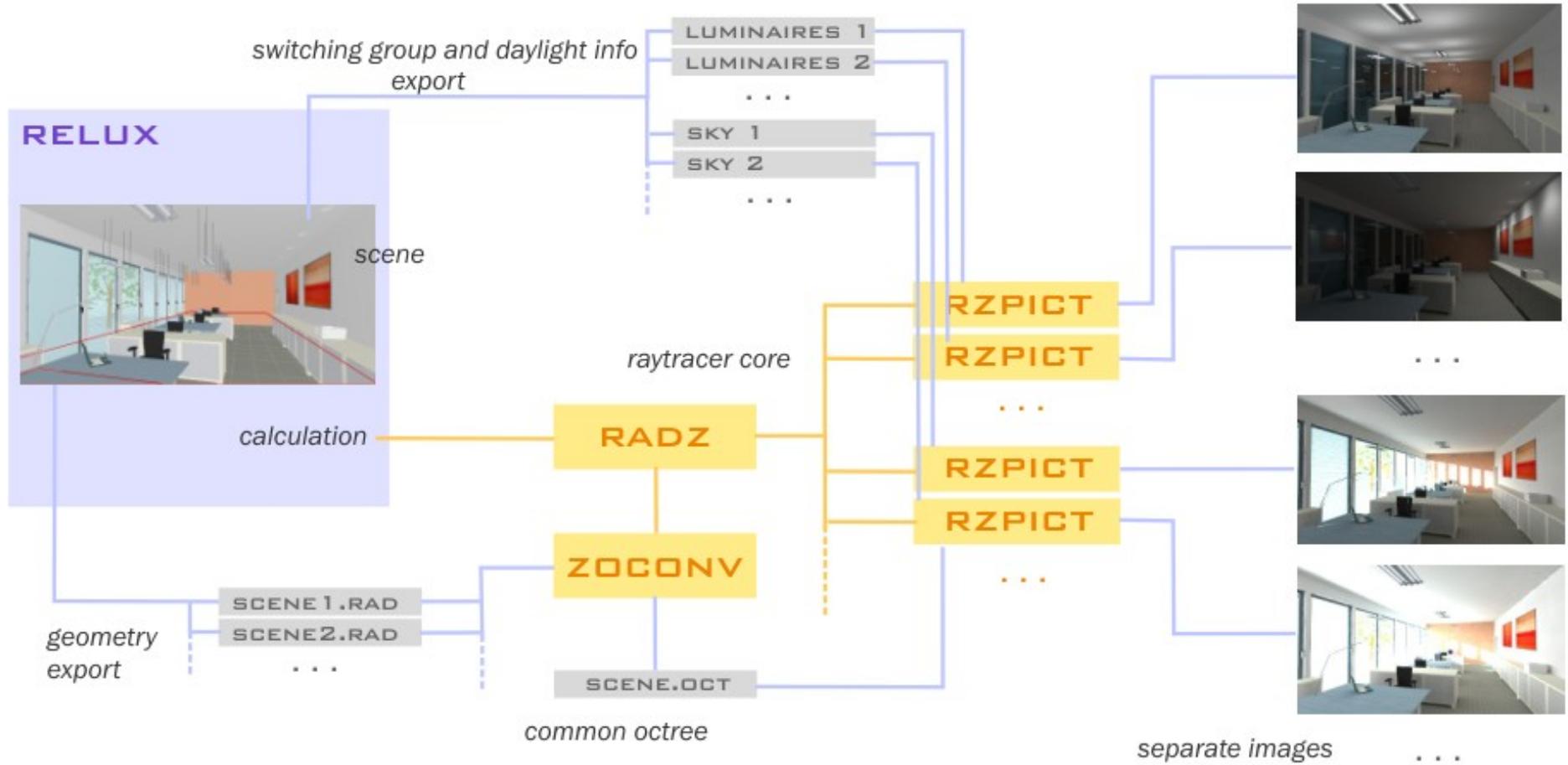
INTERNAL VIEW:

PARALLEL PROCESSING WITH MULTIPLE RENDER PROCESSES

- allows using the ambient cache for high image quality
- optimal for widespread multicore systems with Windows OS (there is no easy way to port the UNIX type ambient file sharing to Windows)
- allows visualizing the state (on/off) in the complex luminaire model

AUTOMATED MULTIPLE CALCULATIONS

RELUXVIVALDI SWITCHING GROUP AND MULTIPLE DAYLIGHT CALCULATION



HDR AND MORE

COMBINATION OF HDR IMAGES WITH ASSOCIATED DATA:

- luminaire product info
- power consumption, standby power
- lamp dimming characteristics
- color temperature

FLEXIBLE INTERFACE WITH USEFUL FUNCTIONS FOR THE EVERYDAY PRACTICE

- calculated energy consumption (actual/accumulated)
- timeline editing / importing / saving
- combination of switching groups
- image based lighting evaluation
- movie output

HDR AND MORE

RELUXVIVALDI SCREENSHOT

The screenshot displays the ReluxVivaldi software interface, which is used for lighting simulation and energy analysis. The main window shows a 3D rendering of an office interior with desks, chairs, and large windows. The interface is divided into several panels:

- Project Panel:** Shows the current project name "Group office :: Dynamic Scene 1" and various settings for daylight fading, time display, and intensity.
- Timeline Editor:** Contains two graphs showing the percentage of light intensity over time (08:00 to 17:00) for "Pendelleuchten (1)" and "Wallwasher (1)".
- Control Panel:** Provides real-time control for different lighting fixtures, including "Pendel", "Wallwasher (1)", "Tischl", and "Band". It features power buttons, color indicators, and numerical values for each fixture.
- Predicted Energy Requirement:** A panel showing energy consumption data. It includes a progress bar for "Actual" (0,51 kW) vs "Installed" (0,77 kW) power, and a table of energy requirements and emissions over different time frames.

Time frame	Day	Week	Month
Energy requirement* [kWh]	4,57	22,85	99,41
Spec. energy req.* [kWh/m ²]	0,07	0,36	1,56
Energy cost* [EUR]	0,82	4,11	17,87
CO ₂ emission* [kg]	2,02	10,08	43,84
Spec. CO ₂ emission* [kg/m ²]	0,03	0,16	1,56

SUMMARY

EASY AND STRAIGHTFORWARD ACCESS TO DYNAMIC SIMULATION TECHNIQUES FOR ALL USERS

- no complex commandline and scripting techniques needed.
- limitations exist, e.g.no automatic detailed annual evaluations possible yet

SUITABLE FOR LIGHTING CALCULATION, VISUALIZATION AND PRESENTATION

- very intuitive approach supports creative work, but with a sound & exact basis
- allows to put more focus on lighting quality

COMBINATION OF LIGHTING ANALYSIS AND EVALUATION OF ENERGY CONSUMPTION

- 'daylight is money', linking sustainability with concrete economical aspects is a strong argument for promoting daylight use, esp. in the most common case of combined use of day- and artificial light

EXAMPLE OF RADIANCE IDEAS INTEGRATED IN TOOLS USED BY A WIDESPREAD GROUP OF LIGHTING DESIGNERS

THE END

THANK YOU FOR YOUR ATTENTION

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