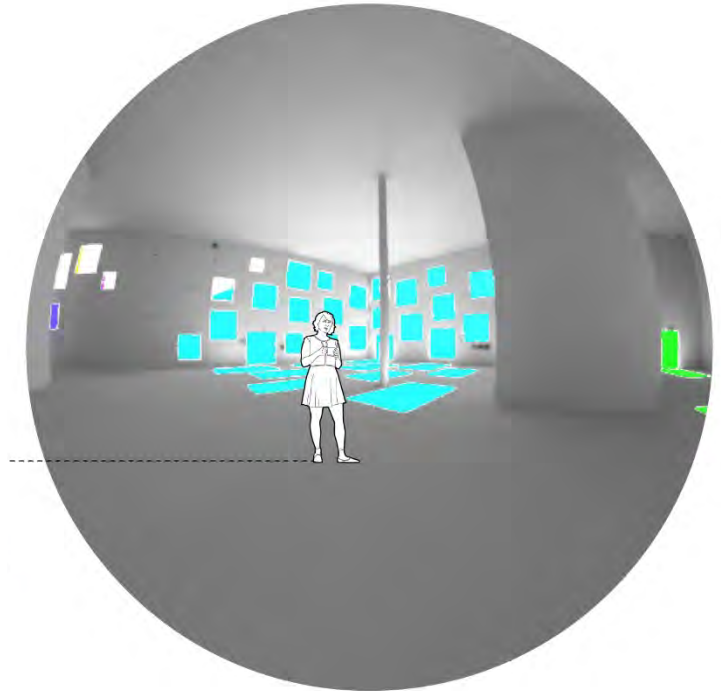
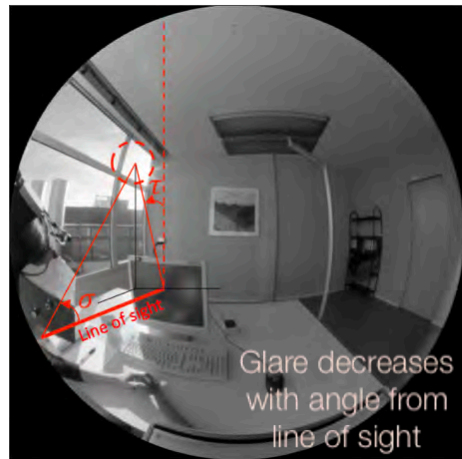
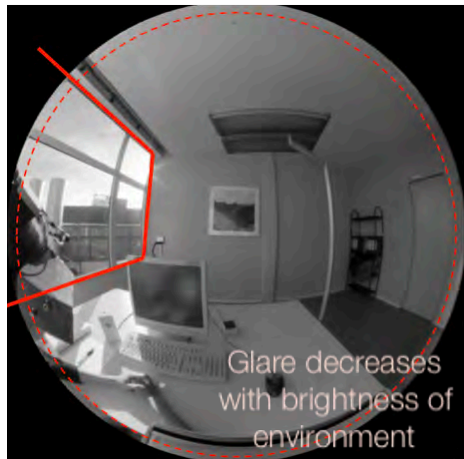
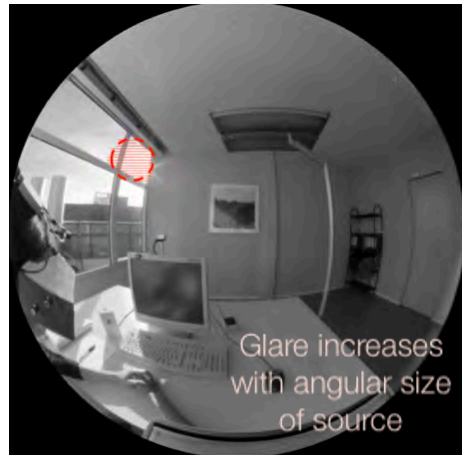
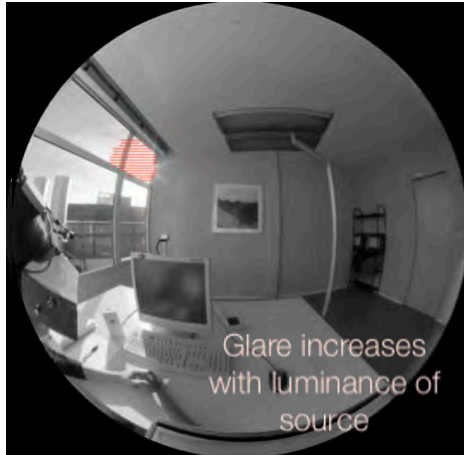


Today, there is only one (commonly used) way to evaluate that perception...



...through **glare risk models**

- *Daylight Glare Probability (DGP)*

$$G = \left(\frac{L_s^{exp} \omega_s^{exp}}{L_b^{exp} P_i^{exp}} \right)$$

Daylight is more than 'free' lighting with high glare risks:
we should appraise it beyond strict illumination and look for...



new metrics

human-centered
dynamic

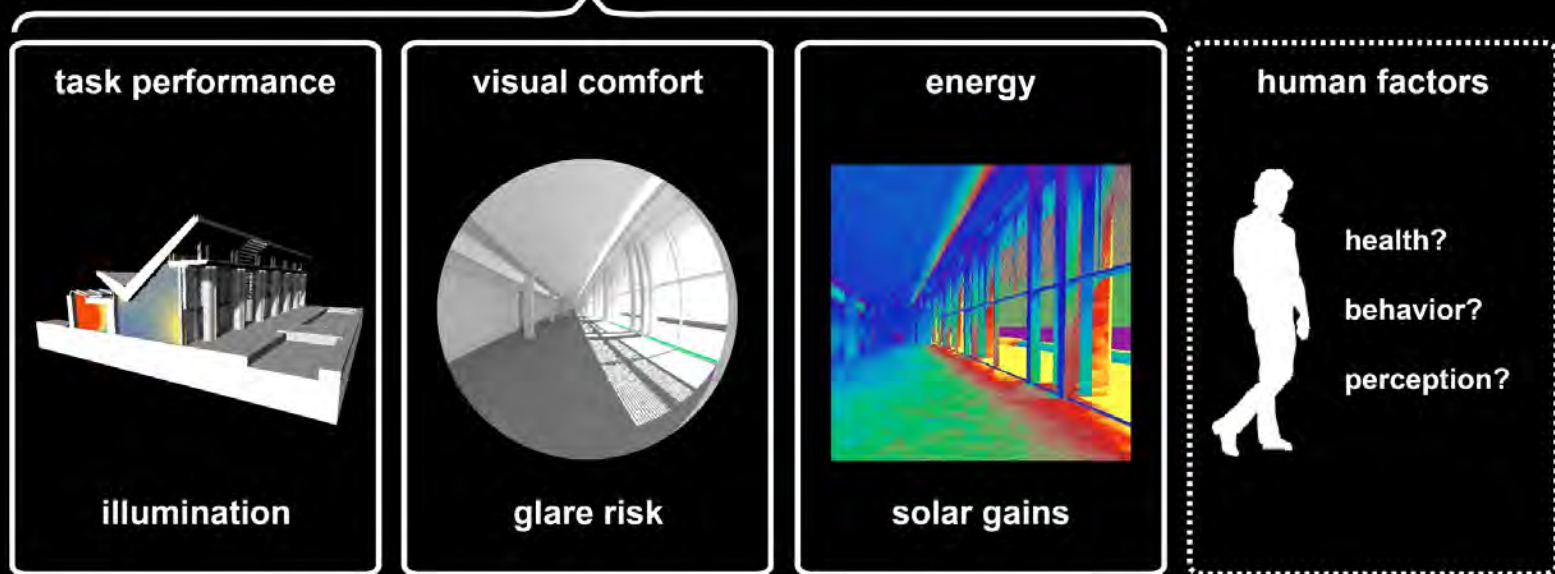
new visualizations

interactive
immersive

daylight dynamics and well-being

- human comfort and well-being back at the centre
- beyond mainstream metrics and performance evaluation

mainstream performance metrics

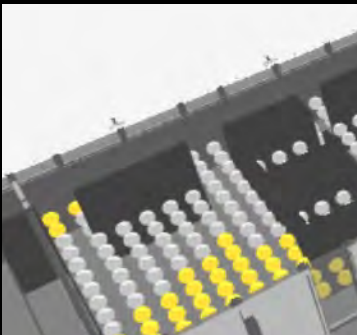


BEYOND ILLUMINATION

where and when healthy, stimulating, and comfortable light will to occur ...

ILLUMINATION

adequate
task lighting



+

VITALITY

physiology



COMFORT

acceptability



EMOTION

psychology



... dynamically over time & space

comfort

builds on minimal and maximal requirements



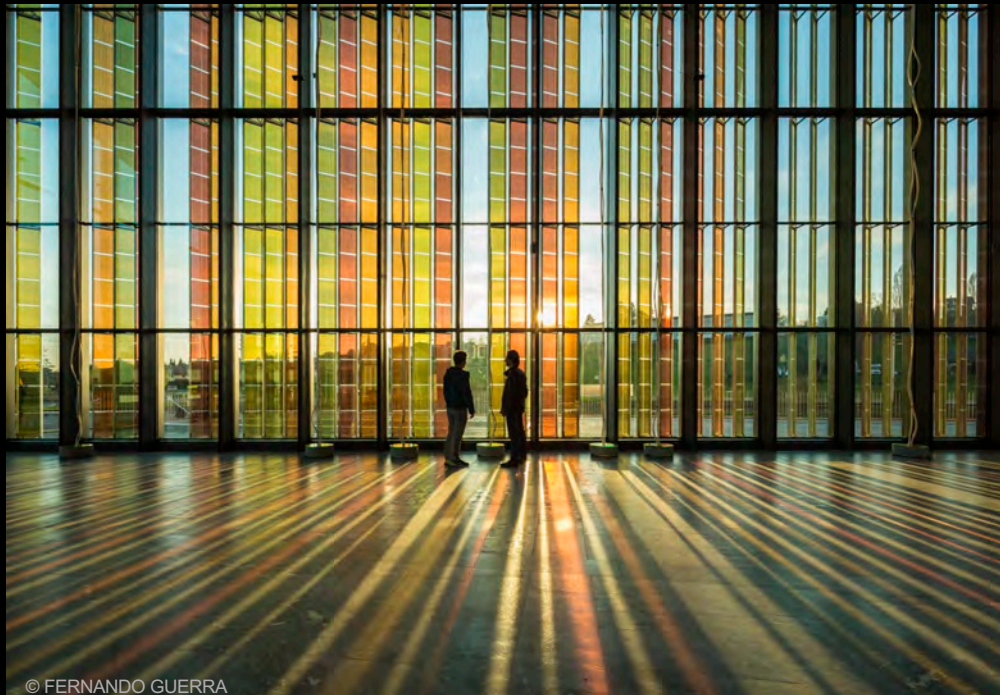
SG Foyer, EPFL (rendering by K. Chamilothoni)

visual and thermal comfort

perceived interactions

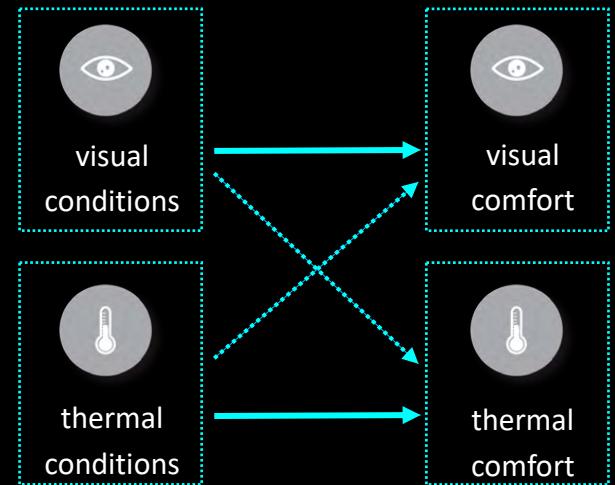


Dr. Giorgia Chinazzo
LIPID PhD+PostDoc alumnus
PostDoc at Northwestern University, USA



© FERNANDO GUERRA

SwissTech Convention Center / Richter Dahl Rocha & Associés



visual and thermal comfort

perceived interactions



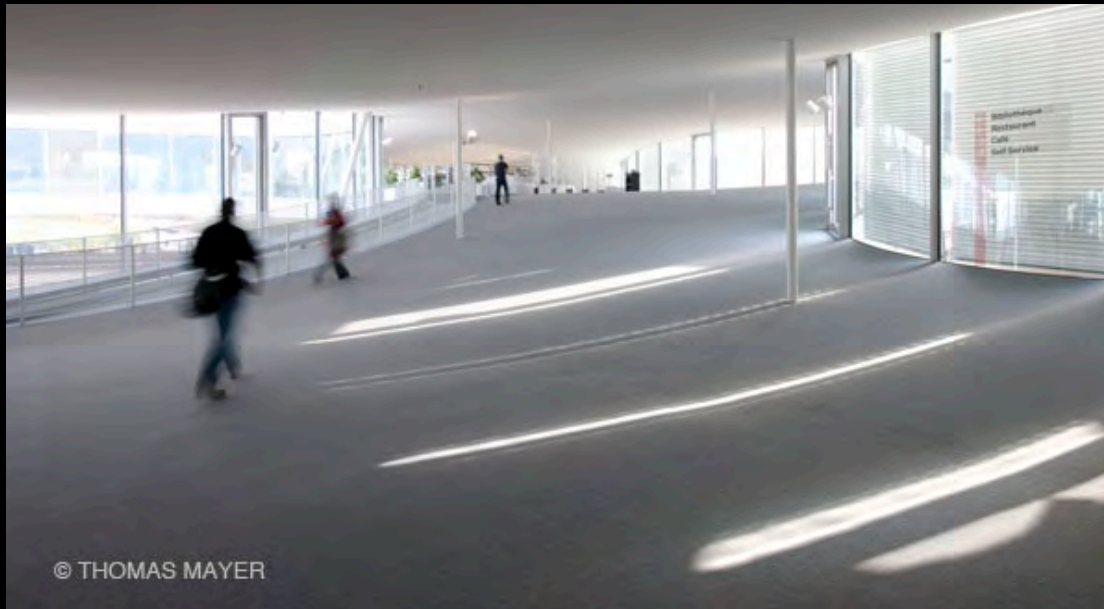
- does thermal perception depend on color of light?

Your Rainbow Panorama by Studio Olafur Eliasson



visual and thermal comfort

perceived interactions



Rolex Learning Center / SANAA

- does thermal perception depend on **color of light**?
- does thermal perception depend on **brightness**?
- does visual perception depend on **temperature**?



visual and thermal comfort

interaction effects



color of light & temperature



light quantity & temperature



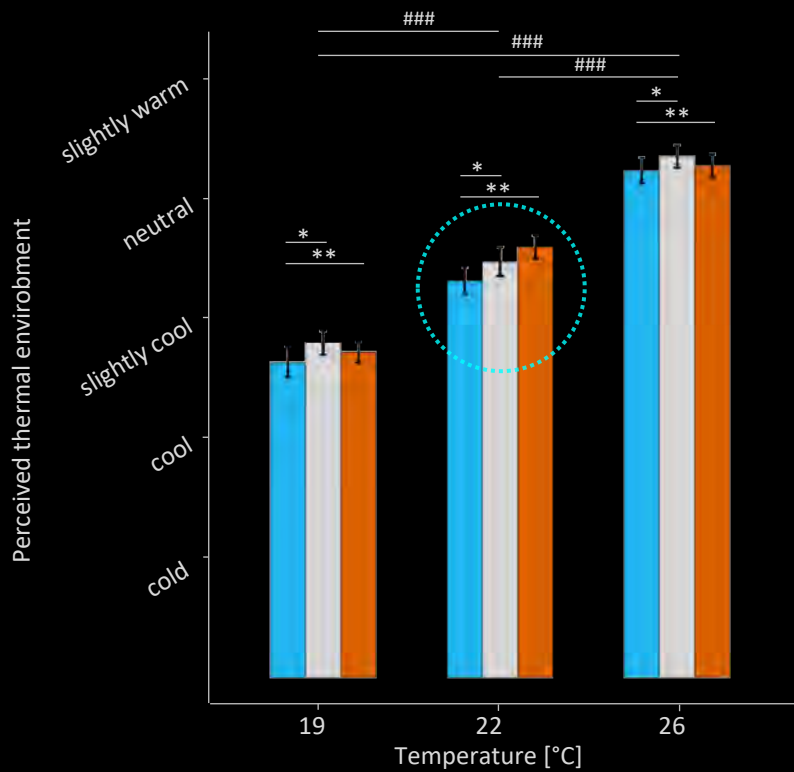
visual and thermal comfort



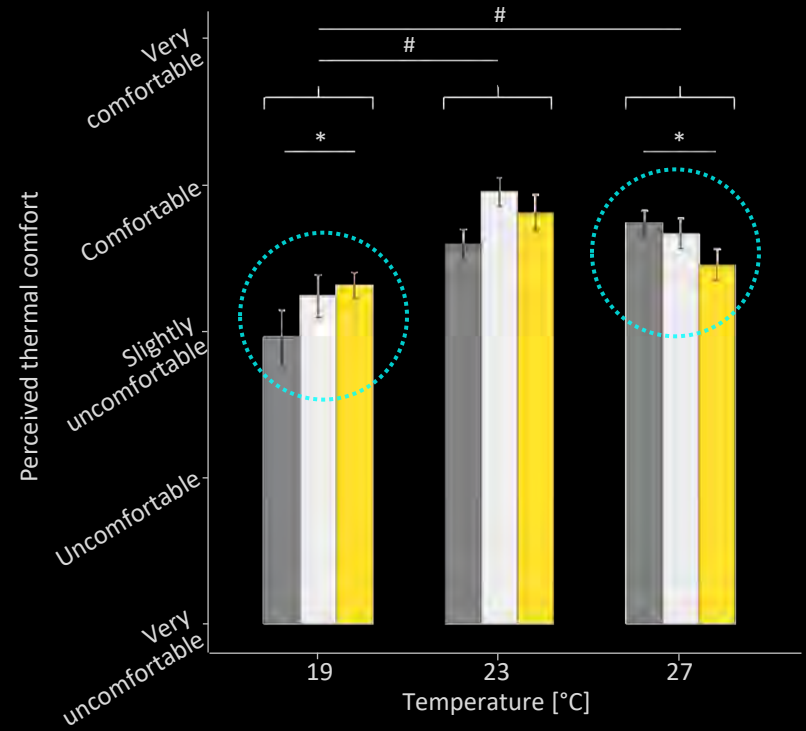
*impact of visual environment
on thermal perception*

*impact of brightness
on thermal comfort*

color of light & temperature

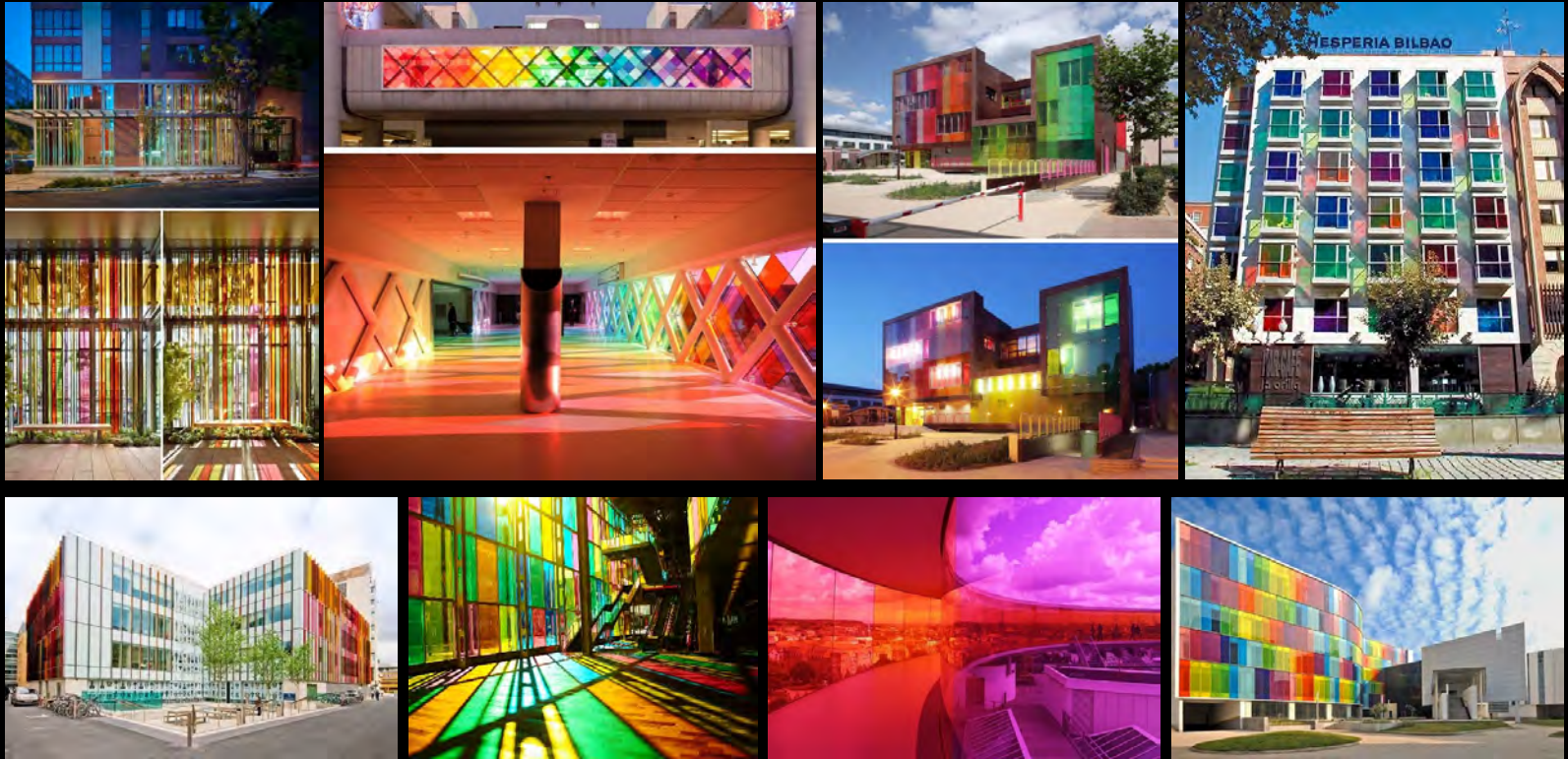


light quantity & temperature



visual and thermal comfort

impact on thermal perception of a visual experience



emotion

most tangibly connected with architectural experience



Dominus Winery by Herzog & De Meuron, California

emotion

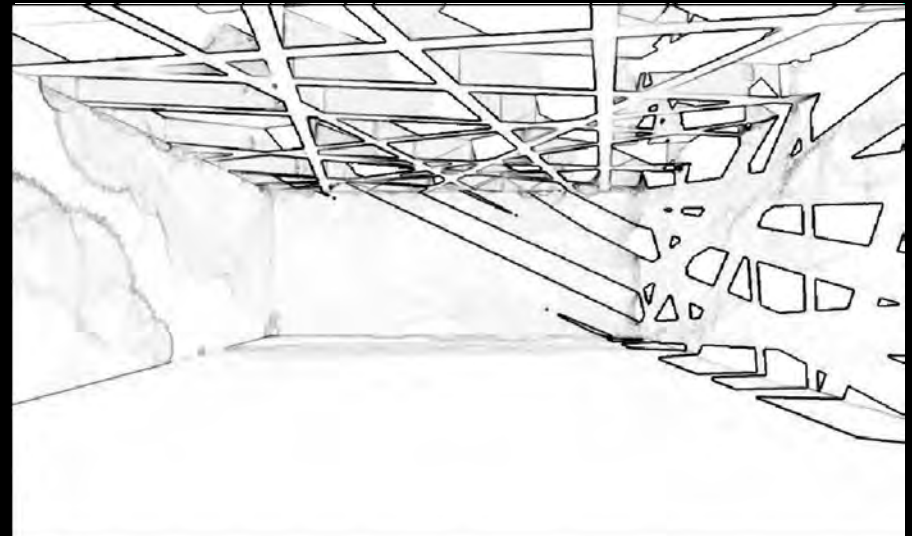
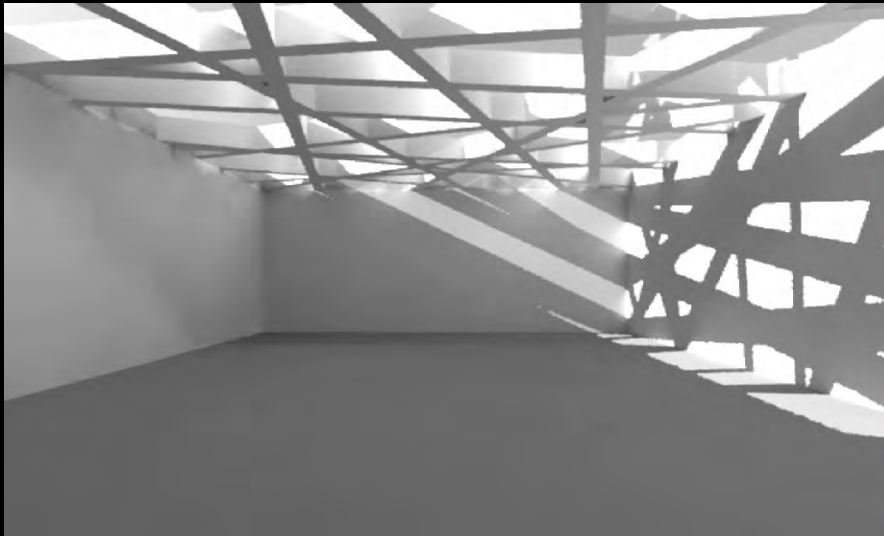
perceptual effects and visual interest in daylight architecture

Prpf. Siobhan Rockcastle

LIPID PhD+PostDoc alumnus

Co-Founder of OCULIGHT

Asst. Prof. at University of Oregon, USA



spatial contrast

dynamic spatial and temporal qualities of daylight



Institut du Monde Arabe
Jean Nouvel



Serpentine Pavilion
Toyo Ito



Neugebauer house
Richard Meier & Partners

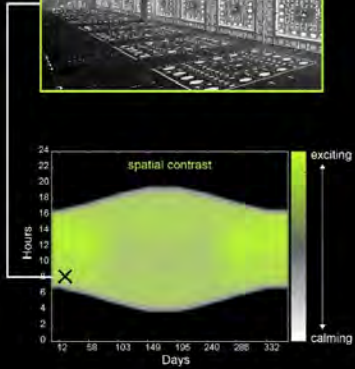


First Unitarian church
Louis Kahn

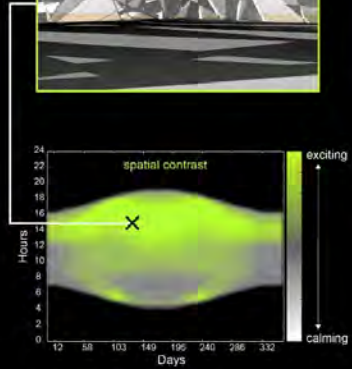


Menil gallery
Renzo Piano

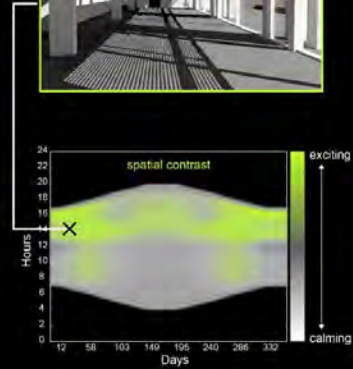
exciting



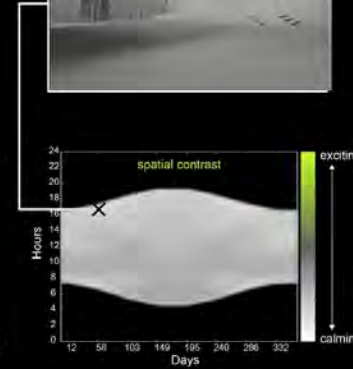
exciting



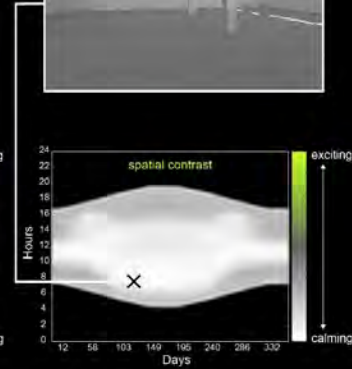
exciting



calming



calming



perception of daylight patterns

irregularity linked to positive impressions

Prof. Kynthia Chamilothoni

LIPID PhD+PostDoc alumnus

Asst. Prof. at TU Eindhoven, The Netherlands



Demonstration of the experimental setup by G. Chinazzo



perception of daylight patterns

*irregularity linked to positive impressions
and measurable calming effect*



2



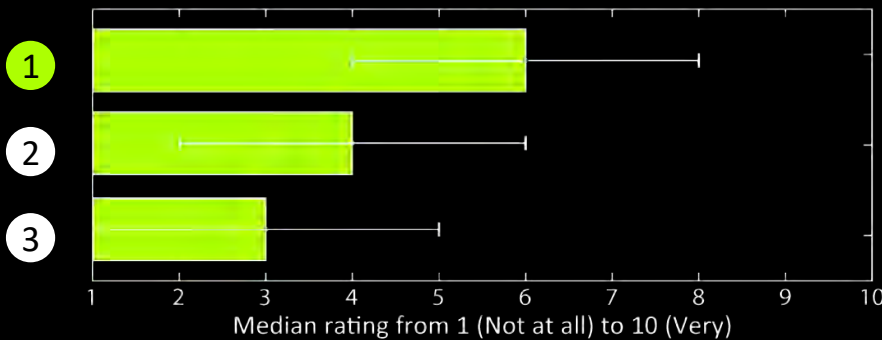
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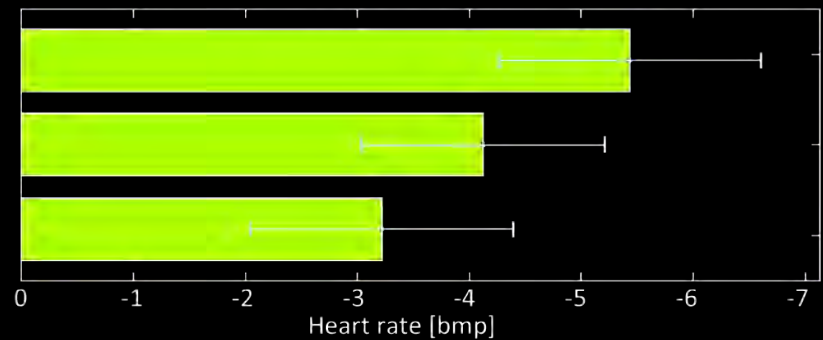
3



How interesting is this space?

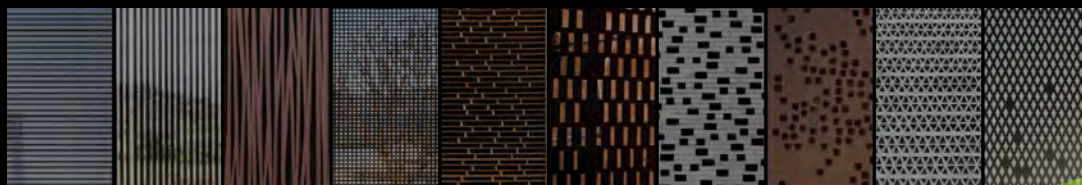
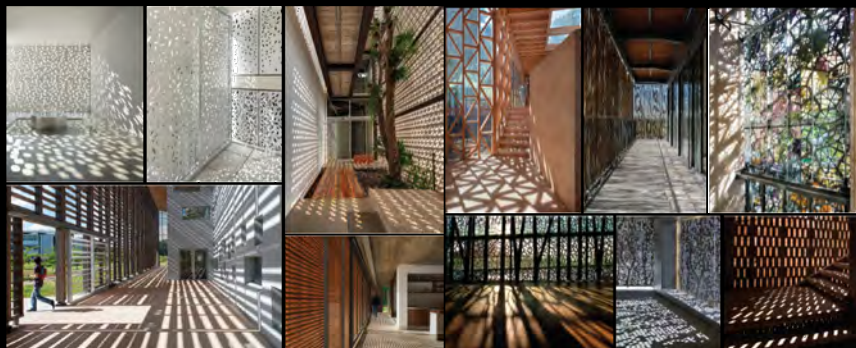


Mean heart rate [measurement - baseline]



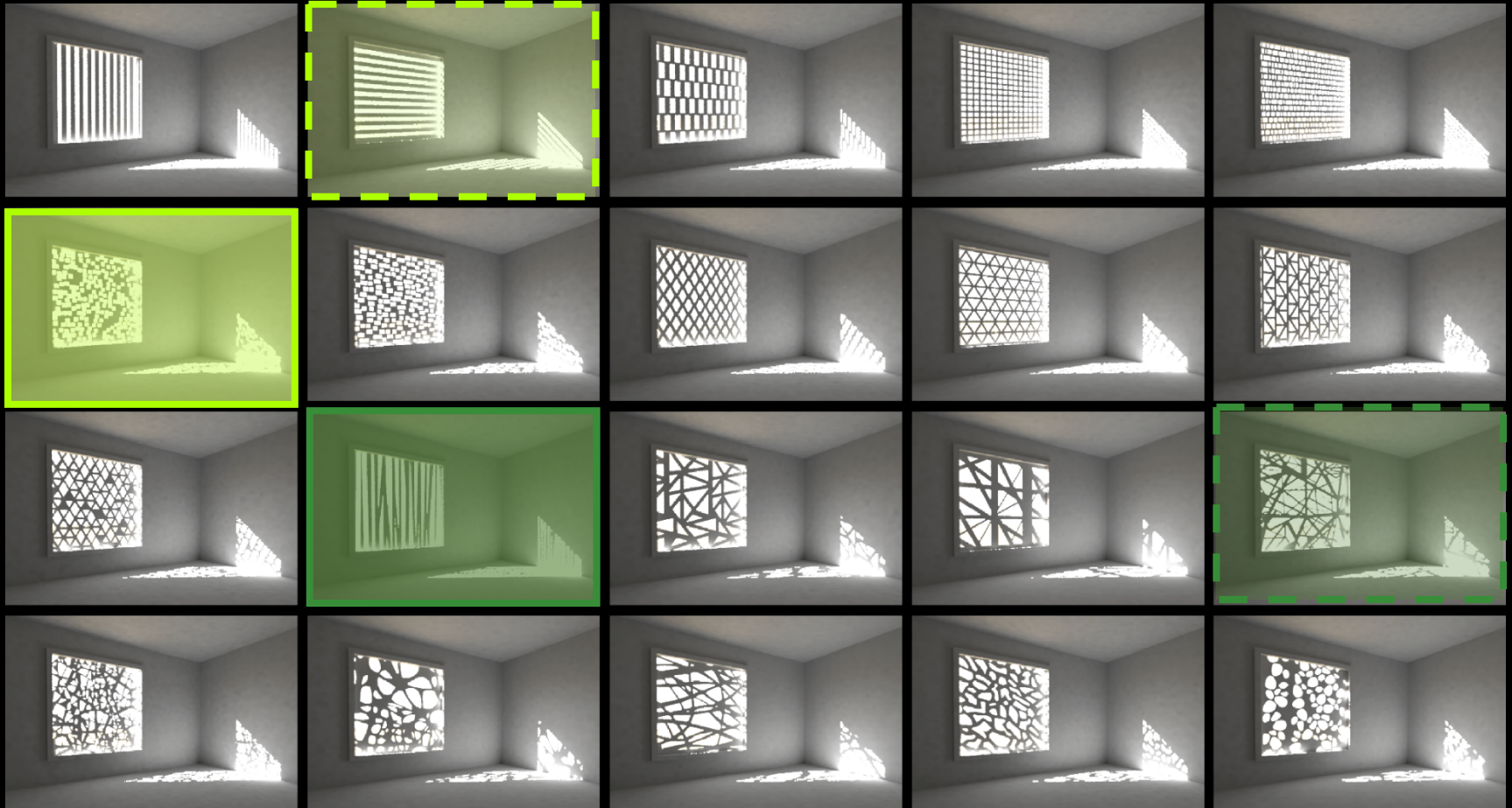
façade patterns

inspiration from worldwide architecture



façade patterns and daylight composition

consensus on pattern attributes (from designers)



POSITIVE



most exciting



most calming

NEGATIVE



least exciting

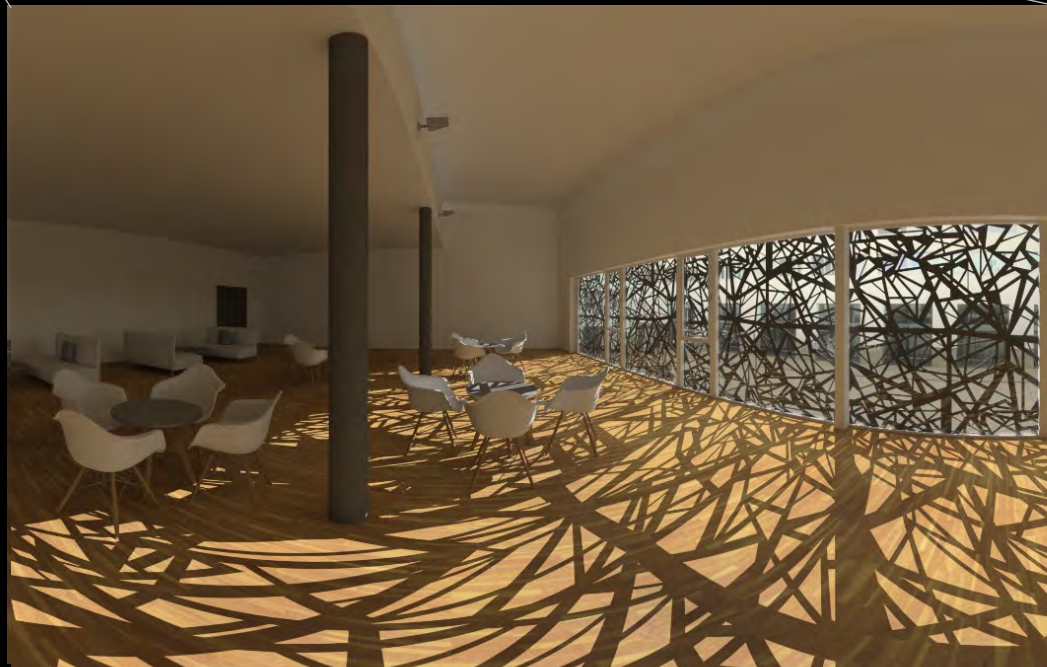
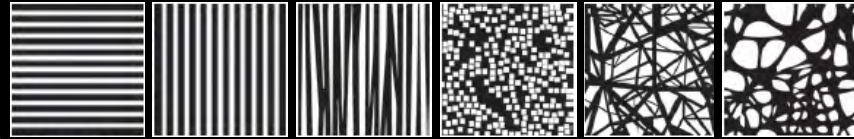


least calming



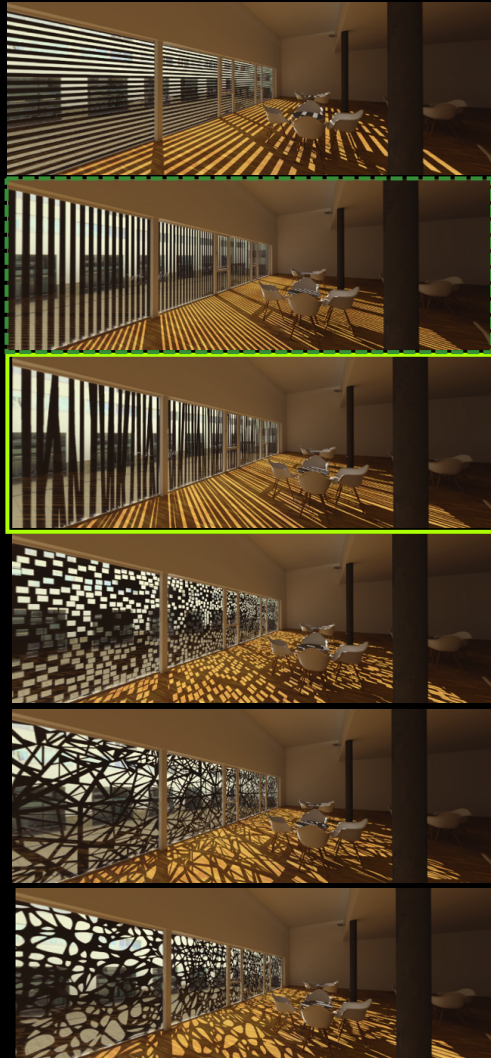
assessing human response to daylight patterns

VR immersion

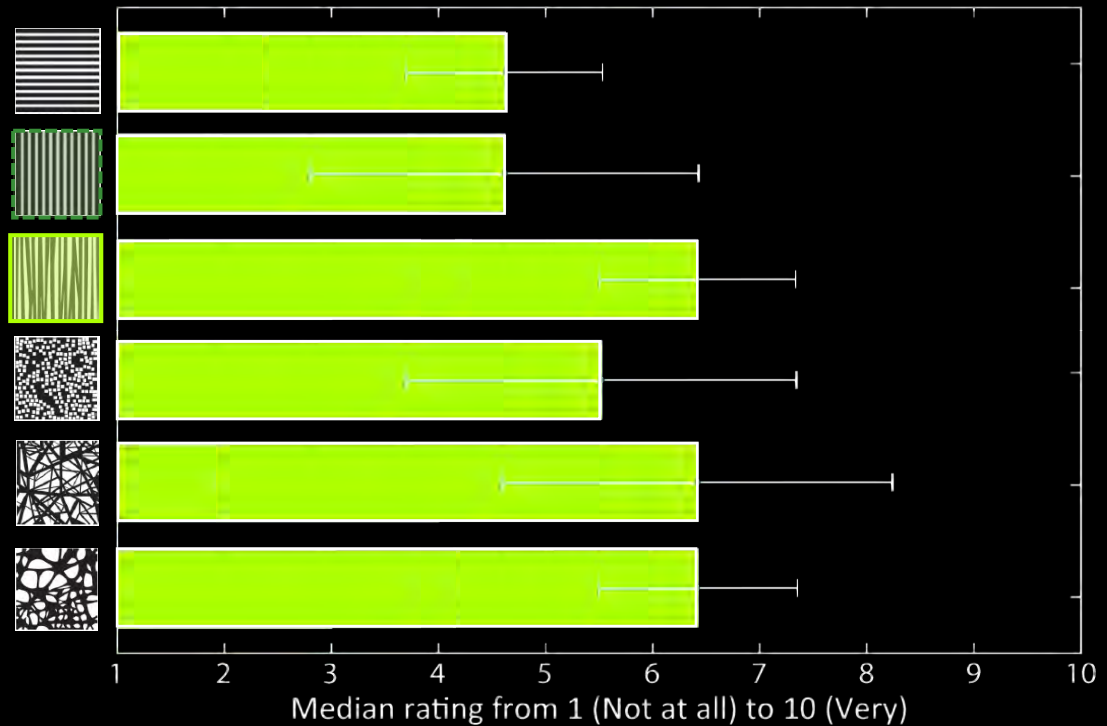


daylight patterns and psycho-physiological human response

how exciting is this space?



Appraisal from 415 participants from 3 locations in Europe
(138 in Greece, 127 in Switzerland, 150 in Norway)



■ one of the most exciting □ one of the least exciting

significant effect of pattern **independently**
of sky/sun, context, size or location!

