

perception and appraisal of views out

Yunni Cho | Giulia Passoni
PhD Candidates



Image by: Yunni Cho, 'biophilia (noun)', SciFilmIt Hackathon 2021

vitality

physiological human needs



Drawing by M.L. Amundadottir

vitality

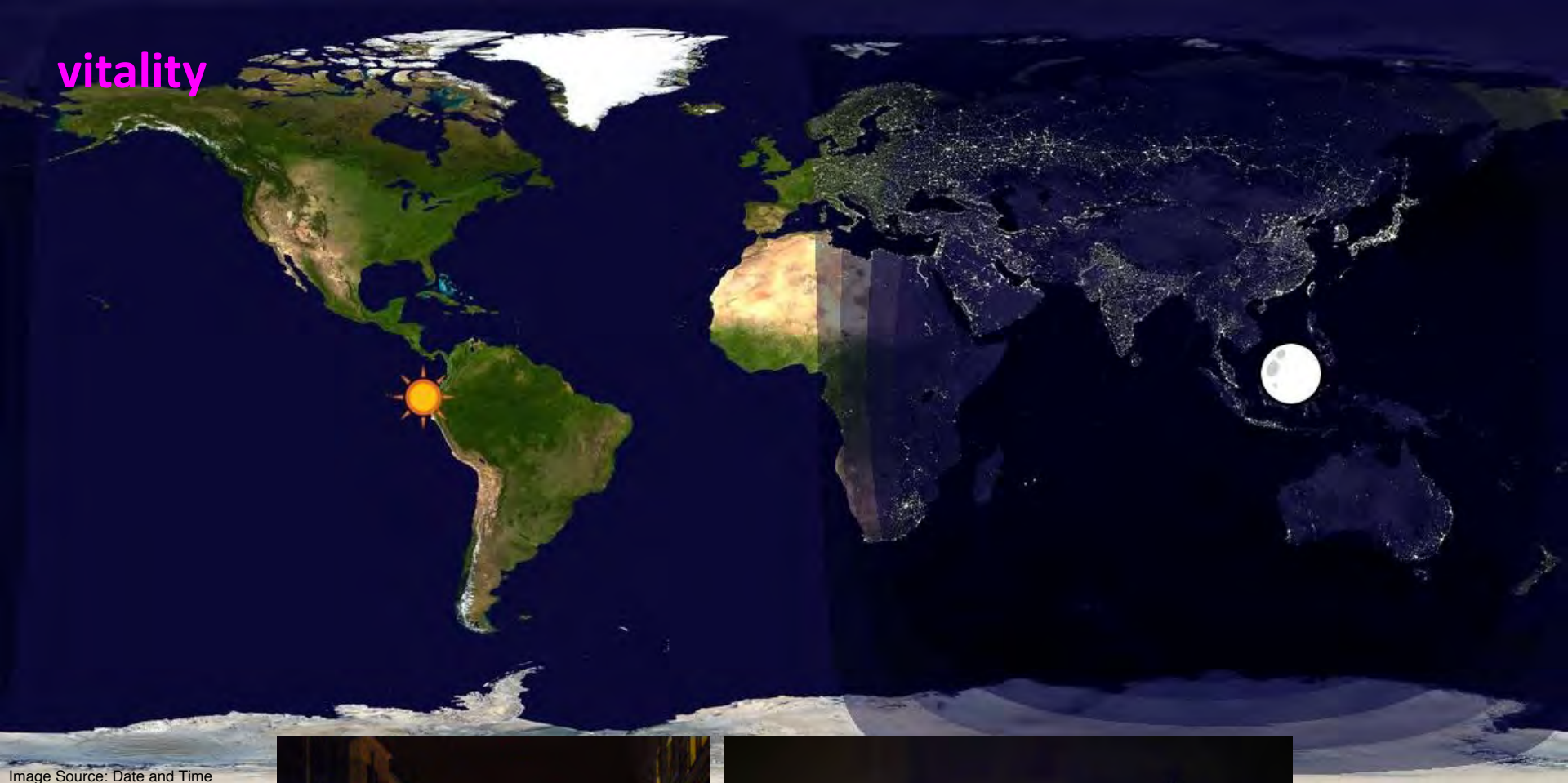


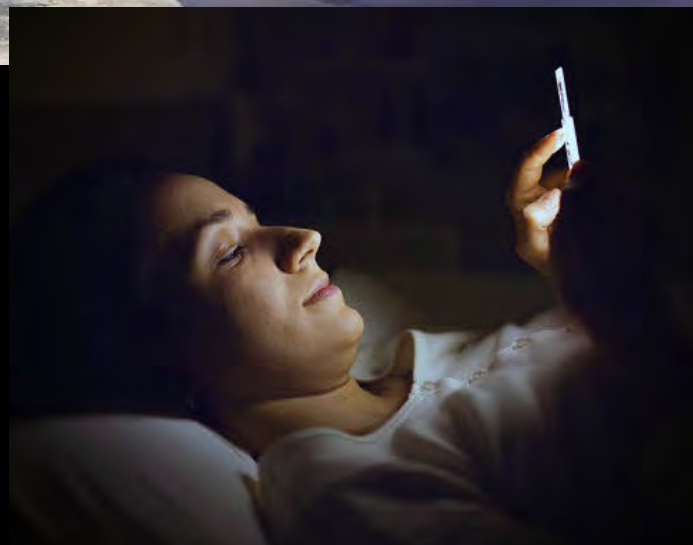
Image Source: Date and Time

Environmental
impact



Image Source: Web Urbanist; Harvard Health

Behavioral/Lifestyle
impact



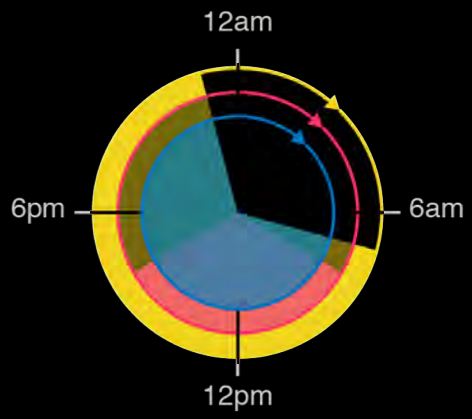
Health implications of disrupted circadian rhythms and the potential for daylight as therapy

Jason Brainard, M.D.,¹ Merit Gobel, B.S.,¹ Benjamin Scott, M.D.,¹ Michael Koeppen, M.D.,² and Tobias Eckle, M.D., Ph.D.¹

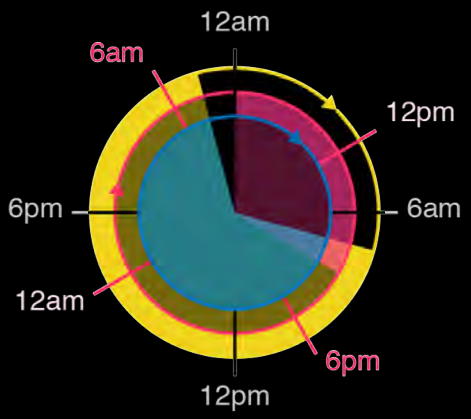


Image Source: Snøhetta

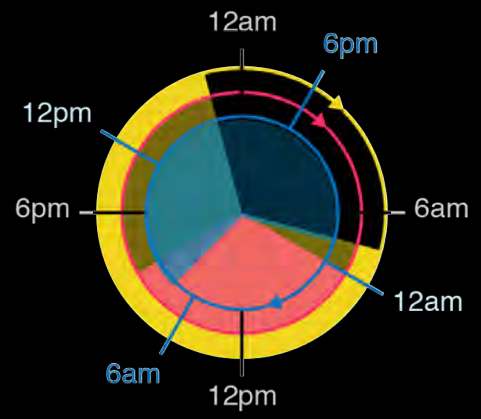
Image Source: Ámundadóttir, 2016



Entrained clocks



Shift work
- work schedule not regulated with internal clock



Jet lag
- internal clock not regulated with external clock



non-visual system

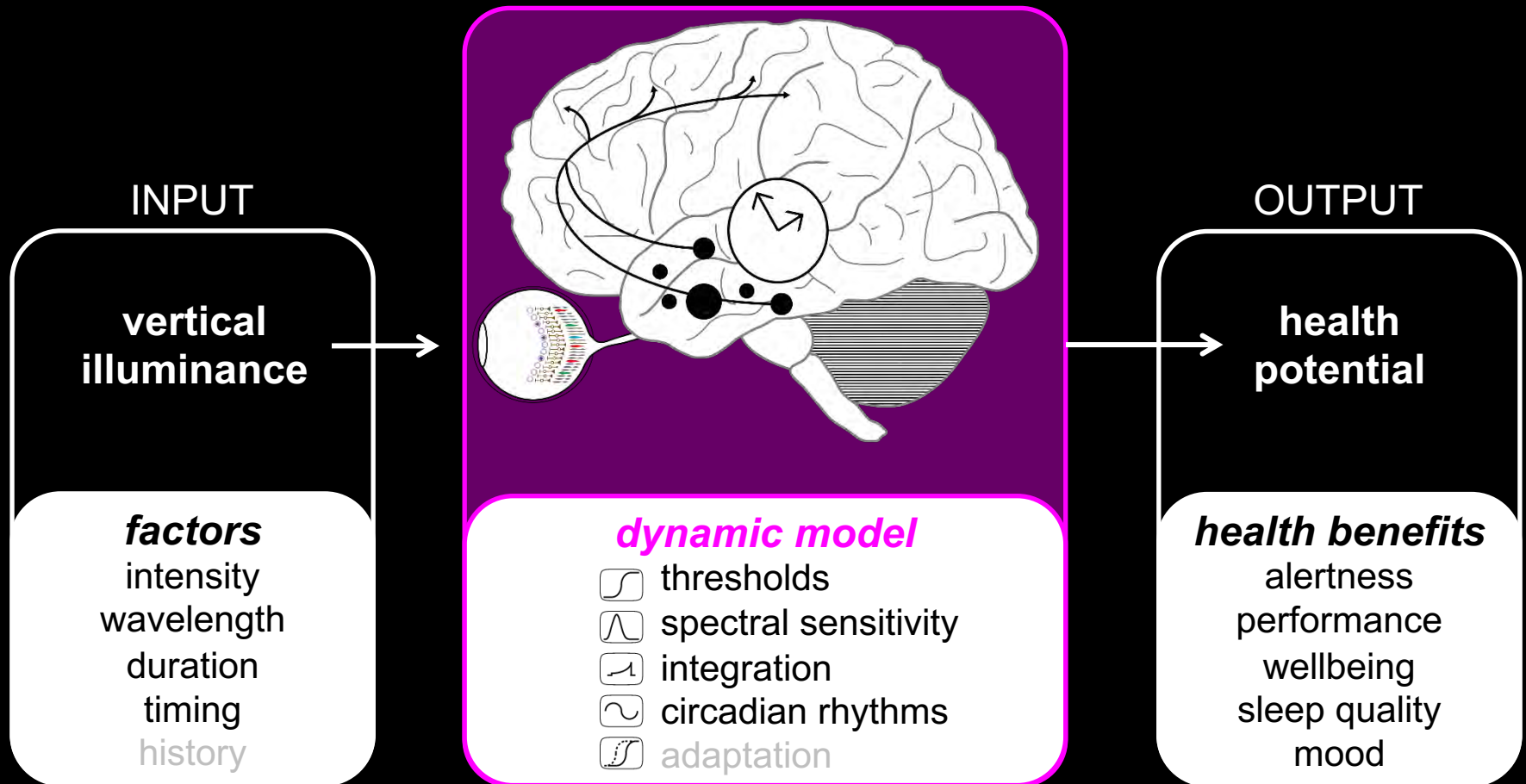
effects of ocular light exposure on human health

Dr. Maria Amundadóttir

LIPID PhD alumna

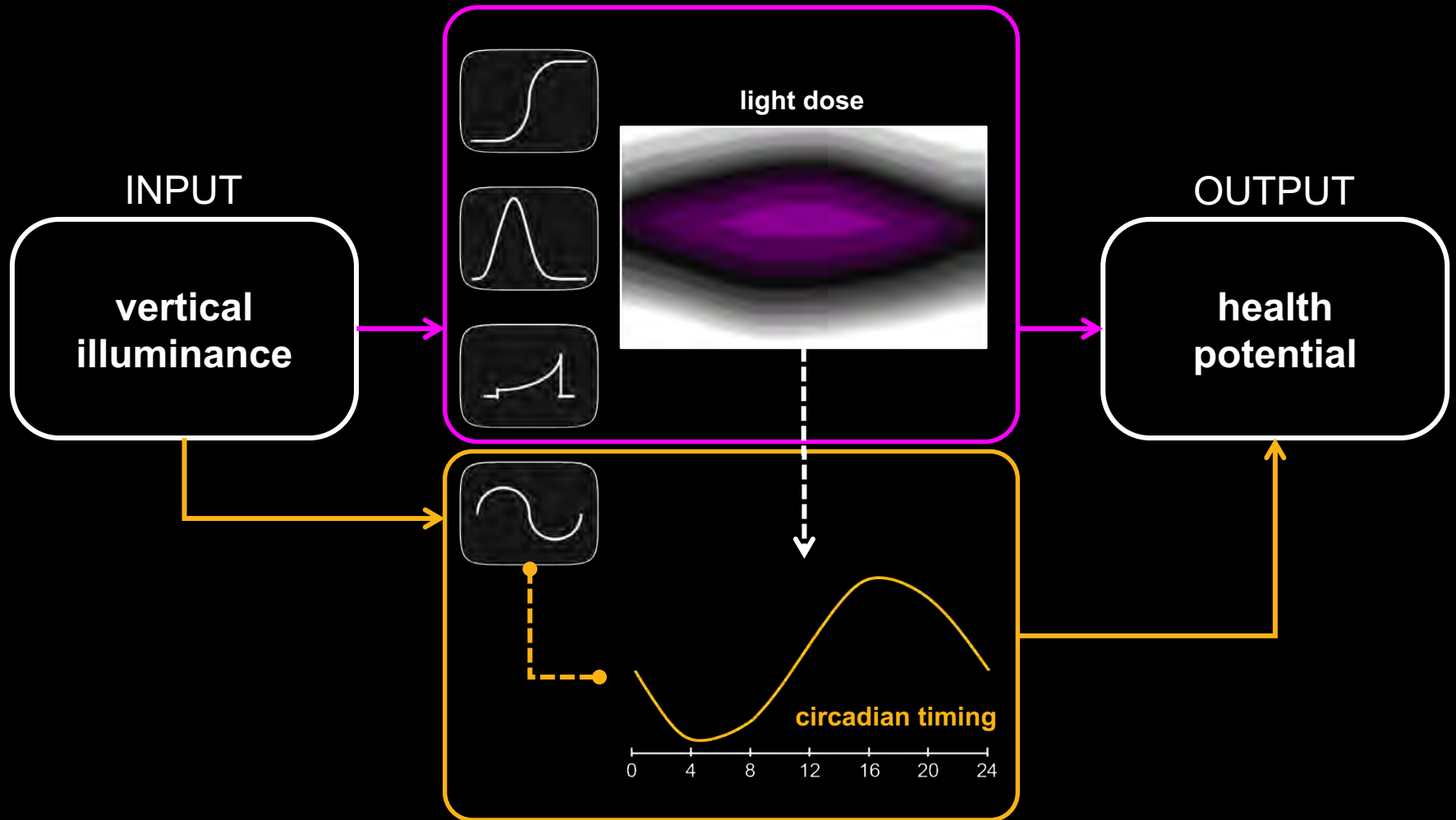
Co-Founder of OCULIGHT

Data Scientist and Entrepreneur, Iceland



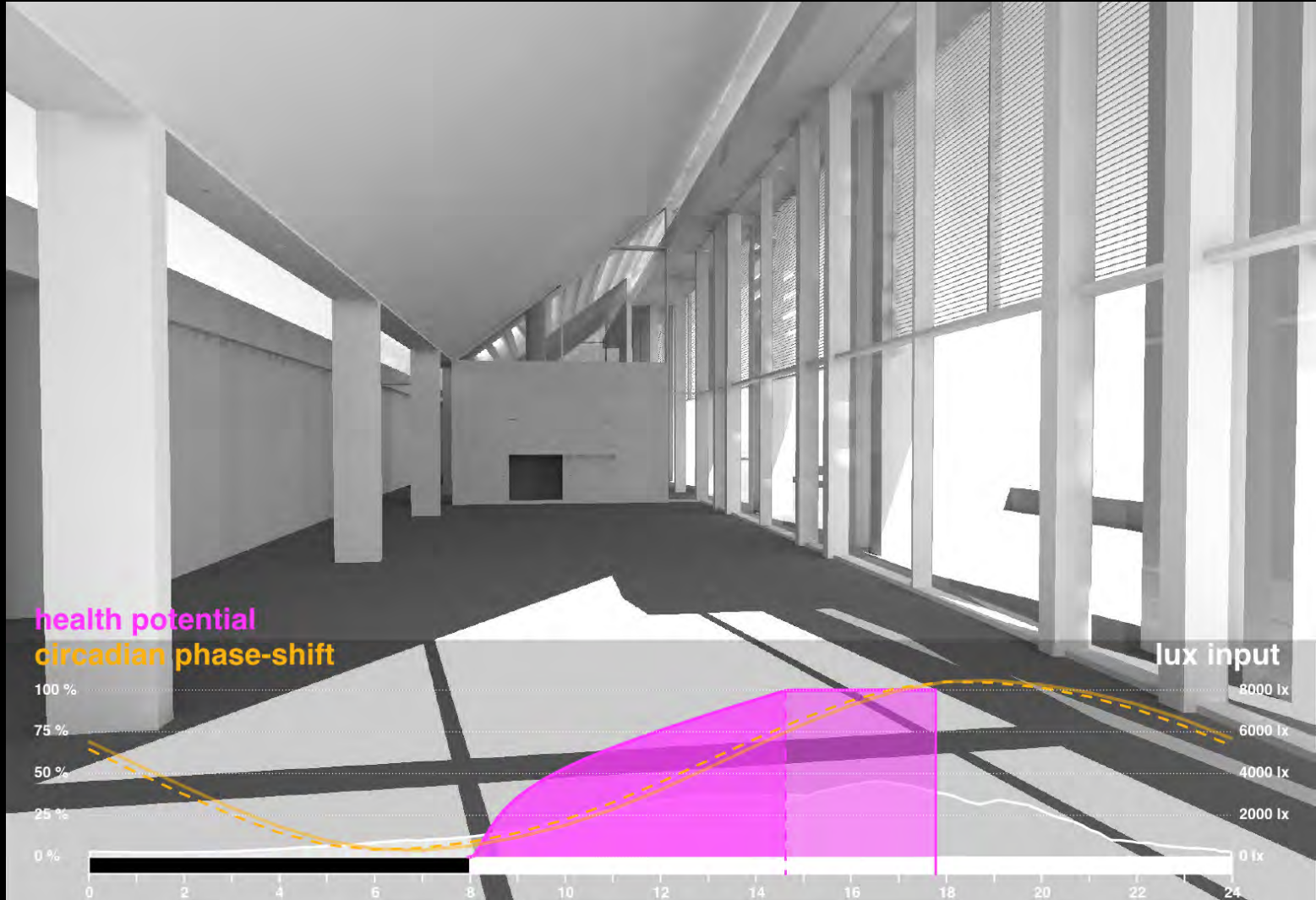
dynamic model

maximize the daily light dose without disturbing circadian timing



dynamic model

cumulative dose and daily cycle



alertness and spectral diet

impact of daily lighting conditions



Dr. Victoria Soto Magan | Forrest Webler
LIPID PhD Alumnus, PostDoc ETH Zurich | PhD Candidate

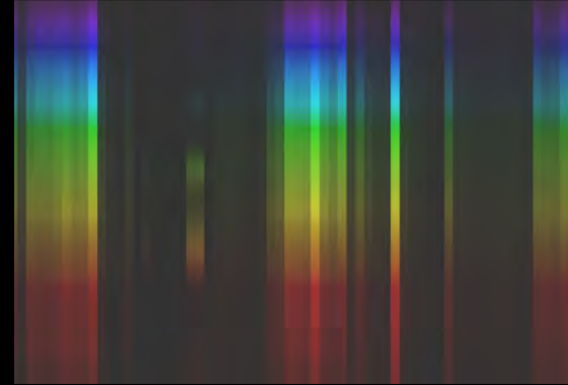
effect of spectrum
'bluer' vs neutral



effect of intensity
bright vs dim



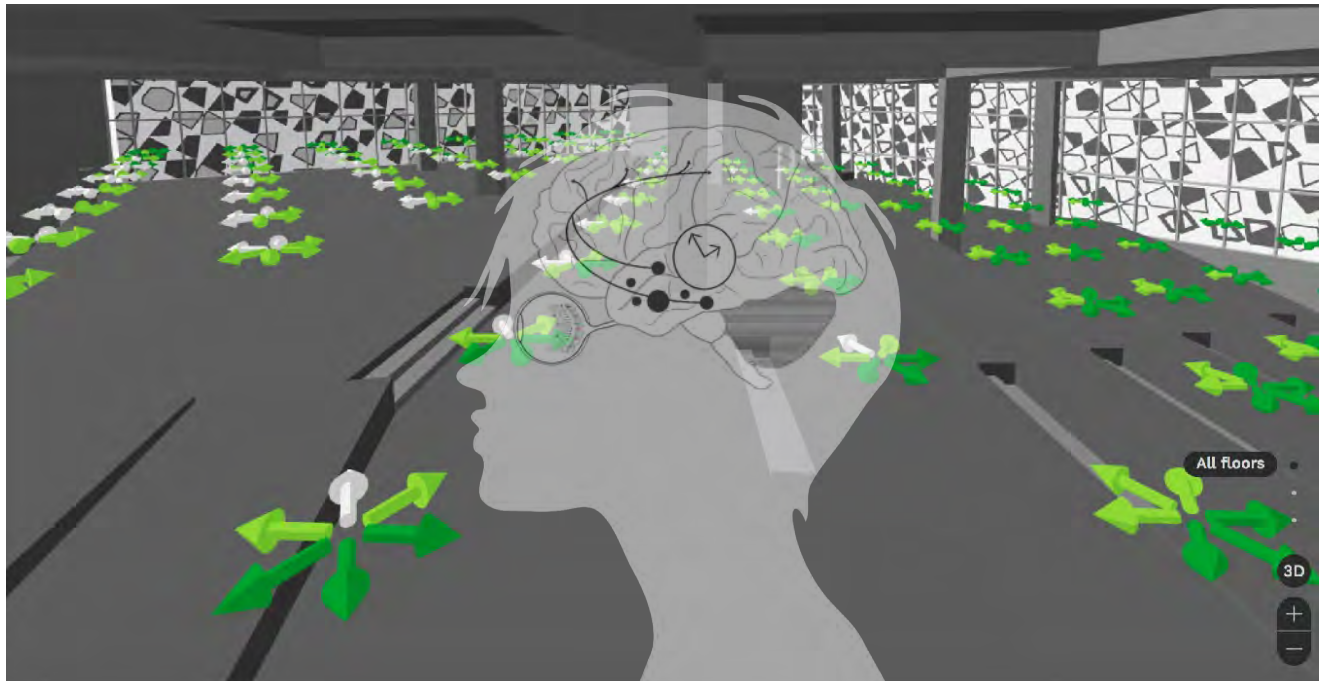
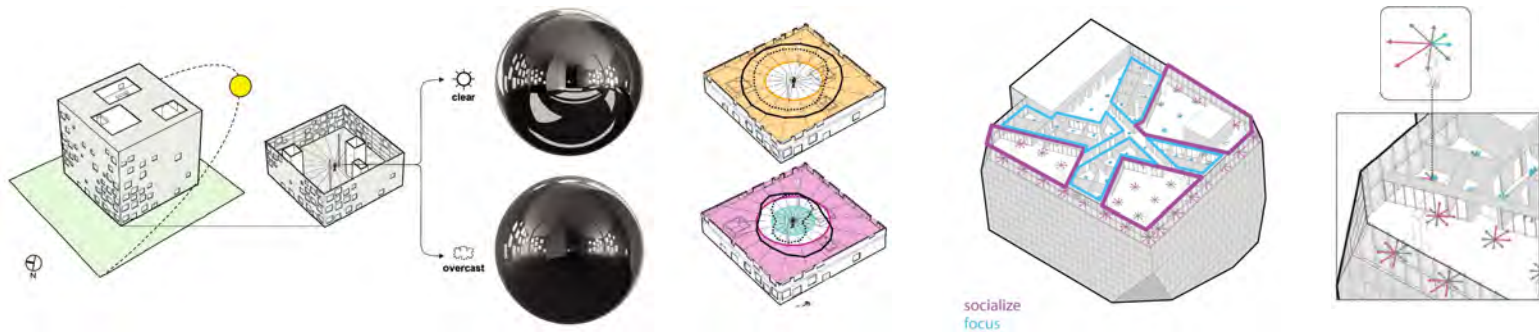
spectral monitoring



SPECTRACE wearable sensor



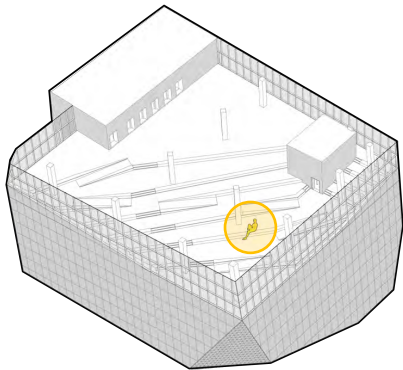
TAKING THE OCCUPANT'S WELL-BEING INTO CONSIDERATION WHEN DESIGNING



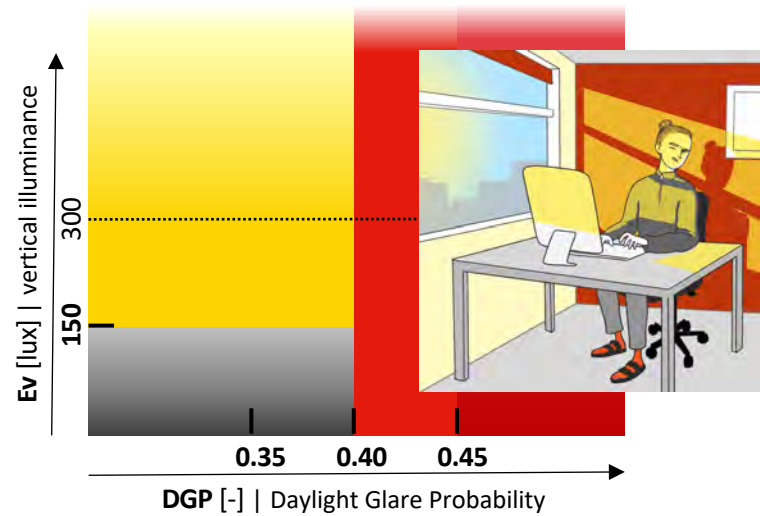
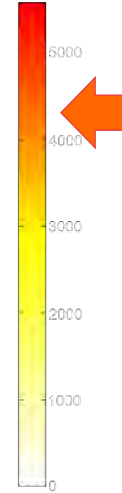
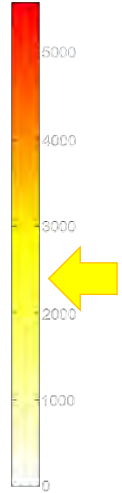
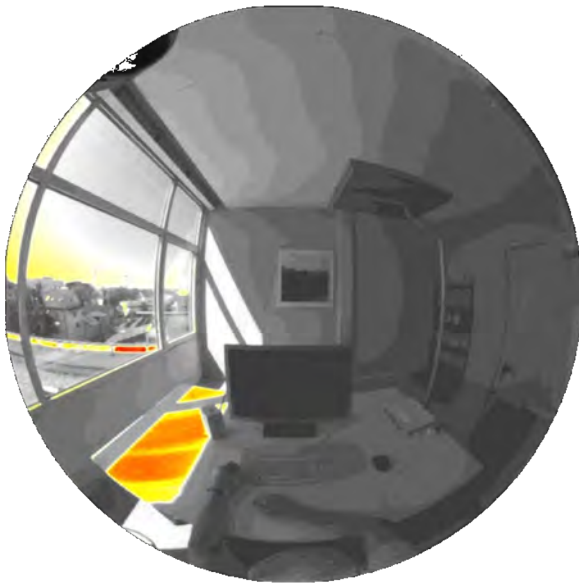
DAYLIGHT AS A DYNAMIC AND SENSORIAL EXPERIENCE



Ryerson Student Learning Center
Toronto | Snøhetta & Zeidler Partnership



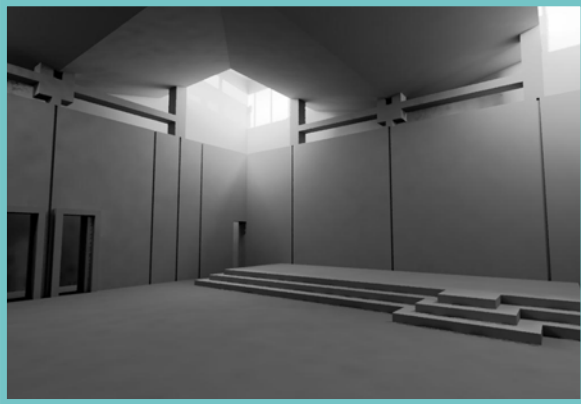
COMFORT



EMOTION



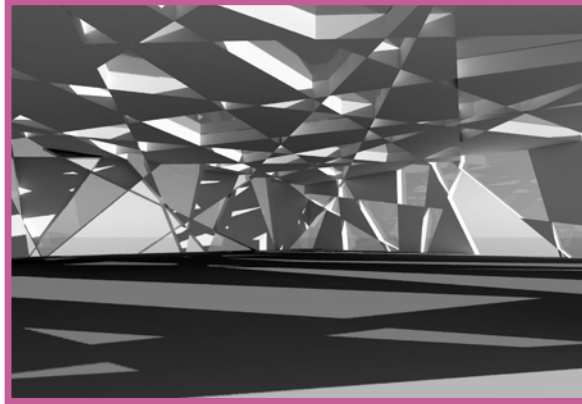
calming?



first unitarian church



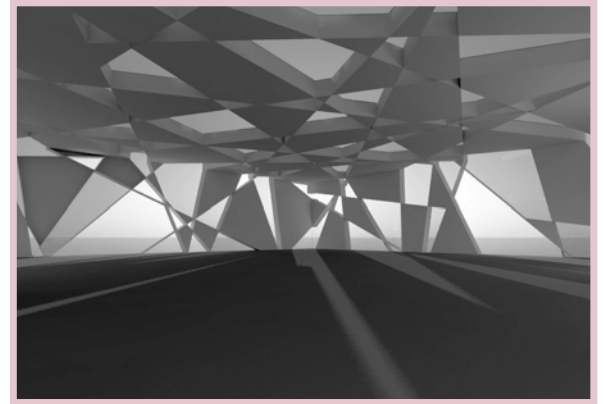
exciting?



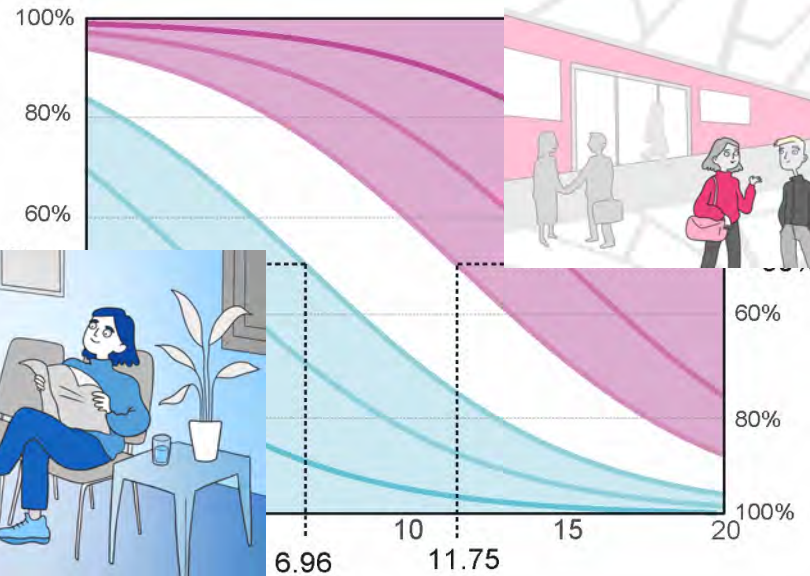
serpentine pavilion



less exciting?



- calming threshold
- calming < 6.96
- 6.96 ≤ neutral ≤ 11.75
- exciting > 11.75
- exciting threshold

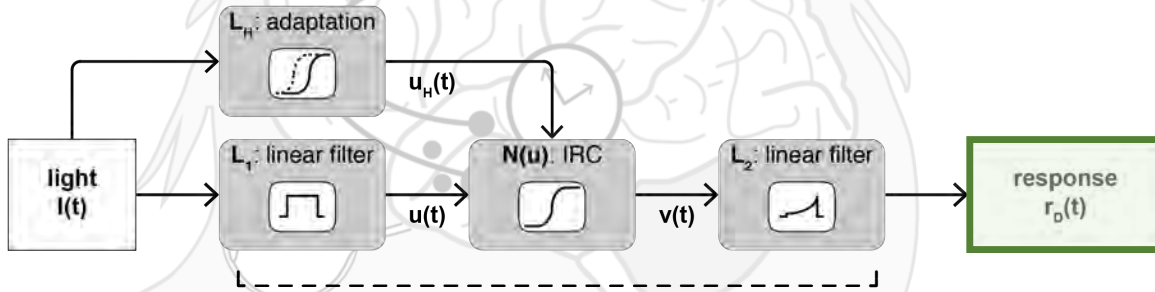


VITALITY



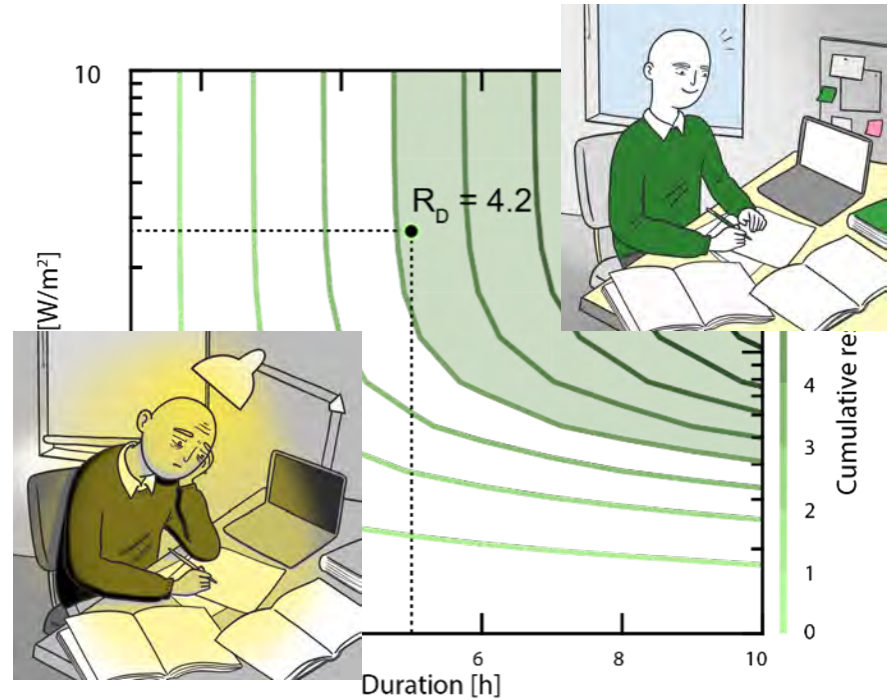
INPUT

OUTPUT



DYNAMIC BEHAVIOR

- intensity thresholds
- spectral sensitivity
- temporal integration
- intensity adaptation



INTERACTIVE VISUALIZATION

Vitality Emotion Comfort

+ More Info

DATE

SKY CONDITIONS

FLOORS

PROGRAM USE

< Feb 4 >

☀ Clear ☁ Overcast

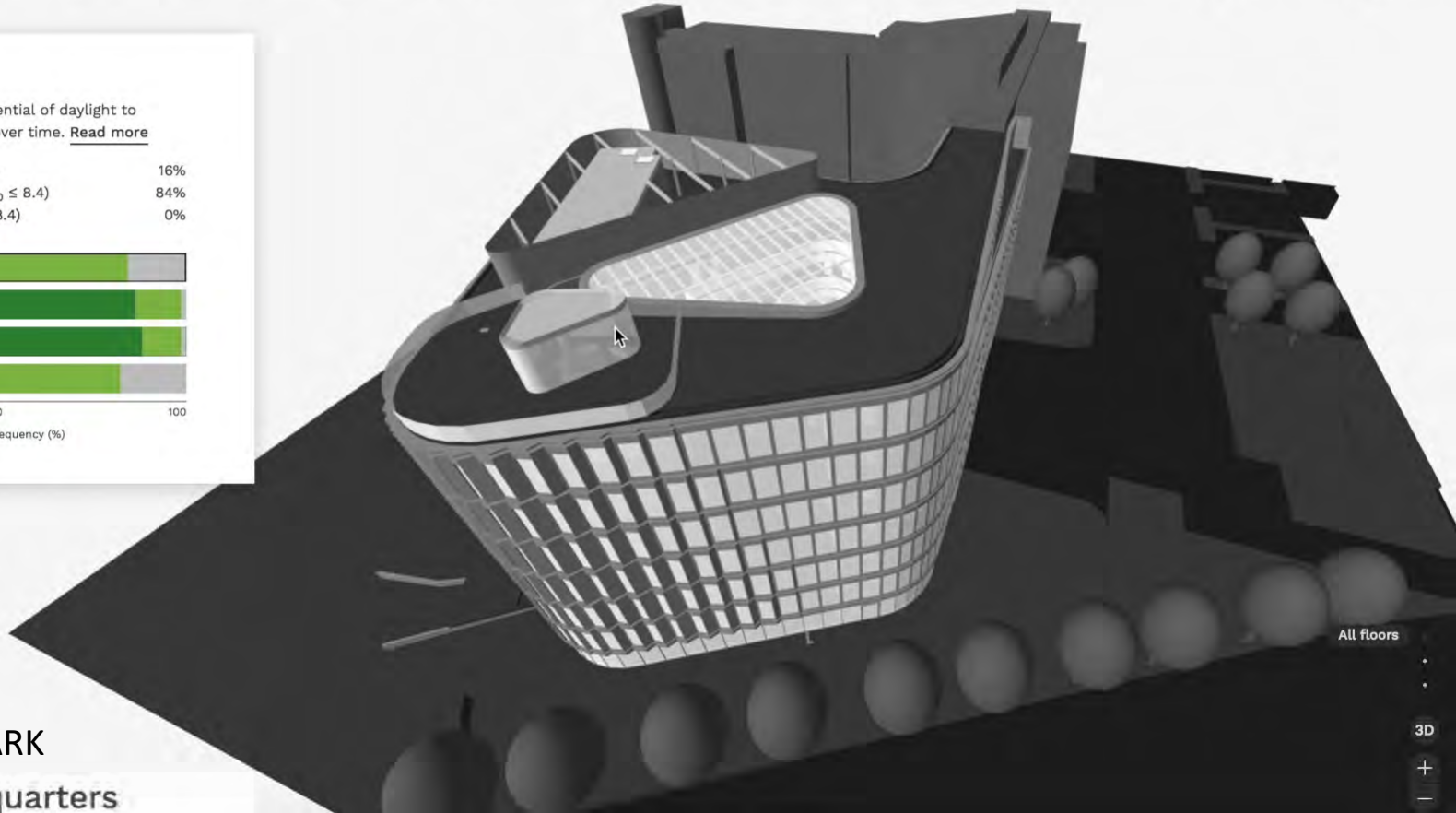
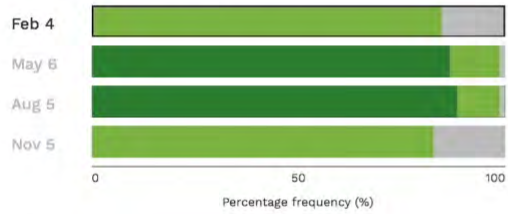
1st floor 4th floor

circulation maximum_focus medium_focus minimum_focus minimum focus medium focus maximum

Vitality

Vitality describes the non-visual potential of daylight to impact alertness as it accumulates over time. [Read more](#)

- insufficient daily dose ($nVR_D < 4.2$) 16%
- intermediate daily dose ($4.2 \leq nVR_D \leq 8.4$) 84%
- recommended daily dose ($nVR_D > 8.4$) 0%



3XN | DENMARK

Schuco Headquarters

All floors

3D

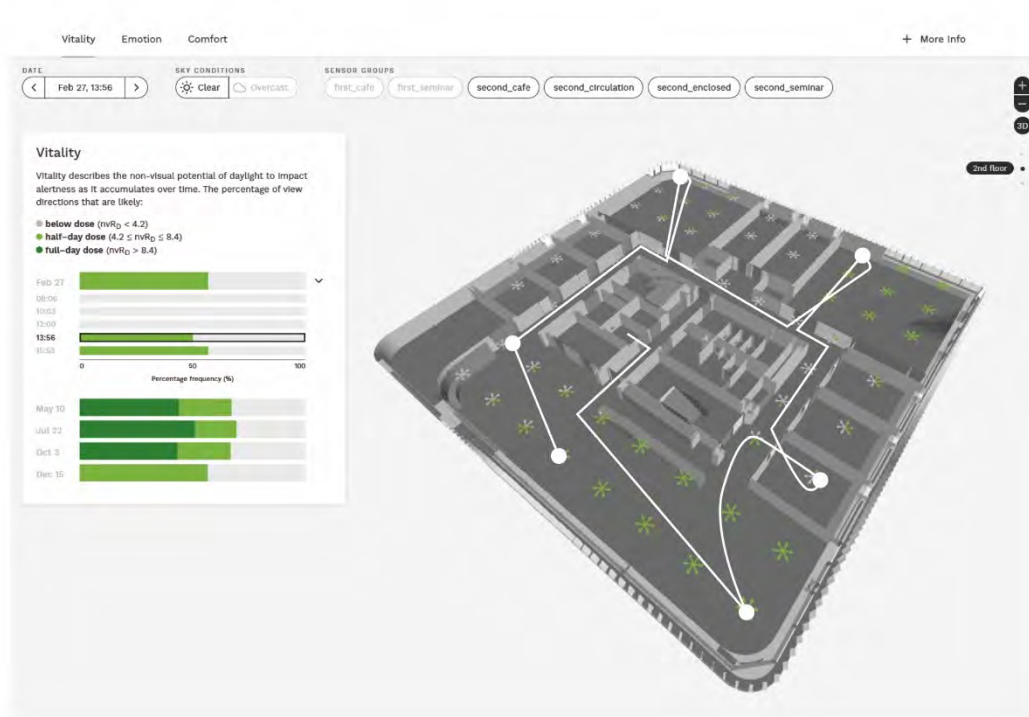
+

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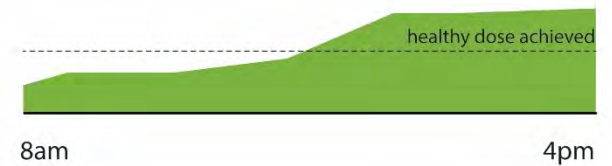
SPATIO-TEMPORAL OCCUPANT DYNAMICS

behavior analytics

from building performance to **occupant experience** in buildings...



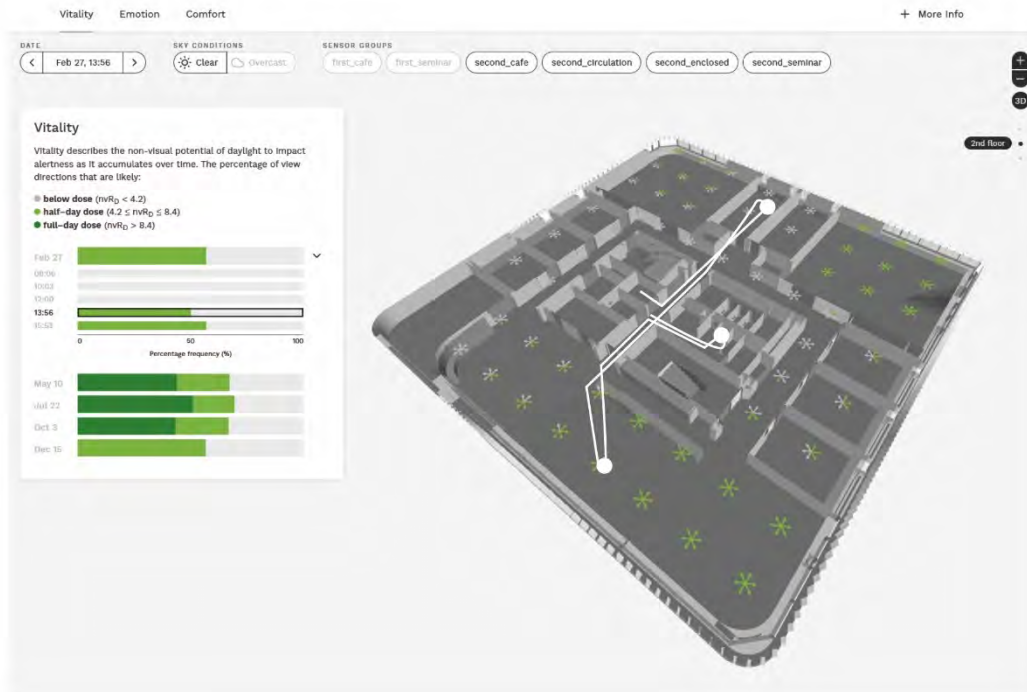
grad student



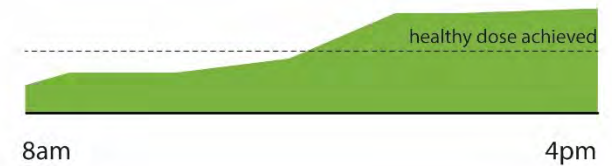
SPATIO-TEMPORAL OCCUPANT DYNAMICS

behavior analytics

from building performance to **occupant experience** in buildings...



grad student



assistant professor



... which can be combined with in-situ monitoring using **wearable** technology



SPATIO-TEMPORAL OCCUPANT DYNAMICS

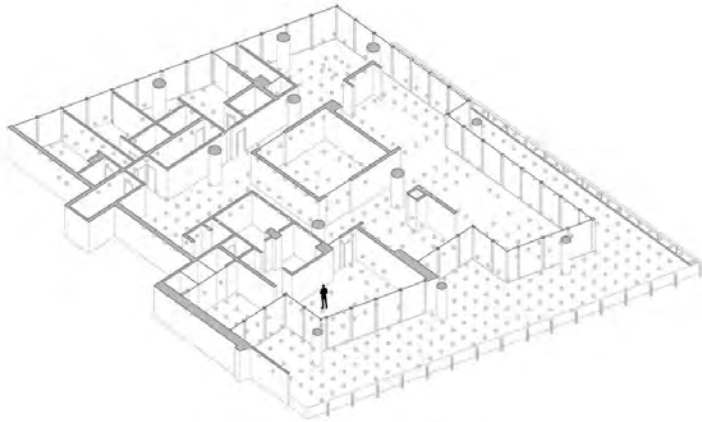
behavior analytics



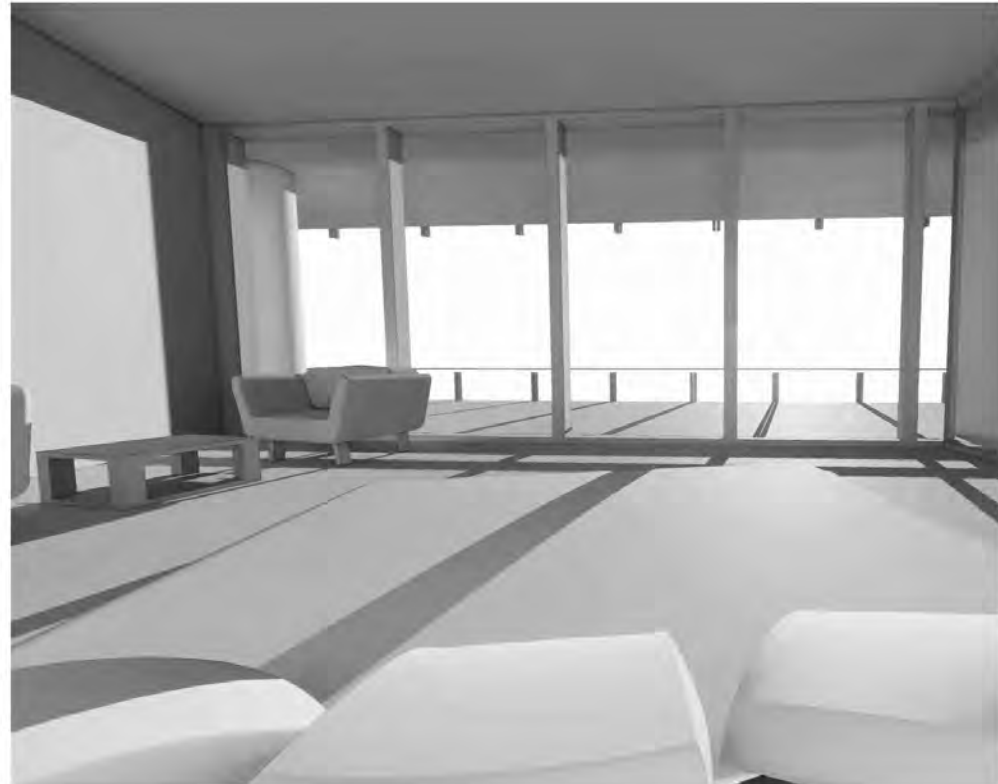
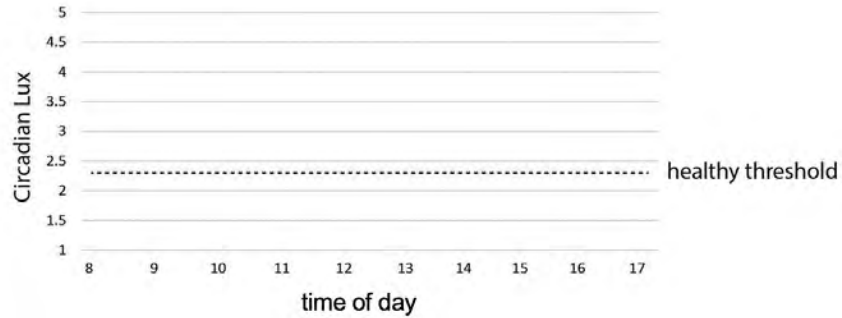
Surf Club, Miami | Meier & Partners



perimeter dweller



CIRCADIAN EXPOSURE

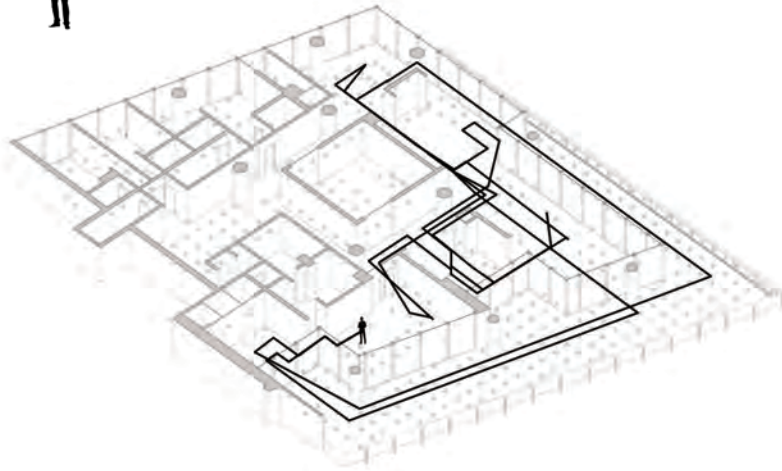


SPATIO-TEMPORAL OCCUPANT DYNAMICS

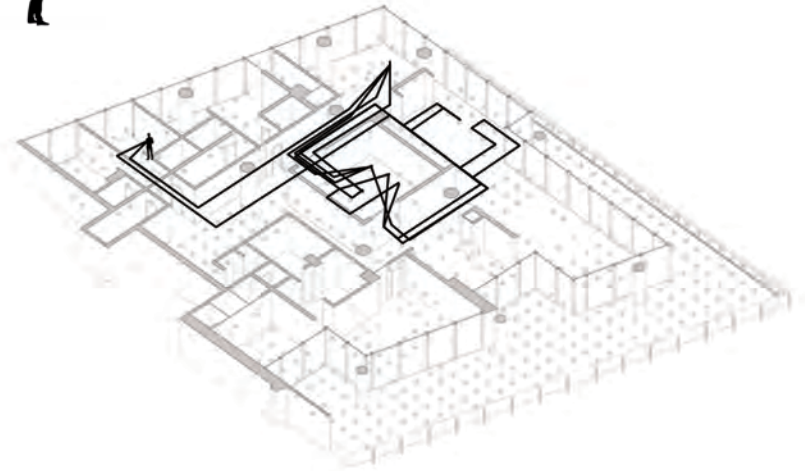
behavior analytics



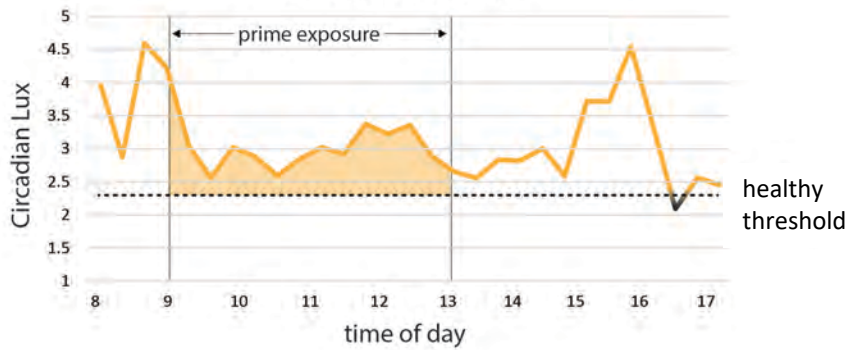
perimeter dweller



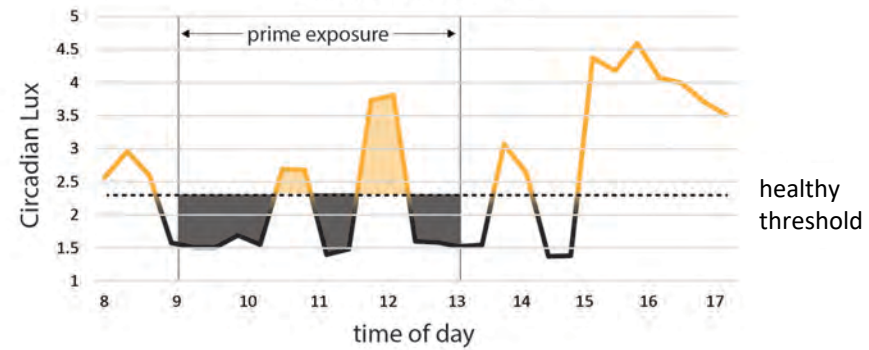
core dweller



CIRCADIAN EXPOSURE



CIRCADIAN EXPOSURE





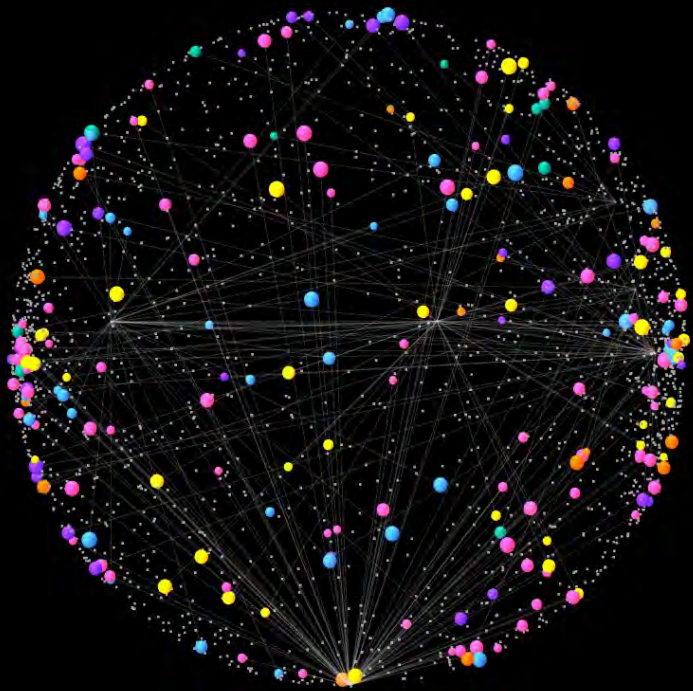
- 주제전
- 도시전
- 글로벌 스튜디오
- 게스트시티전
- 서울전
- 현장 프로젝트

- Thematic Exhibition
- Cities Exhibition
- Global Studios
- Guest Cities Exhibition
- Seoul Exhibition
- Live Projects

2021 서울도시건축비엔날레
크로스로드, 어떤 도시에 살 것인가

2021.09.16-10.31
동대문디자인플라자 (DDP)
서울도시건축전시관 세운상가

16th September-31th October, 2021
Dongdaemun Design Plaza(DDP)
Seoul Hall of Urbanism and Architecture Sewoon Plaza



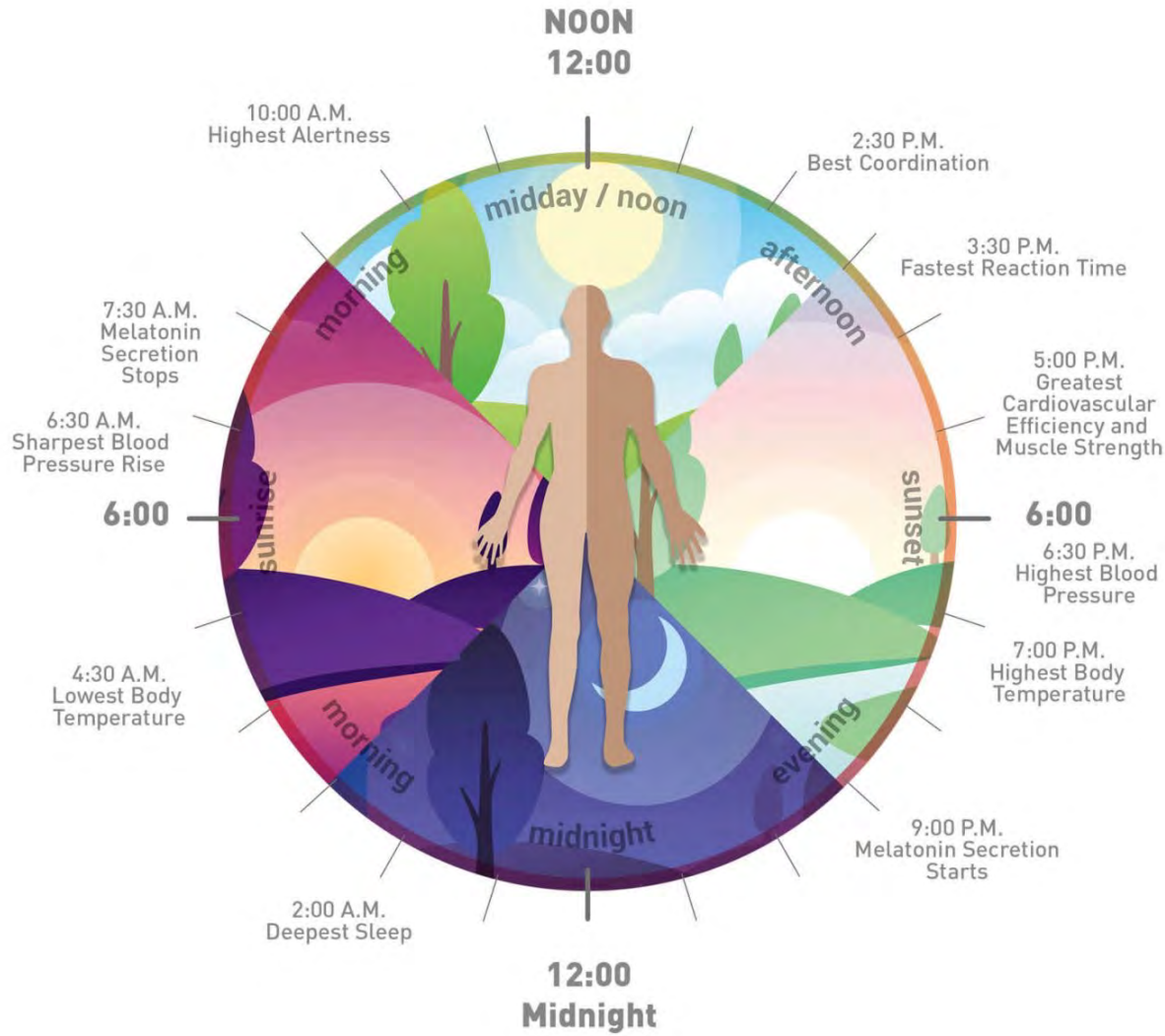
THE CROSSROADS
BY THE SEAS

CROSSROADS,
Building the resilient city



I · SEOUL · U
너와 나의 서울





<https://www.opensourcedworkplace.com/news/what-is-circadian-lighting-and-how-does-circadian-lighting-affect-productivity>



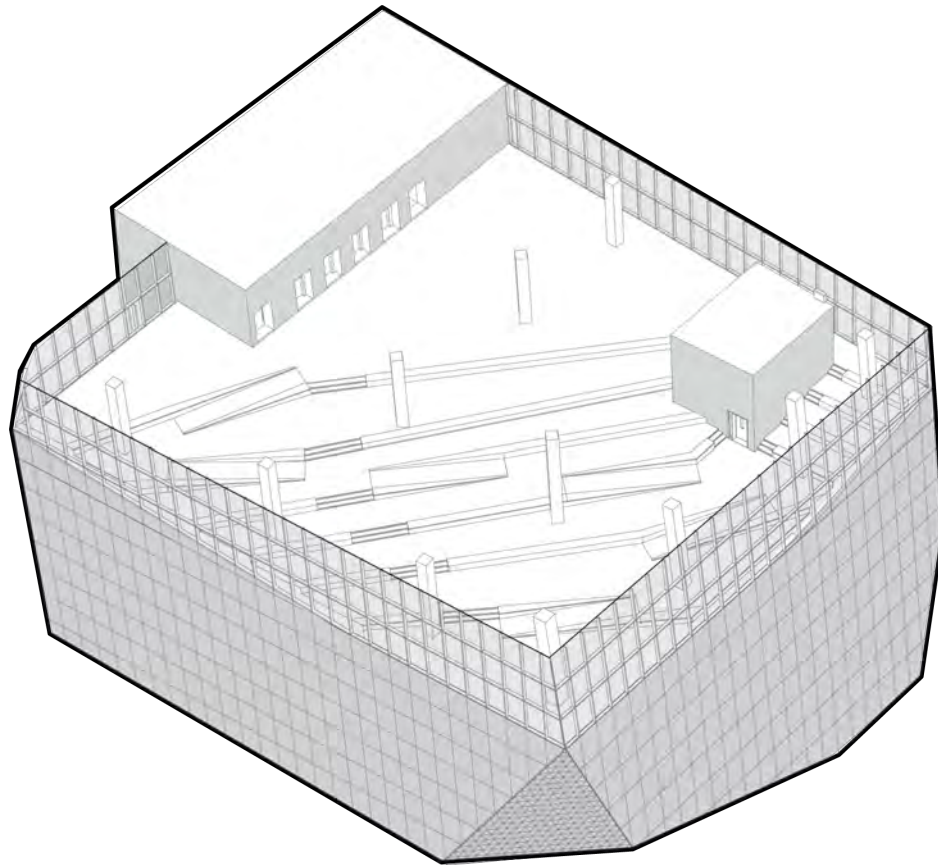
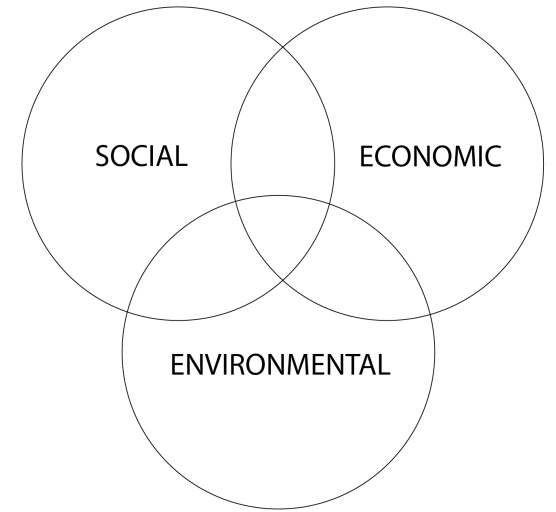




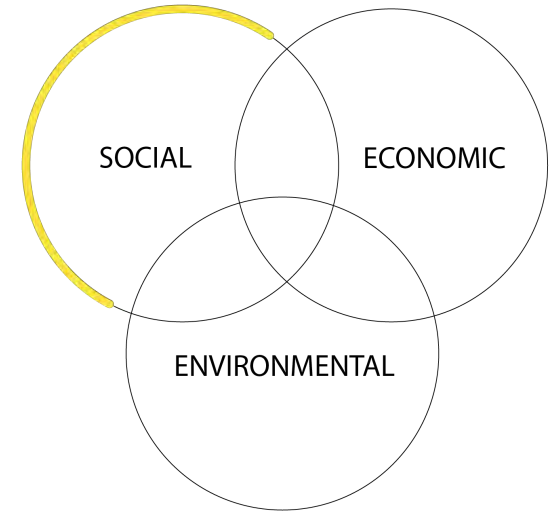
EPFL Amplifier for Art,
Science and Society
Pavilions

LIGHTEN UP: Inside the Biology of Time
March 24, 2023 to July 30, 2023

REVISITING SUSTAINABILITY...



REVISITING SUSTAINABILITY...



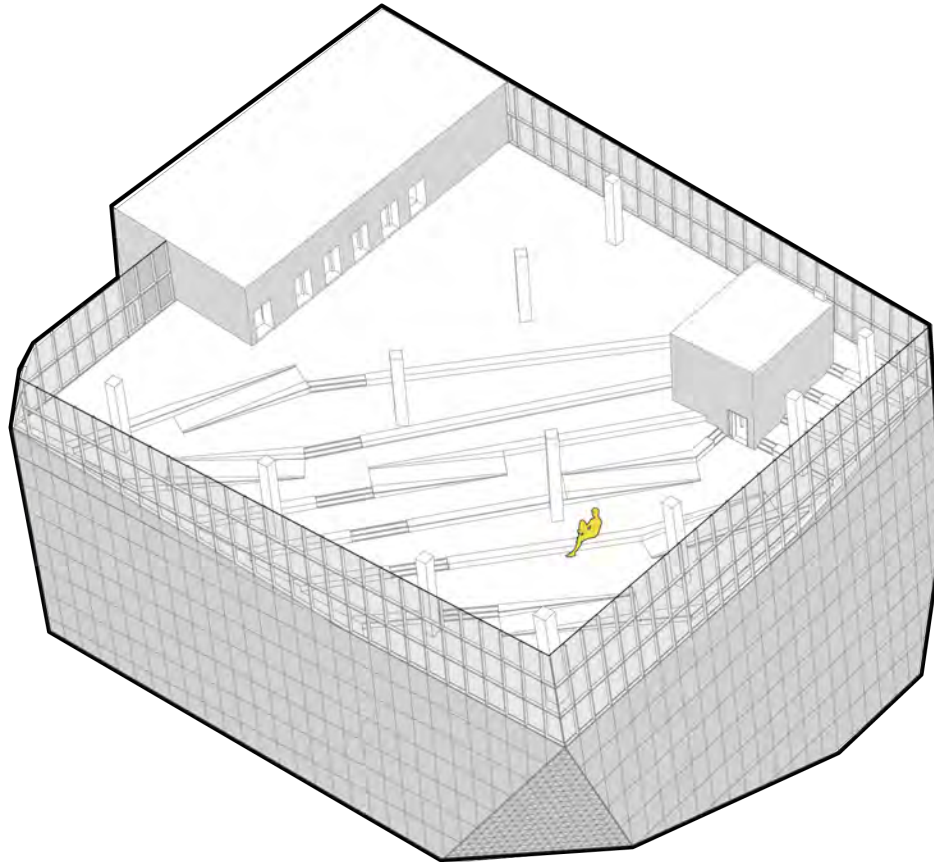
EMOTION



HEALTH



COMFORT



REVISITING SUSTAINABILITY...

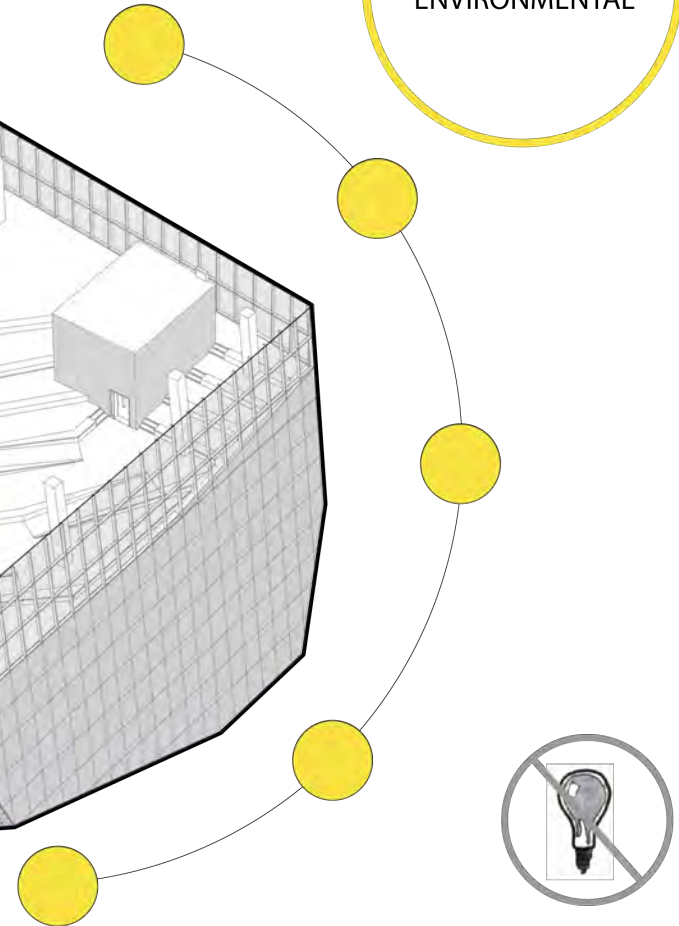
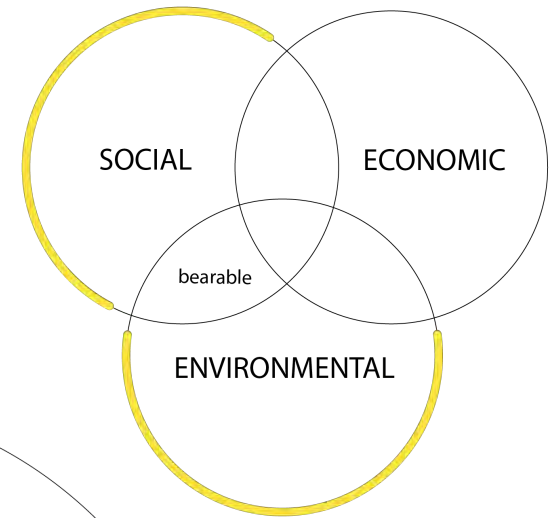
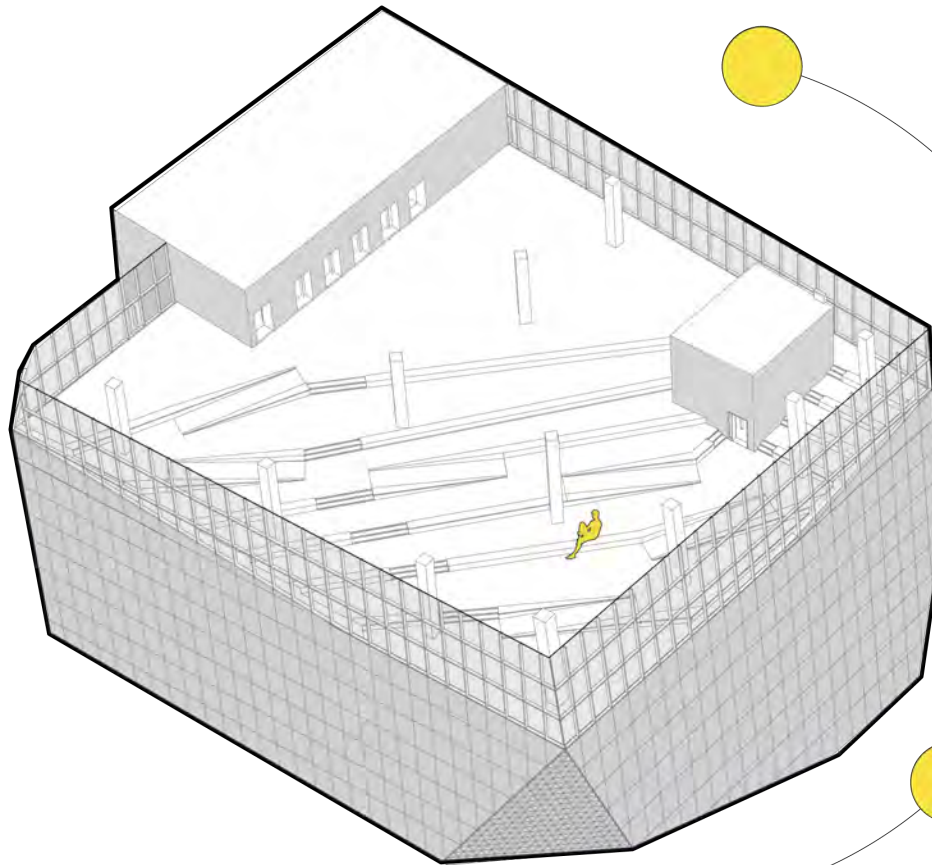
EMOTION



HEALTH



COMFORT



REVISITING SUSTAINABILITY...

EMOTION



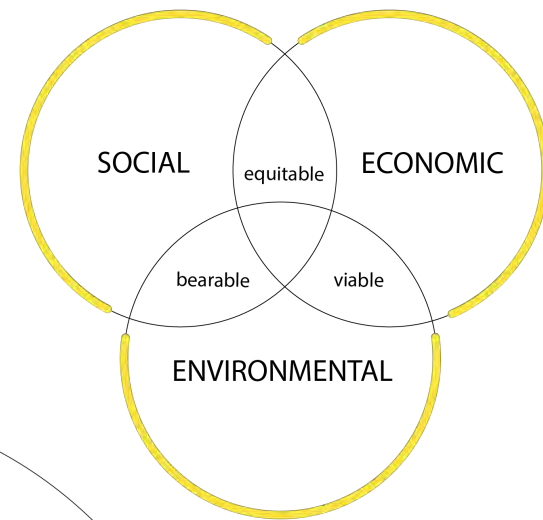
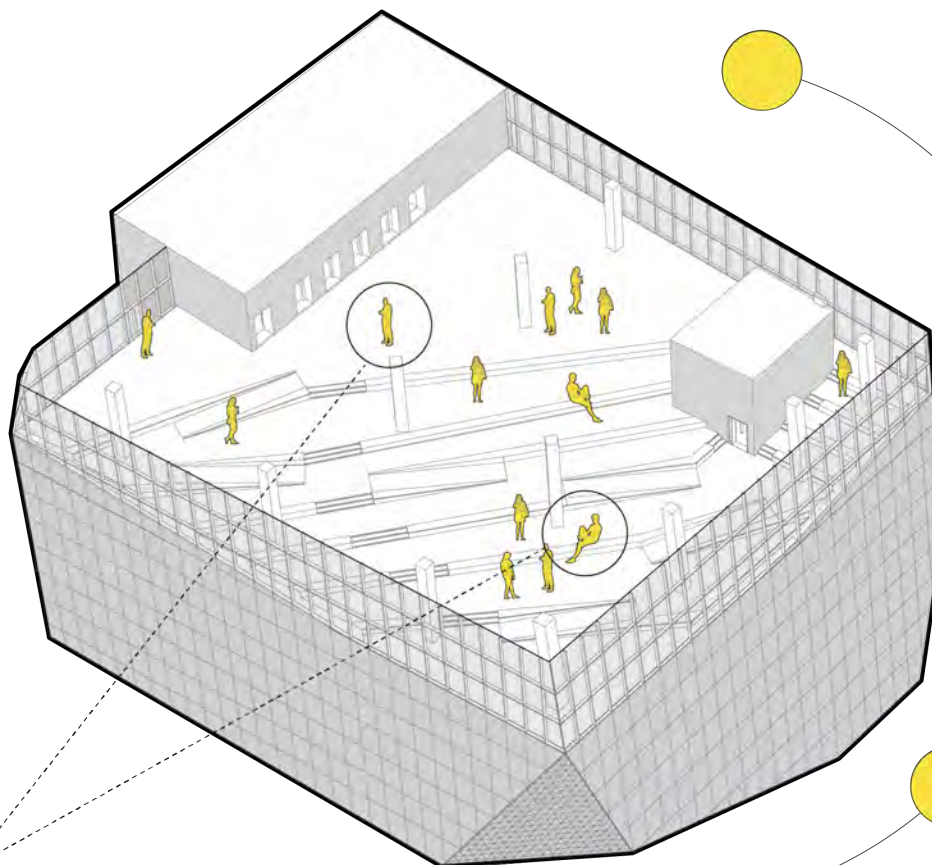
HEALTH



COMFORT



EQUITY



... BY TAKING THE **OCCUPANT'S** PERSPECTIVE



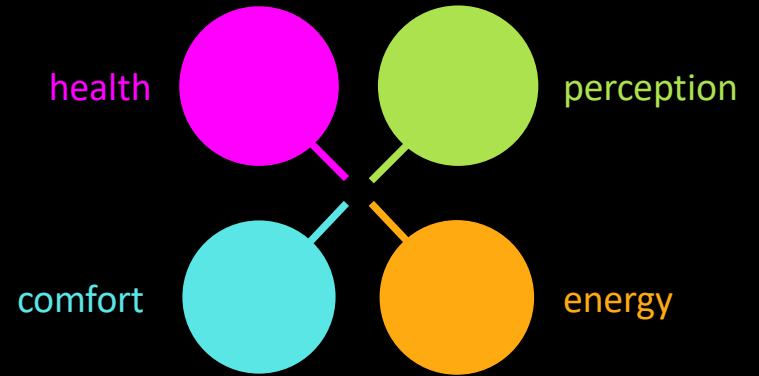
EPFL - LIPID | Laboratory of Integrated Performance in Design



Prof. Marilyne Andersen
Head of LIPID



Dr. Jan Wienold
Senior Scientist



LIPID Alumni

LIPID PhDs and PostDocs

LIPID Alumni

