

# Sensational Wood

Awakening the senses through sustainable, tactile wooden interfaces.



## Documentation

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# The Collaboration

Sensational Wood turns wood into a responsive, expressive medium for sensory interaction. Developed as part of the Master Design at HSLU DFK and in collaboration with Christopher Dreimol from the Wood Materials Science group at ETH Zurich, this work uses IC-LIG, a bio-based innovation that makes wood conductive, to create interactive surfaces that respond to touch, breath, and movement.

Ultimately, I believe this work can help us to develop a richer sensory and emotional relationship with the objects around us, rekindling our intuitive connection with nature and our environment.



Workshop with Christopher Dreimol and Maximilian Ritter at ETH (created by Robert Oswin Kindler, 2022).

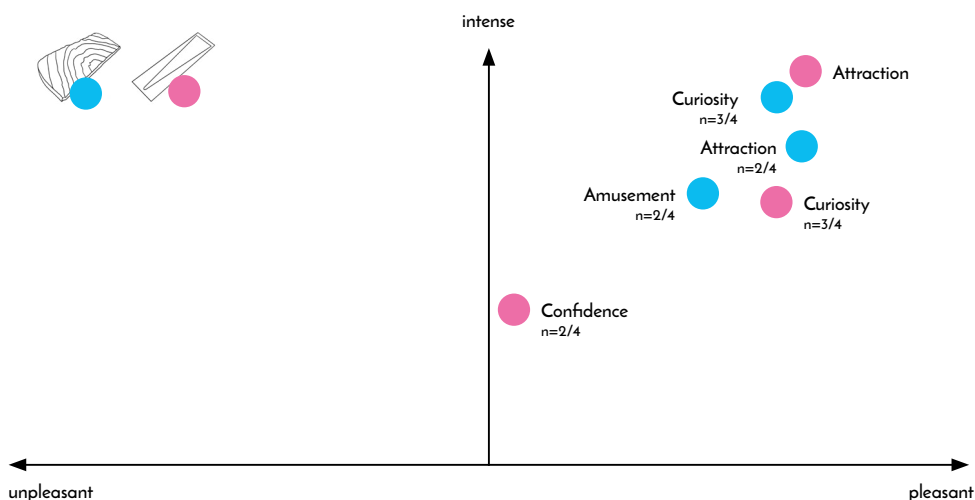


# Approach

Using a mixed-methods approach that includes material exploration, stakeholder workshops and prototype testing, the study shows that IC-LIG interfaces can evoke curiosity, emotional resonance, and sensory pleasure, especially through the natural haptics of wood.



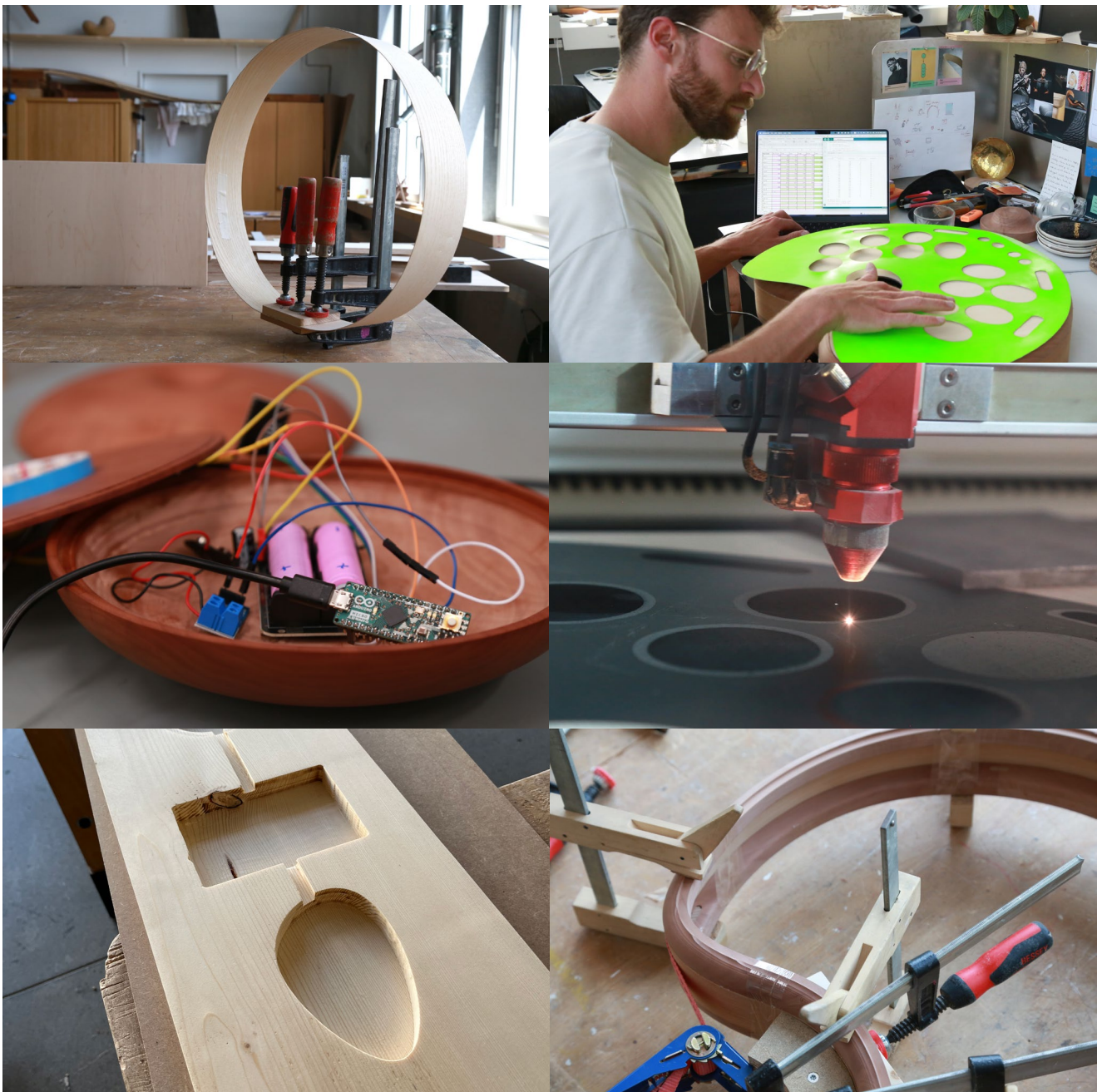
Dr. phil. Barbara Mutzbauer exploring the solid prototype (created by the author, 2024).



Affective map with the most frequently mentioned emotions from four workshops (n = number of mentions) (created by the author, 2024).

# Prototypes

Building on the findings of the exploratory research phase, the practical component of the thesis led to the development of four functional prototypes centered on sensory engagement: a therapeutic musical instrument, a wooden light switch, a scent diffuser, and a spatial audio object. Each prototype was designed to emphasize one of the following senses: hearing, touch, smell or breath-based interaction. This demonstrated the versatility of the IC-LIG as both a sensor and an actuator.



Selected steps in building the prototypes (created by the author, 2025).



## Wooden Light Switch

Touch the wood, feel its texture, and awaken the light with a gesture.







**Interactive Scent Diffuser**

Bring your hands close, awaken the wood and breathe in its scent.



## Musical Therapy Instrument

Gently slide over the surface, feel it vibrate, and play sound through your fingertips.





**Spatial Veneer Speaker**  
Activate this spatial sound experience  
as you breathe onto the sensor.





# Feedback and Challenges

Stakeholder feedback from music therapists, spatial designers, and technologists confirmed the emotional and functional value of the interfaces, highlighting their potential in therapeutic, architectural, and artistic applications. Key challenges such as durability, sensor calibration, and user interaction clarity were addressed through iterative design, material experimentation, and embedded programming.



Interaction with surface of therapeutic musical instrument (created by Ariane Hügli, 2025)

# Outlook

This thesis contributes to the field of interaction design by integrating sustainable materials into responsive systems, offering a novel intersection of material science, product design, and emotional experience. The results reveal opportunities for future research and applications in domains such as neurorehabilitation, augmented and virtual reality, architecture, exhibition and installation contexts, lifestyle products, musical instruments, and movement-based interfaces such as dance sensors. I look forward to continuing this project with Christopher Dreimol and expanding our collaboration across disciplines. I'm excited to see what new insights emerge from this convergence of materials science and design.



Christopher Dreimol and I at the HSLU Master Design Werkschau exhibition.



