Generative Design Workshop S2022

How can designed products fit individuals better than audiences?

> Design sprint focused on serving diverse individual needs through selective data capture, careful consideration of user and context data inputs, and algorithmic approaches
> Participants asked to design with boundaries, variable sliders, and relationships; rather than make specific design decisions
> Wide user inclusion encouraged from the start of design process
Generative Inspiration

Custom fit, inclusive body garments, and algorithmic recommendations

Rebirth Garments
Inclusive Audience

*Design pluralism, inclusion, and individualism for half the population*

- Individuals with varying degrees and types of anisomastia (breast asymmetry)
- Individuals proceeding through gender transition surgery and therapies
- Individuals undergoing uneven pubescent growth
- Individuals needing post-mastectomy prostheses

Data Capture Challenges

*Inclusive and sensitive data capture rituals*

- Accessibility of data capture for breast data
- Resulting privacy concerns
- Self-perception and body image sensitivity
- Who is being included?
User Research, Outreach, and Validation

Anatomists, psychologists, designers, fabricators, and people with breasts
Data-Driven Garment Generation

From image and measurements to garments

- Create a digital simulation of the torso (as is)
- Analyze the digital simulation to identify best placements for support, padding, and symmetry-preserving interventions
- Determine required material properties and garment construction logic
- Generate definitions for a bra that would shift and support anatomy in the desired position (to be)
Data Capture and Modeling

Reducing Data Capture Burdens with Landmark Point Reconstruction

- Simplifying anatomy based on key coordinates and regions
- Different measurement types to capture anatomical dynamics — static skeletal origin points, stretch and movement based biomechanical extents, and 3D-sampled volumetric coordinates
- Designed for sensitive but accurate data capture experiences