

## Chain of Events, a 3D Printed Shoulder Adornment

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Measurements: 22" x 10" x 7.5"

*Chain of Events* evolved out of a desire to portray the many roles a woman enacts throughout her life. This piece is both a literal and metaphorical depiction of how the roles one attempts can be donned by happenstance, choice, necessity, or force. Chains are documented as part of the human experience as early as 225 BC (A Brief History of Chain, n.d.). Over time chains have been used to control women as in the cases of slavery and chastity, but have also been adapted for body decoration, sexual experimentation, and protection. Though the roles that women play in the world have been plentiful, their value, in many instances, has been minimized and at times they do not receive the respect they are due for their contribution to the greater whole.

The feminist artist, Judy Chicago, and her famous work *The Dinner Party* served as the inspiration for this design. *The Dinner Party* commemorates 39 women whom Chicago believes made a significant contribution to Western society, but who were under acknowledged by the primarily male dominated art world (Gerhard, 2013). Though the roles and rights of women in the 21<sup>st</sup> century have catapulted forward, there is a resurgence of conservative groups across the globe attempting to reassert control over women's rights including female reproductive health issues. *Chain of Events* is an artistic response to those who would shackle women by limiting their choices.

The significance of this work is in its use of an emerging technology to create wearable feminist centric art. The ability to use modern design processes to chip away at archaic notions gives power to the artist to tell a story in three dimensions. By incorporating 3D body scanning, modeling, and fused deposition 3D printing, one can create interconnected links that can be molded to a human form.

Drawing on Chicago's boldness to incorporate external female genitalia (Gerhard, 2013) as a design element, *Chain of Events* is a shoulder and upper body adornment which centers on an interpreted uterus as the core of a women's strength.

The rigid nature of the overlapping link design that flanks either side of the uterus focal piece represents roles that women take on out of necessity. Below the center piece is a pliable chain which flows across the upper torso embodying the roles that women take on by choice. Three fixed rows of overlapping links in the back are cumbersome in size and weight and are rough to the touch. These pieces signify the positions that women take under duress. The epaulettes are representative of the responsibilities that

women don by happenstance. They are fixed at the top and then free flowing. There is no center ring to align them; the individual links fall where they may.

Mood boards and a sketch journal were key throughout the process to formulate and refine shape and form in two dimensions. A Human Solutions 3D body scanner allowed the designer to glean the measurements needed for the final piece. Then, using a 3D modeling software called Rhinoceros, the uterus form and linkages were modeled. Base geometries were constructed and maneuvered around the scanned model until a desirable pattern was achieved. The interaction between the moving design elements was evaluated for fit and clearance prior to printing.

MakerBot Z18 and Fifth Generation fused deposition modeling printers deposited a nearly pure white polylactic acid (PLA) resin in layers permitting the intertwined chains to be created in place. Divided in six sections for printing, deliberately open connective links allowed for final assembly. Each surface required sanding to remove burrs and then was hand painted on top and spray painted on the bottom to achieve a two-tone metallic effect. Purposefully, the artist chose to mimic costly metals that are used to create fine jewelry which is often given as a gift and donned completely by choice.

Judy Chicago also sought to broaden ideas regarding art and art making through the incorporation of feminine gendered techniques such as needlework and embroidery that were traditionally considered craft, related to frivolity or function ("Judy Chicago, Biography", n.d.). *Chain of Events* seeks a similar purpose to contribute to the development of art making in a form, such as wearable art, that challenges traditional boundaries related to artistic practice and outcomes; while also calling attention to thought provoking issues related to the female gender and cultural expectations. In sum, *Chain of Events* is a conceptual exploration of femaleness both in purity and concept that incorporates emerging technology to create an aesthetically pleasing and unique wearable art form.

#### References:

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