

## Cubist Rhapsody

Adriana Gorea and Katya Roelse, University of Delaware

Key words: functional design, face mask, digital printing, surface design

### Conceptual statement

Fashion and music have a strong set of connections, with design opportunities that go beyond collaborations on expression and aesthetics (McLaughlin, 2000). The introduction of face masks as required safety accessories during the COVID-19 pandemic brought up wearable challenges for music performers, such as the faculty body of the music department at our university. In preparation for an upcoming virtual concert, the septet faculty ensemble approached the two fashion designers, asking for help with customized face masks solutions that will not only be safe while playing in-person on stage, but also not impede the player's unique movements, be aesthetically coordinated and expressive of the musicians' personas and play. Given the social distancing limitations of interaction with the musicians, various technologies were used to facilitate communication during the user-centered part of the design process. Fourteen unique face masks were designed, as two sets of seven masks, one set in a brighter color story to be worn before intermission, and one monochromatic set for after intermission. Within each set, the masks were customized for fit and expression for each player.

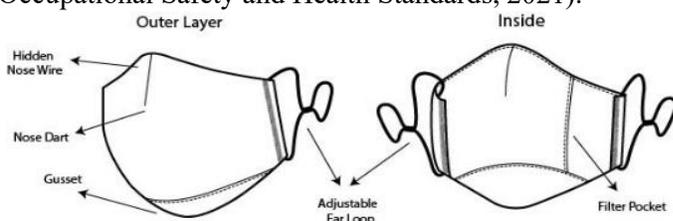
### Process, technique, and execution

When playing as part of an ensemble, musicians' attire choices are motivated by the desire to achieve a delicate balance between group conformity and individuality (Hauge & Hracs, 2010; Orzada et al., 2019). A design brief meeting highlighted the players' ensemble details (two violins, one viola, one cello, one string bass, two piano players) as well as the concert's music theme around expressing unity through facets of individuality. Lamb's and Kallal's (1992) FEA Consumer Needs Model was deemed appropriate to follow for this project, with particular attention given to the user-centered functional part of the design. Ideas in the original brief addressing the aesthetic and expressive components of the FEA model included: showcasing partial face features, avoid skin color matching, overlay fabrics/surface design for texture, engineered close face fit (nose and chin), clean and tailored look with no topstitching or bindings, overall neutral color story.

Face mask wearing presents a range of technical challenges, and each player's functional needs profiles were surveyed via email, gathering details about motion limitations during performance, hair style, other wearables such as glasses, earrings, or face piercings, sweat patterns, player position relative to camera, duration of concert, current face mask style, and garments worn for concert (Watkins & Dunne, 2015; Liao et al., 2021). For mask sizing, headshots from different angles of each player were collected, with a ruler reference in each frame to communicate proportions. Several Photoshop filters were used to narrow down the concept of facets and blending of all faces and skin colors, with a significant amount of time spent on achieving adequate proportion conversions from headshot images to 2D digital print on fabric, then back to 3D through mask assembly. Nose and mouth proportions proved to be particularly challenging. Several rounds of prototypes were made, each time in individual sizes for each player.

A mask's protective ability is determined mainly by the filtration properties of its materials and the fit of the mask on the wearer (O'Kelly et al., 2021). The materials used for the final design were chosen in accordance with player's preferences and Sousa-Pinto et al. (2020): 100% cotton poplin fabric

(250 GSM), one layer of black 100% cotton plain weave fabric (120 GSM) for inside lining, one layer black 100% cotton plain weave for filter pocket, 3mm aluminum nose armature, black round 1/8" elastic cord, and cord spiral plastic adjusters (Figure 1). For mask fitting evaluations, live Zoom sessions were used having the players wear each of the prototypes during practice and rehearsals, therefore completing activities including normal breathing, deep breathing, turning of the head, and bending over (Occupational Safety and Health Standards, 2021).



**Figure 1.** Mask design construction details.

### Aesthetic properties and visual impact

Variations of Cubism-inspired strokes as surface design, using thick, textured embroidered lines over the faceted and shaded faces in the digital print, gave different identities and dramatic expressions to each mask. The seven colors of rainbow were mixed in the first set of masks, and for the second set, each mask had only one colored line along with a neutral metallic threads color story. The resulting designs have a formality and dynamic cohesive with an impromptu rhapsody. As the camera focused on each player during the virtual performance, the subtle differences between the masks became noticeable, conferring each player the sought individuality and expression. The bright, colorful embroidered lines created impact and excitement in the first act, while the sparkling metallic embroidery lines hinted to a touch of fashion glamour in the second act (the images on the last page show four different masks, three from set one and one from set two). The black under-chin panels maintained the masks in their place during the performance, without the need of adjusting, and they were barely visible. The mask design also functioned well for the violin player that had glasses and for the lead player that had to speak and introduce the septet (Figure 2).



**Figure 2.** Images from the concert, showing all seven musicians during the first act.

### Significance and innovation

This project builds upon the functional design creative scholarship of both designers, as well as demonstrates the use of the FEA model as a theoretical framework for a face mask design. In the context of a musical performance, the aesthetic and expressive components of the FEA model proved to have a functional importance for face masks, uplifting the design process of such protective equipment into the creative practice domain (Bye, 2010).

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