My original plan for Senior Project was to go to Vienna and do an internship with a cinematographer. I had hoped to learn about filmmaking; particularly, the lighting aspects of film. I've always been fascinated by lighting, and I was also excited about this because there are quite a few art installations I hope to do, and learning about lighting would help me with those. Also, as an artist, film fits into my areas of interest. Once the COVID-19 pandemic hit the United States all of the students in my Senior class realized that our original plans would most likely be canceled. There were too many travel restrictions, and too many risks. Instead, we thought about ways that our projects could be local and help make our community a better place. I thought about volunteering my time doing graphic design for businesses, but when I thought that through, I realized that wasn't something the world needed right now. When I thought about what was needed, it occurred to me that protecting people from the most imminent threat out there seemed like a good idea. That is why I spent my senior project making masks at a pop-up factory, which is about as opposite to filmmaking as one could get. It seemed like the right thing to do. Anyone with a commitment to their community can help make it a better place.

In December of 2019, China reported a cluster of cases of pneumonia in Wuhan, and a novel coronavirus was eventually identified. On January 12, China publicly shared the genetic sequence of this new virus, and the following day, officials declared the first case outside of China, in Thailand.

On January 21st, the first case was detected in the United States. A man in his 30s from Washington state, who traveled to Wuhan, was diagnosed with the virus. On January 23, Wuhan imposed aggressive containment measures including the cancellation of flights, trains, buses, subways, and ferries. On January 30, the World Health Organization (WHO) declared a "public

health emergency of international concern," which is reserved for extraordinary events that threaten to spread internationally (World Health Organization, 2020).

On February 11, the WHO announced that novel coronavirus was called COVID-19. "Co" stands for coronavirus, "Vi" is for virus and "D" is for disease (Schumaker, 2020).

As of February 21, 2020, 47 confirmed cases of COVID-19 were reported in the WHO European Region (Spiteri et al., 2020).

On February 26, the Centers for Disease Control and Prevention (CDC) confirmed the first case of COVID-19 in a patient in California with no travel history to an outbreak area nor contact with anyone diagnosed with the virus. This meant that the virus was being transmitted among the general population and soon, Oregon, Washington, and New York would report cases of community transmission (Schumaker, 2020).

On March 12, the first case of COVID-19 was diagnosed in Maine, and on March 15, Maine's Governor, Janet Mills signed a Proclamation of Civil Emergency stating that, among other things, schools would close. The next day was a Monday, and all Maine schools switched to remote learning. It was at this time that my classmates and I realized that our Senior Projects would be very different than what we originally planned. (Shepard, 2020)

In early March, the CDC recommended that Americans not wear masks to prevent the spread of COVID-19. "Most people don't know how to use face masks correctly, and a rush to buy masks could prevent the people who need them most — health care providers — from getting them," said Dr. Amesh Adalja, a scholar at the Center for Health Security at the Johns Hopkins Bloomberg School of Public Health. In fact the U.S. surgeon general recently urged the public to stop buying masks. "They are NOT effective in preventing general public from

catching #Coronavirus, but if healthcare providers can't get them to care for sick patients, it puts

them and our communities at risk!" wrote Surgeon General Jerome Adams on Twitter.

(Buchwald, 2020)

However, on April 3, the CDC reversed their recommendation on face masks. The U.S.

Surgeon General Dr. Jerome Adams acknowledged that the government's guidance on masks

"has been confusing to the American people," he said at the news conference. "Based on the best

evidence available at the time, it was not deemed that that would have a significant impact on

whether or not a healthy person wearing a mask would contract COVID-19," Adams said.

As the CDC and healthcare professionals learned more about the virus, it became clear

that asymptomatic people could be contagious. According to the CDC, up to a quarter of people

with COVID-19 may not show symptoms, and a small study found that the disease may be most

infectious when symptoms are mildest, meaning that people may be contagious without realizing

they're sick.

According to the CDC, the virus can spread between people interacting in close

proximity, whether they are speaking, coughing or sneezing, even if those people are not

showing symptoms. Because of this new evidence in how COVID-19 is spread, the CDC revised

their recommendation that all people wear cloth face coverings in public settings where other

social distancing measures are difficult to maintain." (Geggel, 2020)

Under this new recommendation, healthy individuals are advised to wear mouth and nose

face coverings (including homemade masks) when they go to a public area. Surgical masks and

N95 respirators were to be saved for healthcare workers, since, by mid-April, Personal Protective

Equipment (PPE) was in high demand across the country. Of 47 institutions in Massachusetts,

half had less than a week's supply of N95 masks left, with another 23% having none at all. In

California, of 120 institutions, 41% had a week or less left of N95 masks, and 12% had none left.

In Florida, of 50 institutions, 40% had a week or less left of N95 masks, and 24% had none at all.

(Schlanger 2020)

This meant that many people were in search of cloth masks for themselves and their

families. But where were people supposed to get such masks?

I found out about the Midcoast PPE Pop Up Factory from my classmate Pearl Benjamin,

who started her senior project early, working as a volunteer coordinator at the factory. Pearl told

me they were seeking volunteers, and I decided to join her. When I heard about what they were

doing there, I realized that would be a way I could be most helpful during this time.

When I first arrived at the factory, I met Michael Mullins, who started the Midcoast PPE

Pop-Up Factory. The factory was housed in a large space in Camden that was formerly used for

storage. Michael first came up with the idea when he was out of the country. "I was stuck in

Mexico when my friend's wedding was canceled and I was thinking I can't believe I'm going to

come back to the United States and what if I have to quarantine? Am I going to sit at home and

do nothing? And I just came up with this idea which I thought was great cause it would give me

a way to be involved and give a lot of people in the community a way to be involved." (Kingsley

2020)

Originally, Michael had hoped to make various forms of PPE, since there was such a shortage throughout the country. In a "severe event," the United States will need 3.5 billion N95 masks, according to Robert Kadlec, MD, assistant secretary for preparedness and response (ASPR) at the Department of Health and Human Services. "We have about 35 million," he told the House Committee on Oversight and Reform on March 3. In a March 21 letter to Kadlec and Secretary Alex M. Azar II, Democrats on the committee wrote: "The United States has only 12 million N95 masks in the Strategic National Stockpile — our country's largest reserve of medical supplies — and as many as 5 million may be expired. Although President Trump announced that the federal government will order 500 million respirator masks to address these shortages, it may take up to 18 months for orders to be fulfilled despite the immediate need for this lifesaving equipment." The government has begun releasing supplies from the stockpile, but multiple states report that they have received only 10%-25% of their requests for supplies, such as masks, gowns, and gloves. (Budd 2020)

When the CDC recommended that healthcare workers either re-use their masks, or use whatever they could find as face coverings, including bandanas, scarves, and homemade masks, Michael decided that the factory's goal was to make enough masks so that anyone who wanted one could have one.
(Center for Disease Control, 2020)

After a brief orientation of the factory by Michael, I went to work. The processes that the factory set up for production were simple and easy to follow. There were bins labeled with various products and the numbers we needed to create of the given product. Our daily production goals were based around filling the number on each bin. My first task was to cut the metal bands

for the nose pieces resulting in a total of sixteen bundles of twelve. After finishing that task I moved to cutting elastic straps into eighteen bundles of twelve. I spent many hours cutting fabric and then stacking the fabric into five pairs to get it ready for the laser cutter, which then makes the mask pieces. The mask pieces then go into the kits we sell.

These types of tasks weren't always as simple as they sound. For example, while I was cutting an extremely large piece of fabric, I had to make little slits every seven and a half inches in order to turn the fabric into masks. When I got to the end, the remainder was only seven inches long. This was a problem because I was half an inch short to be able to turn that fabric into a mask. Instead, I decided to use the remaining fabrics to make straps. In order to do that, I had to rip the fabric into long sheets. Because I was used to cutting fabric to make masks, I accidentally cut the size the wrong length for straps, which made the fabric useless in the end.

Although I felt awful that the fabric was wasted, the lesson was not. Though it should be quite obvious, that day was a reminder of why it's so important to be meticulous when cutting large quantities of fabric to specific measurements. There's a proverb in carpentry that says, "measure twice, cut once." This proverb can clearly be applied to mask-making as well.

When I first started at the factory, the tools were pretty basic. However, Michael was diligent in adding to the toolbox, and he often increased the quality of the tools significantly. His commitment taught me that nothing in a business is ever static. Things must grow and change.

One unexpected thing I noticed is that I was tired at the end of every day, which is unusual for me. I felt productive on most days, and tired at the end of the day. Of course, there were a few exceptions. There was one day, when my first job was to sew masks. For some reason, I started sewing the wrong side of the mask. When I corrected that, I realized I sewed the

mask inside out. When I finally undid the mistakes I made, the sewing machine stopped working. The bobbin got unthreaded, so I had to take out the spool, rewind it, and then thread it again. It was a complicated process, and I'd never done it before. I finally got it working, but then more problems came up that I didn't know how to fix. I decided, after a while, it would be more productive to move onto another job. So I checked out the task board, and saw that we needed to cut straps. I looked at the board and saw 14.5 inches, and then got to work. I got into a rhythm and cranked the work out really quickly. I cut 100 straps into bundles of ten. I showed my final product to Shawn, who told me they looked a little short. It turns out that I accidentally cut the straps to the length of the elastic, and not the straps. The elastic was supposed to be 14.5 inches, but the straps were supposed to be cut to 36 inches. On top of that, I used the wrong material, so even if I did cut the material to the correct length, it would have been unusable anyway. I started all over again, and finally got them right. I thought about what went wrong that day; I had a good morning, I had enough sleep, I ate a good breakfast, and I even had the same dosage of coffee that I usually have. That's when I realized that they can't all be good days.

After putting in my hours at the factory, I always looked forward to going home and playing music. I play ukulele and guitar, sometimes for several hours at a time. When I was working at the factory and when I play music, time flies. Both my work at the factory and playing music involve working with my hands. In fact, most things that I love involve working with my hands: Rubik's cubes, guitar, rock climbing.

I also enjoyed attending virtual dance classes after work. It gave me a chance to really move around. Maybe that's one of the reasons why I think working at the factory was relatively stress-free. I was always moving around, going from one task to another, measuring, and cutting.

And it helped that the working environment was really fun. The other volunteers were nice, we often listened to music, and it was an overall pleasant environment to work in.

One day, as a side project, Michael asked me to create a pattern for a surgical gown that was going to be sent to Syria through NuDay Syria. I brought my laptop, opened up Adobe Illustrator, and got started on a design. We had a few surgical gowns for reference, so I took one of them apart. First, I had to rip the seams, so of course I used a seam ripper for that. A seam ripper looks a lot like a lobster fork. There are two prongs on either side, and a sharp tool in between the prongs. After removing the seams, I was left with five pieces of fabric; two for each arm and one for the body. Then I measured each piece of fabric, and as I did that, I'd replicate them on Adobe Illustrator. The pattern has to be capable of being cut out using the laser printer, so I worked with Shawn on how to make sure that happened. The issue is that the gown wasn't simply straight angles. There were variable angles and curves, and this made re-creating the exact pattern challenging. I had a rough layout with general sizes, and it took a lot of work to get the pattern more precise. What helped a lot was when Kathleen Brown, the manager of the fabric store Clementine, came in to help me find the materials for the gown. The first step was to lay out the fabric cut-outs that I had from the deconstructed gown, then I measured them and traced them onto a piece of cardboard. Then I cut out the pieces of cardboard and used them to trace them onto the fabric, and then I cut out the fabric.

There were three prototypes before we had a final product. This project was definitely a challenge, but one that I was up for. I hadn't used Illustrator in a while, so the skills were demanding but doable. Making the dimensions fit the criteria was also tough, but I was looking forward to figuring it out. The gown was definitely a way more difficult project than making the

masks, because I needed to figure out exact measurements to input into the computer in order to program the laser cutter. I worked on one line that was curved, and since the curve wasn't symmetrical, it was very difficult to accurately measure. It took quite a bit of time and concentration, and I was thrilled that I finished the gown on my last day at the factory. It's really cool that these gowns--something I helped work on--will be going to doctors in Syria.

The people who work at the factory held a book club every Friday. The book we read was called "The Goal" by Eliyahu M. Goldratt. Although it was fiction, the story still applied to us because the book is about manufacturing in a plant, and there were quite a few similarities in the problems we face. The main problem in the book is that they have enough products, and they've been making products faster than they can get it out. In our case, we had so many orders that we couldn't get them out fast enough. To remedy the situation, we needed more workers. Luckily, we had several volunteers willing to donate their time for a universal cause. I was proud to be one of those volunteers.

I'd never really done much community service before this. I've helped out at events, but nothing very consistent. I found the work at the factory incredibly gratifying, because I knew my help was making a difference. I also learned to manage my time well, and to assess what needs to be done without having to ask. I often thought about Michael, who did not have experience managing a factory. He is a real estate developer who just wanted to make a difference. As it turns out, many people across the world decided to do the same thing. In Rockland County, New York, two women started "The Masked Warriors Project," in order to help make masks for healthcare workers. The project grew to more than 1400 members. (Lipner, 2020)

In the Santa Barbara County Jail in California, a group of concerned inmates made masks for first responders (Jones, 2020).

A fashion designer who left Italy to return to her mother's home in South Carolina turned the living room into a mini sewing factory, making masks that she embroiders with the words, "We Got This!" An Indiana man whose daughter works at a hospital there makes masks in his buddy's upholstery shop. In Spain, masks are made by a group of nuns and members of the Spanish air force, and in Kosovo, inmates in a women's prison also volunteered to make masks. (Webber, Durbin, & D'Innocenzio, 2020)

The great thing about all these volunteers is that, like me, many of them had no sewing experience at all. A Boy Scouts troop in Washington donated thousands of face masks to two local hospitals to help fight the spread of the COVID-19 pandemic (Komo News 2020). In the UK, a 6-year-old boy with cystic fibrosis wanted to help, supervised by his mom, while a 91-year-old woman helped by adding buttons to caps (Blackall, 2020).

Businesses also helped out. Joann Stores made all of its stores available for up to 10 people at each location to sew masks and hospital gowns, offering sewing machines and supplies, spokeswoman Amanda Hayes said. Hayes added that the stores adhered to CDC guidelines, keeping the sewing stations six feet apart and staff on hand to sanitize the work areas and materials. The company also made special kits for customers who want to make masks at home. "We're enabling people to feel like they are contributing at a time when we don't have control," Hayes said. (Webber, Durbin, & D'Innocenzio, 2020)

People who worked to make masks and other PPE came from all walks of life, they ranged widely in age, and they were from countries across the world. The thing all of these

volunteers had in common was their desire to help their communities. That is what I had in common with all of these people as well.

Besides wanting to be helpful, I found that I liked the simplicity of the work. I had a good idea of what I was going to be doing every day, and there weren't any confusing elements to try to figure out. At school, there were several classes and assignments to keep track of, and sometimes I found that, although I was working diligently, I might still lose track of the schedule, or an assignment. At the factory, I like that I showed up, saw what needed to be done, and went ahead and got it done. I liked to get in the rhythm of one task, because that allowed me to become more efficient at that task.

Based on the history of my life so far, I'm not surprised when things don't go as planned. For example, it didn't even bother me that I was supposed to be in Vienna right now, because I felt like this project was a valuable experience that actually helped many. I also had a lot of fun and learned new skills that I will use for the rest of my life. In fact, when I got home on the last day at the factory, I went up to the attic and took out our old sewing machine. I thought it was broken, but when I looked further, I realized there was fabric stuck underneath the needle, and the bobbin thread was caught in the fabric. I pulled the thread out and re-thread the bobbin. Now I have a working sewing machine at home! I've learned a lot about manufacturing. Working at the factory taught me about product development, sales, and leadership. The project also taught me valuable life skills like how to sew, which will help me in my path to hopefully create my own clothing brand. I feel much more prepared for this after my work at the factory.

I'll miss the factory, especially the sense of productivity that I had while I was there. I hope to continue some of that productivity with my own sewing machine, perhaps with my

t-shirt business, but I know it won't be quite the same. Although I do a lot of things that make me

productive, like dance classes and playing guitar, those things I do for myself. When I was at the

factory, I was doing things for other people, and that felt good. Going forward, I'll continue to

look for opportunities to help my community. I've realized that it's up to all of us who live here

to create and maintain a community that cares about its members.

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