

I have chosen to write about Sensing Kirigami because it was the one that spoke to me the most. I have done countless origami and paper crafting as a hobby and it is interesting to see how people brought paper crafting to a level that hasn't even crossed my mind before. They explore the affordances of two types of carbon-coated paper: Science First (SF) Paper and PASCO paper. SF paper has carbon fibers mixed throughout its composition while PASCO paper only has a carbon coating only across its surface. They did a thorough exploration and experimentation of their material and its resistance. After testing the resistance of folding and bending the paper, because of their different composition, they opted to use SF paper for folds and PASCO paper for bends. To apply conductive ink onto the paper, they used a laser cutter to etch and overlay electrical traces on the papers. Furthermore, they used conductive fabric patches to bridge connections between paper and conductors, and solder paste for connecting wires. So, by sensing folds and bends in the paper; they were able to propose three applications that showcase the possibilities of using the paper for tangible interaction design. The first one being fold and bend sensor patches, the second one being kirigami buttons and hinges with inputs that detect physical deformation in the paper, and the third one being a lamp shade made of fishnet kirigami that detects stretching inputs. Although, even just by looking at their paper circuits, their geometrical patterns are already aesthetically pleasing.

When I watched the class group presentation on the Sensing Kirigami, I was skeptical of how durable it is, as paper in itself is a pretty fragile medium. And after reading the paper itself, it still holds true in a way, but I think the experience that you get out of making it is more interesting than the duration which it is going to hold. I feel like their project, even though titled "Sensing Kirigami" felt like it was more testing the capacities of carbon paper than crafting kirigami. They did explore nice patterns of the kirigami like in the button, the hinge, and the fishnet but the designs felt stiff. I understand that the project was about testing the limits of using kirigami crafts as sensors therefore the designs needed to be simple but it would've been interesting to see its behavior on more elaborate kirigami. Even further than kirigami, using paper as sensors on paper crafts like the Studio Ghibli mini paper craft kits<sup>1</sup>, or with many different types of origami, would be pertinent to experiment with.

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<sup>1</sup> *Studio Ghibli Papercraft- Build Your Own Miyazaki World*. 11 Dec. 2020, <https://www.hayaomiyazakimoviesandcollectibles.com/studio-ghibli-papercraft-build-your-own-miyazaki-world/>.

In the same way that they were compelled by the visual nature of kirigami objects transforming flat planes into three-dimensional sculpture, I was recently compelled to make an origami fox by Peterpaul Forcher<sup>2</sup>. Its 3D geometric construction that tries to mimic the silhouette of a fox is aesthetically pleasing to look at. Even though it might look generic, it feels very fox-like and reminiscent of a Japanese kitsune. It would be nice to experiment with those visual representations by integrating circuits or sensors into it as a way to make it an interactive origami and bring it to life. Another artist I look up to, who is considered to be the grandmaster of origami, is Akira Yoshizawa. Some of his animal origamis are the most dynamic paper renditions of animals that I have ever seen. From dogs to birds to apes, his work would be interesting to bring to life like the fox mentioned above. And an origami set that I always end up revisiting are roses designed by Hyo Ahn, Toshikazu Kawasaki, and Akira Yoshizawa<sup>3</sup>. Especially the Kawasaki Rose, which is also used in this tutorial of making origami paper circuits<sup>4</sup>. That brings up the fact that the use of laser printing in the Sensing Kirigami process seems less accessible to someone that would like to recreate their methods. Because, in the tutorial about making origami paper circuits, they were using copper tape to make circuits on paper which seems like a friendlier approach. Personally, I have never tried making kirigami crafts before, but it now seems like something I would like to explore in a future project.

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<sup>2</sup> Forcher, Peterpaul. *Fuchs*. 1993-1996, <https://www.origamiseiten.de/forcher/fuchs96.pdf>.

<sup>3</sup> Origami Make. *How to Make Origami Rose Paper Flowers*. 2013-2020, <http://www.origami-flower.org/howto-origami-rose.php>.

<sup>4</sup> Al-Mutlaq, Sarah. *Origami Paper Circuits*. <https://learn.sparkfun.com/tutorials/origami-paper-circuits/all>.