

The Artificial Intelligence lost paper method

The lost paper beam construction is a project which will incorporate building and sculpting techniques, substituting most materials with paper. A.I. technology will be implemented in order to assist with the form of the final piece.

Creating the material

The first step of this project will be creating imitations of metal profiles (H, U, T, L) that are used in structural constructions, out of the paper.

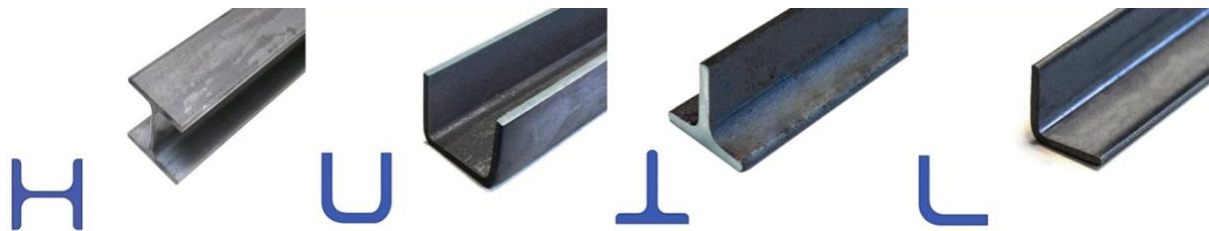


Figure 1: Industrial metal profiles

Paper Carpentry

In order to create these paper “metal” profiles I will cut the files into strips (between 6 and 12 cm) on a woodworking table saw. The table saw is a machine which offers precision and will not damage the paper.

Next step is to connect the cut pieces to create long strips of 3 meters (standard length of most industrial metal profiles). The way of connecting the pieces will be done in a vacuum pressure gluing table. By using the technique of overlapping layers with many thin segments of paper (similar to making plywood) the strips will offer structural integrity. At the end of this stage, I will have hundreds of strips of glued paper files of 3 meters long, about 6-10mm thick and various widths (6 to 12 cm).



Figure 2: Vacuum Pressure Table

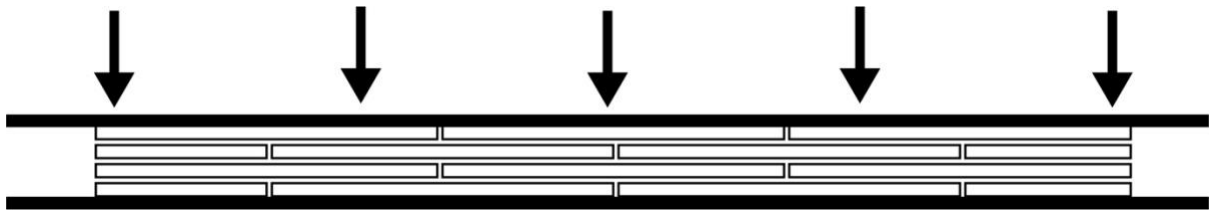


Figure 3: Cross section of overlapping layers

The paper strips will be attached to each other in order to form the different profiles. For example, the L- profile consists of two strips glued perpendicular to each other on one edge. The gluing/ attachment process will happen again in the vacuum pressure table with the aid of wooden molds.

Making the profiles timeproof

One half of the profiles will be coated. The EPO files that are used will still be visible in this final design of the paper profiles. Therefore they will be coated with a thin layer of clear resin. The resin will add hardness to the profiles, make them durable over time and scratch resistant.

The lost paper method

The remaining half of the profiles will be transformed into bronze profiles by appropriating the lost wax technique to lost paper.

“The lost-wax process (cire-perdue) is method of metal casting in which molten metal is poured into a mold that has been created by means of a wax model. Once the mold is made, the wax model is melted and drained away.”

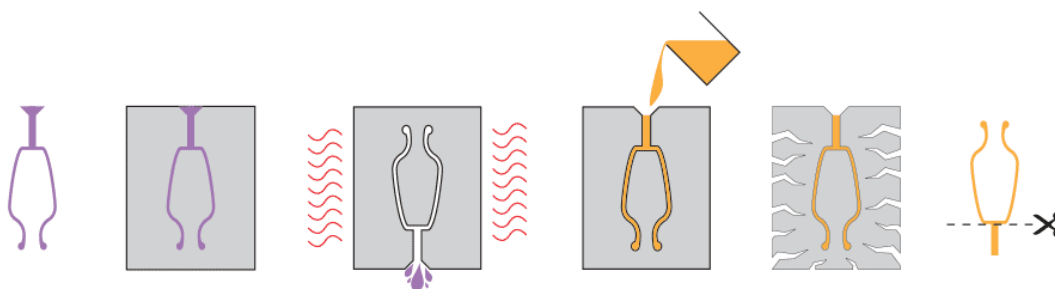


Figure 4: Process of lost wax

I have been busy with metal casting techniques for the past 3 years. In multiple projects, I used sand casting (e.g. Fast Lane) as well as lost wax methods (e.g. Animals). I always wondered if other materials other than wax can be used in the lost wax method. In short

the answer is yes, if the material used melts or burns at under 600 degrees. Therefore, this will be possible with paper, as its ignition temperature is 233 degrees Celsius.

During the process of creating the mold the beams will be casted in a plaster mix (method described above) and then backed in a special oven so that paper burns away. Then, molten bronze will be poured in the molds. At the end of this step, I will have an equal amount of paper profiles and their replicas out of bronze.

Form of the sculpture- From analog to digital and back to analog

Artificial intelligence technology is rapidly evolving the last years. Systems have been created that just by typing a couple of keywords in an A.I. software a unique image is created such as digital art, drawings, photograph etc. This technological development has sparked a large debate within the artist community as many designers and illustrators fear that their job will cease to exist due to the much quicker A.I. engines.

I have decided to “collaborate” with artificial intelligence. The input I will give the A.I. machine will be a technical drawing, from each EPO file I get, together with keywords such as: sustainability, innovation, (digital) transformation, paper recycling, sculpture , public installation, metal profile construction etc. The output will be a set of detailed drawings that I will “translate” into our physical world using the paper and bronze profiles I have created earlier.

Bellow, an example of how A.I. used a technical drawing to make an unique architectural sketch. Then this architectural sketch was inserted again in A.I. and this interpretation of a sculpture was created.

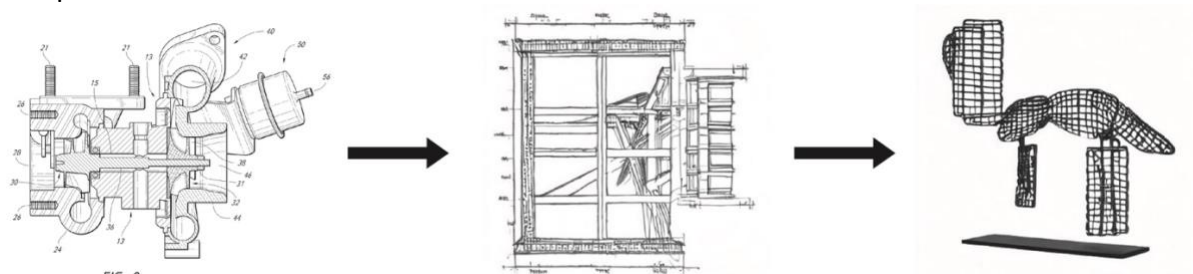


Figure 5: A.I. transformation of technical drawing to sculpture

I will be collaborating in this part with graphic designer and media artist Soyun Park who is specialized in the digital spectrum within the cultural field.(more info bellow at Collaborations)

Construction of the final piece

The final piece will be built with both the paper and bronze profiles. The aesthetic will imitate structural constructions of actual metal profiles. Connections between the bronze profiles will be welded together. For the attachments of paper profiles to each other or to

bronze profiles nuts and bolts will be used. These nuts and bolts will as well be bronze casts of paper models I will have created with the use of the EPO files.

Collaborations

In order to execute this project I will closely work together with specialists in the field of woodworking, bronze casting and artificial intelligence. All parties have agreed to take on these tasks.

The paper profiles will be created at **De Besturing** in the Hague. De Besturing identifies as a “sustainable collective of artists, designers and other common minds”. They possess a state of art wood workshop including a vacuum gluing table of 3 meters. Furthermore, the woodworking team of the Royal Academy of Arts has agreed to consult me along the way and offer their expertise.

<https://debesturing.nl/>
<https://www.kabk.nl/werkplaatsen/hout-werkplaats>

The bronze casting will happen at **MAKE Eindhoven**. MAKE is a workshop open for artists to develop large metal works under the guidance of master bronze caster Rino Sijen. Rino and his family have a long tradition in bronze casting as they were the first to start it again after the second world war. Sijen family has had many important clients the last years such as the Dutch Royal Family and renown Dutch sculptor Henk Visch. The last years, Rino and I have collaborated multiple times to realize projects of mine. Over the period, we have been in close contact in order to ensure the plausibility of the appropriated lost paper method.

<https://www.makeeindhoven.nl/>
<http://www.kunstateliersijen.nl/>

The A.I. part of the project will be done in collaboration with The Hague based media-artist and designer **Soyun Park**, founder of audio-visual community studio RGBdog. Soyun is specialized in interactive digital technologies and their effects on relationships, architecture, body movement and politics. Selected clients of her on the topics of A.I. are Sony Music Entertainment, TED and Unheard Records. Soyun is a teacher of artificial intelligence at the Design Academy Eindhoven.

<https://soyunparrk.com/>
<https://rgbdog.studio/>

Amount of paper required: 1500 files