

Internship proposal

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Title

3D Printing and Projection Mapping for Immersive Training in Sappi's Lanaken Mill.

Business Need

Training is an important aspect of a large industry such as a mill. Training is important due to the complexity of production as well as ensuring safety for new and existing employees. Furthermore, immersive and attractive training in mills is crucial both for safety, as one can give training in a risk-free environment, and for attracting and retaining younger employees.

In this project, we want to leverage mixed reality and, more specifically, [projection mapping](#) technology to offer an immersive, and therefore both a more attractive and meaningful, learning experience for new and existing employees in Sappi's Lanaken Mill.

The project mapping should display both data and information in a game-like manner for a user to view and interact with. The exact data and information need to be decided during the project. One could think of sensor information or areas around PM8 to be extra careful.

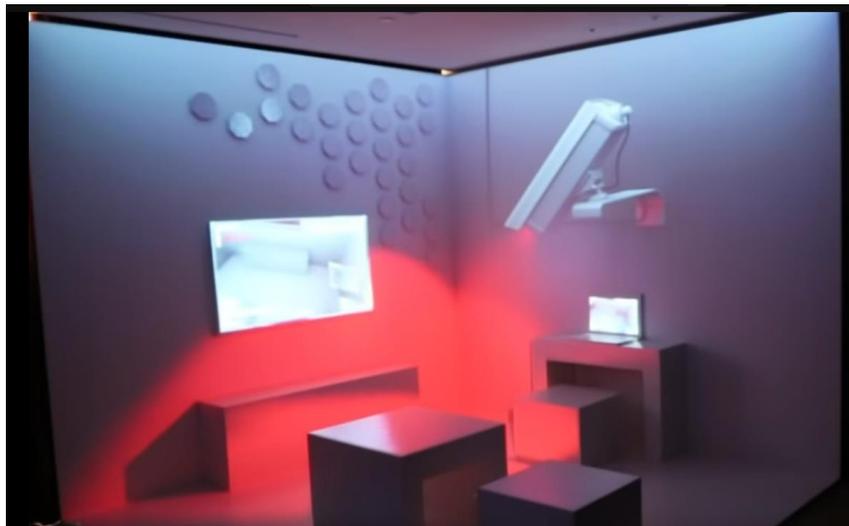


Figure 1: Example of Huawei's smart home concept with the use of project mapping (screenshot from YouTube video: <https://youtu.be/3WGZlc5E18g>)

An example of projection mapping can be seen in the following YouTube video from Huawei: <https://youtu.be/3WGZlc5E18g>

Main Activities

1. create a 3D model of Paper Machine 8 (PM8) in Lanaken
2. 3D print the model, in color;
3. develop & install projection mapping applications on the 3D printed model for training and promotion;

4. Document and present the project, and propose next steps forward to further leverage on the capabilities

Time Plan & Deliverables

The internship can ideally commence in September 2023.

Compensation

Although internships are unpaid in Belgium, Sappi does compensate for costs such as: meal vouchers, telework, public transportation, etc.

Success Metrics

1. Detailed 3D model (virtual and physical), created with mainstream technologies,
2. Informed decisions when it comes to the 3D print (e.g. scale),
3. Quality of 3D print,
4. Quality and interaction of projection mapping
5. student's attitude: drive for results, hands-on attitude, proactiveness and independence.

Company and Team

The internship will take place within the Digital Transformation (DT) team of Sappi Europe, in Brussels, Belgium, and in Sappi's Lanaken Mill (<https://www.sappi.com/nl/lanaken-mill>)

Sappi is a global company focused on providing dissolving pulp, paper pulp, paper-based and biorefinery solutions to its customers in over 150 countries. Headquartered in Brussels, Belgium, Sappi Europe is the leading European producer and supplier of coated fine paper, packaging and specialty papers. More about the company at: <https://www.sappi.com/>

Company coaches

Dr.ir. Javed Khan is Head of UX in Sappi. Furthermore, he serves as an associate editor at the Behavior and Information Technology journal. Javed holds a PhD. and a P.D.Eng. degree from Eindhoven University of Technology (TU/e) and a MSc. in Computer Engineering from the University of Patras. In the past he held the position (tenured) of assistant professor at TU/e's department of Industrial Design and before that of senior lecturer at Breda University of Applied Sciences. Finally, he gained industrial R&D experience, in design and HCI research positions, at Philips Research, Vodafone and Greece's Computer Technology Institute.

More about this coach at: <http://khan.gr/>

MASc. BEng. Jeroen Knooren is an experienced professional with over fourteen years of expertise in chemical analysis, project management, and process automation & optimization, possessing a diverse skill set. Next to a Master of Science degree with a Cum Laude distinction, he has a proven track record of driving operational excellence through innovative thinking combined with an agile mindset. Currently serving as an Operational Excellence Manager at Sappi Europe, he is responsible for optimizing European processes and fostering an Operational Excellence culture within the business. In recent history, he has successfully led high-value productivity projects, implemented continuous improvement frameworks, and streamlined work processes to increase efficiency and productivity. His strong analytical skills, data-driven mindset, excellent communication, and customer

orientation enable him to deliver high-quality results while maintaining integrity in all behaviours. He is known for challenging the status quo, driving excellence in efficiency, quality, and reliability, and inspiring colleagues through creative and innovative thinking.

LinkedIn: <https://www.linkedin.com/in/jeroen-knooren/>

Students' profile

For this project we are looking for two students:

- 1) an art-inclined student with a focus in digital 3D modeling and printing, and
- 2) a technical-inclined student with a focus in computer science and more specifically with experience or eager to learn projection mapping.

Close collaboration between the students is crucial for a successful project completion.