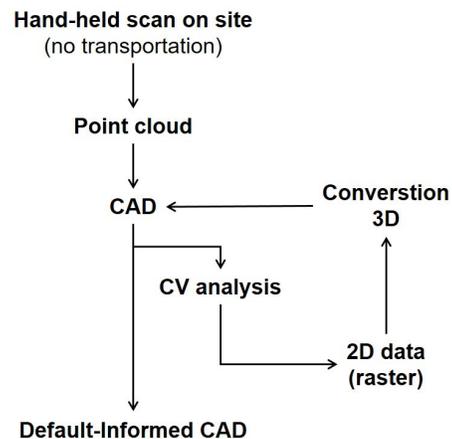
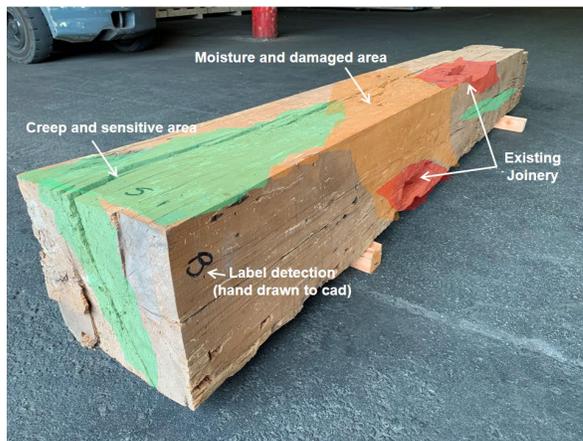


Semester Project at Laboratory for timber constructions – Call for applications: “Computer Vision Analysis of Constructive Defects in reused timber elements”



On the right: possible analysis for sensitive reused timber; on the left: possible workflow to transfer analyzed 2D data to 3D CAD format.

The laboratory for timber constructions, IBOIS, is conducting research on the influence of digital fabrication techniques for the design of timber structures. Recently, we have been interested in digitizing and analyzing reused timber elements to obtain defect-aware CAD models. Throughout its life cycle, wood can not only change shape but also develop features such as creep, areas damaged by moisture or use, previous fasteners and additional labeling.

Goal

The goal of this semester project is to detect these specific features from a point cloud and/or raster images of the timber element in order to create a 3D CAD format. The overall goal is to enhance the end-of-life of used timber elements composing existing buildings.

Skills

- Basic knowledge of CV analysis
- Programming knowledge in C++ and/or Python (C# is a plus)
- Creative mindset and problem-solving skills

Facility

The student will be able to use an in-handle scanner FARO Freestyle2 for digitalization of timber elements and will benefit from the resources of the Structural Engineering Group testing laboratory (testing halls, diverse equipment). The multi-disciplinary team of IBOIS will supervise and assist him in his work. In addition, he will also have at disposal a budget for the purchase of possible extra IT-equipment needed for the task.

Planning

- Week 3: work plan based on state of the art techniques
- Week 6: stand-up meeting and team discussion
- Week 8: Intermediate presentation
- Week 11: stand-up meeting and team discussion
- Week 14: Report and final presentation

Interested students can send an email to andrea.settimi@epfl.ch