3D-modeling steel beams from laser scans

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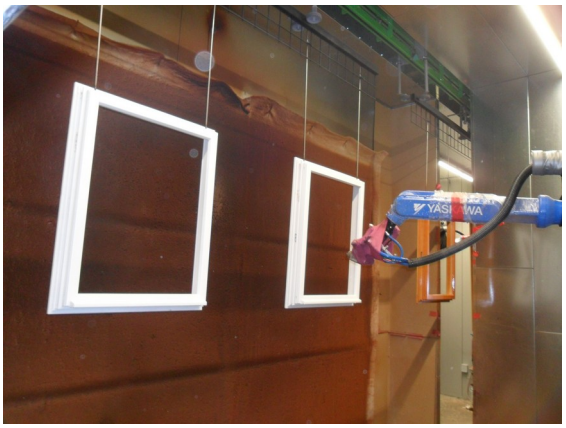

Inropa is a company which provides AI-software for industrial painting robots. Their top-of-the-line product is Inropa Automatic Programmer, where products on a conveyor are laser scanned, modeled by the system, and robot paths automatically calculated and applied. Then the automatically generated program is run by the painting robots.

Inropa is currently developing a new paint-path planning system which can apply paint to much more complex products than before, such as steel constructions.

Your task is to make a system which can create 3D-models of scanned products based directly on the laser scan. Inropa will provide laser scans as well as reference CAD-files so a ground truth can be established. You will be able to visit some of Inropa's customers to see the process and perhaps capture extra data.

Interesting challenges:

- Looking at point clouds from Inropa's laser scanner and finding surfaces.
- Connecting separate surfaces in a coherent manner.
- Incorporating a priori knowledge about what products may look like?
- Perhaps learning the "style" of products from a batch of CAD models?
- Compensating from noise in the scan caused by the scanner and products which are swinging on the conveyor.