seeing what matters

ViDi Suite

APPLICATION NOTE

Aesthetic Textile Inspection

CHALLENGES IN TEXTILE INSPECTION

- The fabric pattern can be highly complex, and position variants can preclude the use of simple methods based on spatial frequency analysis
- The visual appearance varies drastically: deformations due to the stretchable nature of the fabric and other variations such as yarn thickness.
- Defects in textiles come in countless forms and types and explicitly searching for all defects is not an option.

ViDi SUITE

Deep learning based industrial image analysis software for automated inspection and classification

Human-like: Outperforms the best quality inspectors

Self-Learning: No software development required

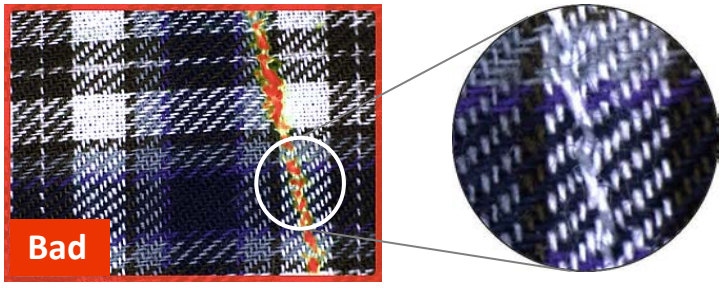
Powerful: Tackles the impossible to program inspection challenges

HOW DOES IT WORK?

It is as simple as 1-2-3:
1- Collect images of “known good parts”
2- Let ViDi Suite train on those samples and create its reference model
3- Proceed with testing

With ViDi Suite, the automatic inspection of complex pattern fabrics is now extremely simple.

The software algorithm trains itself on a set of known good samples to create its reference model.



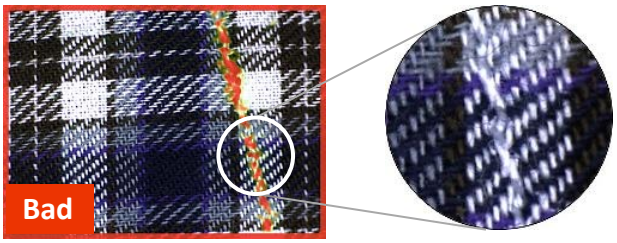
Once this training phase is completed, the inspection is ready to go. Defective areas of the fabric can quickly be identified and reported. And best of all, there is no need for extensive defect libraries!

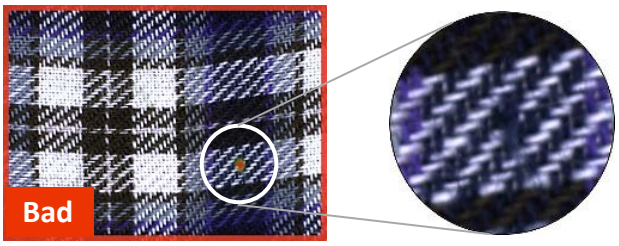
ViDi red

YARN DYE PLAID

For this first woven fabric, we provided our ViDi red tool with a representative set of good samples to learn the weaving pattern, yarn properties, colors and tolerable imperfections.

After the training phase was completed, the inspection was able to quickly identify defects like the ones shown to the right.
Top: Unexpected stitching
Bottom: Weaving weft float

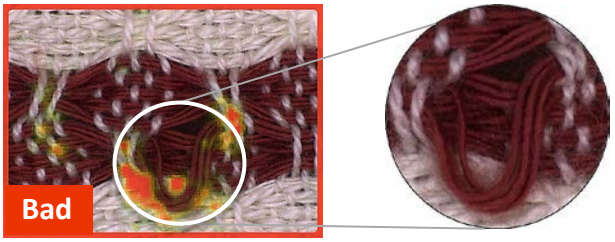


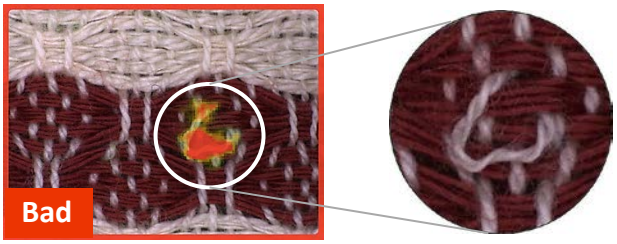


YARN DYE STRIPES

On this second set of woven fabric and as for the previous set, ViDi's red tool learns a model of the complex weaving pattern from a collection of randomly selected good samples.

During the inspection phase, the red tool reports defective areas of the fabric like the ones shown to the right:
Weaving loops in warp and weft





INTEGRATION

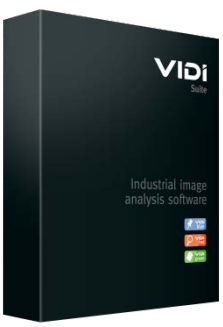
Due to its self-learning abilities, ViDi Suite can be deployed quickly and easily on new applications without the need for any specific development

RESULTS & PERFORMANCE

Powerful Detection: Most types of textile manufacturing defects can be identified at each stage of textile processing (ginning, spinning, cutting, weaving/knitting, pretreatment, dyeing/printing, finishing, stitching)

Self-Learning: Textile inspections were conducted without any complex defect library but instead relied on a human-like approach - learn and apply - topped with an improved testing consistency and repeatability.

Quick & Easy: In both cases, learning from the known good sample was achieved in less than 10 minutes.



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