MASTER THESIS PROJECT

Colour management and colour communication in the manufacturing industry

Introduction:

Competing in a global market requires that you look beyond price and performance to differentiate your product. Design and branding are becoming increasingly important tools for building emotional values and creating a distinctive position in the market. Colour and appearance play a prominent role in consumer's choice of product and is critical for both brand and consumer quality experience. This has lead to premium manufacturers, ranging from cars and consumer electronics to kitchens, today invest more and more resources to ensure that the colour is correct for the company's products, packaging and marketing material.

When it comes to specifying and controlling colour, there are two possibilities. The most common historical way is to work with physical reference samples and carry out control in a local system with a measuring instrument and a quality control program. The second option is to work in a digital solution, using digital colour references (reflection curves). Working digitally with colour communication brings great benefits to the industry and is in line with modern manufacturing trends such as "Industry 4.0".

Working digitally also brings new challenges to ensure that colour measurement instruments from different manufacturers produce comparable results. This is usually termed Inter Model Agreement, "IMA", i.e. the difference between measurement results in two or more instruments. At the same time, colour is a question that is relevant in all segments of an organization affecting design as well as quality, market and purchasing. Profits from increased sales and customer satisfaction, and reduced costs with more efficient processes, are often easy to see but difficult to quantify.

NCS Colour is now looking for one or more master thesis student(s) to develop our digital services in Colour Management. You can be involved in developing the future digital processes of colour communication and directly affect the collaboration we have today with large companies in the manufacturing industry such as IKEA, Volvo and Electrolux. If the project goes well, there is also the possibility of employment after graduation since we are always looking for great new talents. We expect you to study the final year of a 3 or 5-year relevant education and can start the project in 2018. Furthermore, we are happy to compensate you during the thesis work. Attached are three suggestions for a degree project at NCS Colour but we are happy to receive other suggestions and requests on projects.

We look forward to hearing from you! Applications should be sent to: stockholm@capq.com

SUGGESTIONS FOR MASTER THESIS PROJECTS

Project 1: Optimize instrument profiling of colourimetric data for quality control and colour matching

Subject: Materials Engineering
Scope: 30 HP

NCS Colour is looking for one or two dedicated students to optimize the profiling of colour control instruments in the digital solution CAPQ. CAPQ is a cutting-edge technology for digital distribution and control of colour developed by NCS Colour. Using instrument profiling, CAPQ works to minimize IMA. The project aims to optimize the set of standard physical samples called "Connection Set (CS)" that is used to create a general instrument profile for different instruments/ materials. The project includes specifying, assembling, measuring and analysing a wide range of samples in different materials, gloss and structure. The goal is to identify an optimized profile per material group, gloss level or surface structure. In this project, NCS Colour provides for materials, office/ lab space and guidance during the project.

Project 2: Development of a new tool for instrument profiling of colourimetric data for quality control and colour matching

Subjects: Computer Engineering, Physics
Scope: 30 HP

NCS Colour is looking for one or two dedicated students to develop the future system of instrument profiling for colour control. This project is about developing a new method for profiling instruments using AI or Machine Learning. The project includes defining the method for selected material, creating measurement data for development and verification, developing the new method and verifying the result. In this project, NCS Colour provides for materials, office/ lab space and guidance during the project.

Project 3: Mapping and quantifying the improvement potential in today's colour management processes in the manufacturing industry

Subjects: Industrial Economics, Technical Design, Materials Engineering
Scope: 30 HP

NCS Colour is now looking for one or two dedicated students to map existing colour management processes in the automotive industry or related industry and evaluate how these processes would be affected by an entire digital flow. The project consists of analysing and quantifying existing processes through interviews, qualitative studies and data collection as well as the costs (including alternative costs) associated with them. Based on this survey, you should propose cost-saving and quality-enhancing enhancement proposals.

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