Announcement of NTNU-CSC Exchange PhD Scholarship

Type of scholarship: Exchange PhD

Period of the scholarship: 1 year from September 2020

Short description of the scholarship:
Title: Goniometric multispectral imaging of materials with complex reflectance properties

Visual appearance of material with complex optical properties can vary in terms of perceived colour or lightness properties with a change in illumination and viewing directions. To characterise and reproduce such a material, objective measurements in terms of the amount of the light incident and reflected from the material surface are performed. Gonio-spectrophotometers that perform point measurements at a broad number of illumination and viewing directions are commercially available and are used to perform bidirectional reflectance measurements.

In this project we aim to
- Set up and evaluate a unique robot arm-based goniometric multispectral imaging system to capture the spatially varying spectral bidirectional reflectance distribution function (svBRDF) and bidirectional texture function (BTF) of materials with complex reflectance properties,
- Generate BTF and svBRDF datasets of materials with goniochromatic and non-diffuse reflectance properties and complex texture patterns.

The project may be executed in collaboration with ApPEARS project members.

The Norwegian Colour and Visual Computing Laboratory (http://www.colourlab.no) is a research group within the Department of Computer Science at the Norwegian University of Science and Technology in Gjøvik. It was founded in spring 2001 to serve the rising needs for colour management solutions in the graphic arts industry. Since its foundation, the scope of interest has grown to cover colour science, colour imaging, image processing, and video processing in a broader sense, and our vision is to be one of the best research groups in this field. To achieve this vision the group employs a number of researchers with a broad competence basis in fields such as graphic arts, colour imaging science, media technology, computer science, signal processing, physics, image processing, and video processing. We also maintain an interactive open environment with strong national and international collaborators both in academia and industry. This has resulted in a wide range of fundamental and applied research projects which the group is actively involved in. The Colourlab is currently coordinating and partner in several projects that are related to measurement and reproduction of material appearance: ApPEARS: http://www.appears-itn.eu.
Qualification and requirement:

- Ongoing PhD in Physics, Imaging Science, Electrical Engineering, Computer Science or a related discipline.
- The ideal candidate will have a strong competence in physics including optics, knowledge of colour science, experience with imaging and image processing, and excellent programming skills.

In addition, for all applicants the following applies:

- Fluent English language, both written and spoken with certificates of TOEFL minimum 95 or IELTS minimum 6.5
- Chinese citizenship documents (copy of his/her passport or national ID of P.R. China
- CV
- A motivation letter

Deadline for submission of application: March 20, 2020

Scholarship: 17 000 NOK/month for a period of up to 12 months

Supervisor info, and where to send the application:
Prof. Jon Y. Hardeberg, IDI, NTNU, Gjøvik, jon.hardeberg@ntnu.no and
Dr. Aditya Sole, IDI, NTNU, Gjøvik, aditya.sole@ntnu.no