PhD Position in Plenoptic Modelling and Measurements of Novel Displays

Technical University of Denmark (DTU) has an open PhD position (early-stage researcher) in the H2020 MSCA ITN RealVision project (www.realvision-itn.eu/) at DTU Fotonik. The RealVision Innovative Training Network (ITN) will investigate the problem of capturing, processing and displaying hyper-realistic images with the aim of building the hyper-realistic immersive visual imaging and display systems of the future.

Description of PhD project
The goal of the project is to establish a complete physical characterization of innovative displays and viewing set-up for quality evaluation and relate this to visual perception.

This project will focus on modelling, and measuring novel displays under specific viewing conditions within a plenoptic framework and characterizing these measures in relation to the human visual system. Gonio-photometer measurements of displays will be developed in order to characterize the displays. The goal is a plenoptic description of display viewing conditions expressed by mathematical models of the physical world. Models of novel display architectures and principles will be established and used for optimizing the quality of the images displayed and used in combination with subjective testing representing human perception. One instance of innovative display technology, multiview imaging shall be investigated, both captured by camera arrays and 360° video. The perceptual descriptions will be used to guide the assessment of displays within the plenoptic space, e.g. full focus views and light field imaging.

The resulting outputs of the PhD project include:

- Characterization and measurements of displays encompassing HDR, wide colour gamut UHD, and multiview 3D to be used for optimization of display rendering
- Light field capture of displays for objective evaluation

During the project, the PhD candidate will have close contact with the other RealVision consortium groups, including an extended research stay at CNRS in Paris, France, and at the RealVision partner organisations BBC R&D, England, and McMaster University, Canada.

We offer extensive knowledge of all stages in the visual processing chain, including acquisition, processing, coding, delivery, and display, and the opportunity to achieve a common goal of building the hyper-realistic visual imaging and display systems of the future.

The research and development in RealVision will strive for an extremely high quality, hyper-realistic visual experience.

If you are interested, please go to DTU web-page with the call.

Qualifications
The candidate should have a master's degree in electrical, electronics, computer science, telecommunications, mathematical modelling, physics or a similar degree with an academic level equivalent to the master's degree. A solid background in image or video processing or coding is an asset. We expect the candidate to have good programming skills. Good communication skills in written and spoken English are a must. **Starting date is autumn 2018.**

Approval and Enrolment
The scholarships for the PhD degree are subject to academic approval, and the candidates will be enrolled in one of the general degree programmes of DTU. For information about the requirements for enrolment and the general planning of the scholarship studies, please refer to the DTU PhD Guide.

Assessment
The assessment of the applicants will be made by Professor Søren Forchhammer, email sofo@fotonik.dtu.dk in accordance with RealVision recruitment procedures.

Please do not send applications to this email address, instead apply online as described below.

We offer
We offer an interesting and challenging job in an international environment focusing on education, research, public-sector consultancy and innovation, which contributes to enhancing the economy and improving social welfare. We strive for academic excellence, collegial respect and freedom tempered by responsibility. Technical University of Denmark (DTU) is a leading technical university in northern Europe and benchmarks with the best universities in the world.

Salary and appointment terms
The salary and appointment terms are consistent with the current rules for PhD degree students. The period of employment is 3 years. The yearly salary before tax will comprise a living allowance of €50,493.96 and a mobility allowance of €7,200.00. An additional allowance of €6,000.00 may be payable but is dependent on individual family circumstances.

Further information
Further information may be obtained from Professor Søren Forchhammer, Group Leader of Coding and Visual Communication Technology, tel. +45 45253622 and email sofo@fotonik.dtu.dk.

You can read more about the Department of Photonics Engineering on www.fotonik.dtu.dk/english

Application
Please submit your online application no later than **June 24, 2018**. Kindly apply online at www.career.dtu.dk.

Applications must be submitted as **one pdf file** containing all materials to be given consideration. To apply, please go to the DTU webpage and open the link "Apply online," fill in the online application form, and attach **all your materials in English in one pdf file**. The file must include:

- A letter motivating the application (cover letter)
- Curriculum vitae
- Grade transcripts and BSc/MSc diploma (an official translation into English)
- Excel sheet with translation of grades to the Danish grading system (see guidelines and excel spreadsheet here)

Candidates may apply prior to obtaining their master's degree, but cannot begin before having received it. In addition, candidates must be in the first four years (full-time equivalent

research experience) of their research careers and not yet have been awarded a PhD degree.

Due to the mobility requirement of the European Commission for ITN projects, we can only accept PhD candidates that have not been working/living in Denmark for more than a total of 12 months within the last 3 years.

All interested candidates irrespective of age, gender, race, disability, religion or ethnic background are encouraged to apply.

The Department of Photonics Engineering (DTU Fotonik) has 220 employees with competences in optics and communication and is one of the largest centres in the world based on research in photonics. Research is performed within optics, communications, ultra-high speed optical transmission systems, coding for visual communication and photonics.

DTU is a technical university providing internationally leading research, education, innovation and public service. Our staff of 5,800 advance science and technology to create innovative solutions that meet the demands of society, and our 10,300 students are being educated to address the technological challenges of the future. DTU is an independent academic university collaborating globally with business, industry, government, and public agencies.