

# Dong Han

## CONTACT INFORMATION

Helsinki,  
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## EDUCATION

**Norwegian University of Science and Technology** - Norway  
**University of Granada** - Spain  
**University of Eastern Finland** - Finland  
**Jean Monnet University** - France

2020–2022

- M.Sc. in Computational Colour and Spectral Imaging (COSI)
- Erasmus Mundus Joint Master Degrees Program.
- Relevant courses: Computer Vision, Advanced Color and Image Processing, Data Science, Deep Learning for Visual Computing, Human perception and cognition, Advanced Color and Spectral Imaging, Color Science, Advanced Deep Learning.
- Master thesis: Deep Learning-Based Illumination SPD Estimation from an RGB Camera
- Average grade: B

**Dalian University**, Dalian

2016–2020

- B.Sc. in Optoelectronic Information Science and Engineering, full-time program.
- Overall GPA: 87/100.
- Bachelor thesis: Research on Optical Properties of Bimetal Nanospheres.

## PROJECT AND RESEARCH

- **Semantic Segmentation on Spectral Image with Deep Learning** 10/2021–11/2021  
University of Eastern Finland - Joensuu
  - The goal was to do segmentation on human placenta tissue hyperspectral images by using deep learning methods.
  - The variety of machine learning dimensionality reduction (PCA, MNF, ICA) was done as a data pre-processing step. The different deep learning models (UNet, UNet 3+, Swin-Unet) were implemented and compared.
  - The GUI was designed based on PySide2 for spectral image visualization and other basic image processing modules were integrated.
- **Spectral Image Segmentation and Human Perception** 5/2021–6/2021  
University of Granada - Granada
  - The goal was to do segmentation on spectral images and design a psychophysical experiment using corresponding RGB images by the Psychtoolbox Framework.
  - The segmentation was conducted on the spectral image by using K-means clustering algorithms and the Jaccard index was used to evaluate the results.
  - The psychophysical experiment was designed to study the effect of hue shifting and chroma shifting on human perceptions.
- **Online Shoppers Purchasing Intention Predication** 5/2021–6/2021  
University of Granada - Granada
  - The objective was to develop a predictive model by using R studio for the purchasing intention of an online store.
  - The different methods: KNN, LDA, Logistic Regression, Classification Trees, Random Forests, Artificial Neural Networks and Support Vector Machine were tested.
  - The data was analyzed and effective predictive models were built and evaluated.
- **Dilated CNN in Variable Splitting Network for Medical Image Denoising** 9/2020–12/2020  
Norwegian University of Science and Technology - Gjøvik

- The goal of this project was to implement and enhance the denoising process in image reconstruction.
- The CS-MRI concept was implemented for medical image reconstruction.
- A dilated CNN was applied for improving denoising performance.

• **Medical Imaging Denoising in Deep Learning** 9/2020–12/2020  
Norwegian University of Science and Technology - Gjøvik

- Reviewed 19 papers on the state of art deep learning denoising for medical image. The different denoising methods in deep learning were introduced in order to provide newcomers an extensive review.

WORKING  
EXPERIENCE

**Master Thesis Research Intern - Laboratoire Hubert Curien - France** 1/2022–8/2022

- The objective of the project is to investigate illumination spectral power distribution (SPD) estimation.
- The modified image signal processing (ISP) pipeline is implemented for modeling the sensor imaging.
- The synthetic dataset and captured dataset are proposed as SPD training database.
- The deep learning model 1D CNNs is proposed for the illumination estimation in order to predict lighting conditions in an unknown scenario.

**3D Printing Research Intern - Mihaly - France** 6/2021–7/2021

- The goal was to achieve certain similar glossiness in terms of human skin by using OpenCV to implement the algorithm and CMYK printer for printing.
- 3D skin printing can be a potential application since human skin has a certain microstructure that affects the most perception of customers.
- **Output:** The developed algorithm was able to simulate the glossiness of images, which was used for further 3D printing.

PUBLICATION

- **Medical Image Denoising in MRI Reconstruction Procedure** 11/9/2021  
◦ **Han, Dong**, and Ronny Velastegui. "Medical Image Denoising in MRI Reconstruction Procedure." International Conference on Computational Science and Its Applications. Springer, Cham, 2021.
- **The Importance of Color Spaces for Image Classification Using Artificial Neural Networks: A Review** 11/9/2021  
◦ Velastegui, Ronny, Linna Yang, and **Dong Han**. "The Importance of Color Spaces for Image Classification Using Artificial Neural Networks: A Review." International Conference on Computational Science and Its Applications. Springer, Cham, 2021.
- Lighting Spectral Power Distribution Estimation With RGB Camera accepted by SITIS2022

TECHNICAL  
SKILLS

- Programming Languages: Python, R, C++, LaTeX.
- Technical Softwares/Frameworks: OpenCV, PyTorch, Tensorflow, Keras, Scikit-Learn, PySide2, MATLAB, Visual Studio Code.

LANGUAGE

- Languages: Chinese (native speaker), English (IELTS 6.5), German (A2).

AWARDS

- Erasmus Mundus Master Scholarship (60 students selected in China) (2020)
- First Prize of Photoelectric Design Competition (Object recognition from speckle image) (2019)
- WangTeng Scholarship of Physics Faculty (for outstanding performance in math and physics) (2018)
- Best Student (top 8% at faculty) (2018)
- Second Prize of Computer Design Competition in Liaoning Province (2017)
- Third Prize of The Ninth National College Student Mathematics Competition (2017)