Fellow R7: Face skin analysis using multimodal imaging and machine learning methods

Closed position

Supervisor: Prof. Jacek Rumiński
Host institution: Politechnika Gdańska (**PG**), Gdansk, Poland
Duration: 36 months
PhD program: Doctoral school at Gdańsk University of Technology
Research group: Department of Biomedical Engineering
Secondments (short visits) at: Uniwersytet Mikolaja Kopernika W Toruniu (**NCU**, Poland), company **Sonmedica** (Spain) and **Carl Zeiss IQS Software R&D Center** (Poland).
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Objectives

To develop a **multimodal imaging system able to analyse facial skin vascularization maps** and detect skin anomalies, as well as developing dedicated **machine learning (ML) algorithms** to enhance thermal images and obtain maps of blood flow. The final goal will be to develop an algorithm to detect facial skin anomalies based on automatically generated maps and features using the DNN architectures.

What is offered

To work within an interdisciplinary environment, receiving training from leading experts in biomedical optics and machine learning in a full-time Ph.D. position for 36 months, in which living and mobility costs will be fully covered with a gross salary of approximately 31,242.12 € per year.

Required skills

We are seeking an enthusiastic, self-motivated Ph.D. candidate who has a **strong foundation in machine (deep) learning** with a **strong interest in image processing** methods and signal processing methods applied in the (bio)medical domain. The applicant must have **proficiency and experience in Python programming**, development of deep learning models for image classification or regression using PyTorch or TensorFlow frameworks, evaluation of machine learning models, and development of image processing methods. A solid background in mathematics is required. Demonstrated skills in written and oral English are required. **A master's degree** (recognized by the host country) is required, with a profound background **in computer science or physics/biomedical engineering/electrical engineering** with a record of training in computer science courses (as a part of M.Sc.

curricula or other). The Ph.D. candidate must fulfil the requirements of the Doctoral School recruitment in the host country.

Additional skills

- Ability to work in an interdisciplinary environment.
- To have a record of publications in scientific journals or conference proceedings.
- Effective communication skills.
- Self-driven and independent research skills.
- Adaptability and problem-solving.
- Clinical knowledge.