Aufgabenstellung

Modul:	Dept I BAA FS24

Titel:	Automated Image Quality Assessment in Teledermatology
Ausgangslage und Problemstellung:	ABIZ has been researching artificial intelligence applications in dermatology for the past decade with the objective to develop decision support systems to effectively support clinical practice. In collaboration with the University Hospital of Basel and the Swiss company Derma2go, we are tackling the issue of automatically assessing the quality of patient images for diagnosis, since this factor heavily impacts the effectiveness of teledermatology worflows.
Ziel der Arbeit und erwartete Resultate:	The objective of this work is to conduct an extensive review of state-of-the-art quality assessment methods in the general image domain and evaluate how they can be applied to teledermatology. The project deliverables include: - A comprehensive review of state-of-the-art image quality assessment methods. - A review of image quality criteria for teledermatology diagnosis. - An evaluation of selected quality assessment methods on public dermatology datasets. - A well-written repository enabling to reproduce reported results and assess the quality of new patient images.
Gewünschte Methoden, Vorgehen:	The project will start with a literature review of existing quality assessment methods and patient image quality criteria in dermatology. Together with the supervisor, adapted methods will be selected, which the student will then evaluate on public dermatology datasets. The student will present his work to the supervisor on bi-weekly meetings. One day before the meeting, the student will share a 1-page document describing in bullet points: - What work was performed during the last reporting period. - What work is planned for the next period. - Project status, comparison with planning, reasons for deviations if applicable. - Top three risks incl. planned measures. For the meeting, the student will prepare slides to present these information in more details.
Kreativität, Methoden, Innovation:	This thesis will encourage innovative approaches, including but not limited to proposing new metrics and relevant changes to adapt methods to the teledermatology context. The student will have the opportunity to fine-tune deep learning models on public dermatology datasets and work closely with both clinicians and researchers from ABIZ and the partner institutions.
Sonstige Bemerkungen:	Candidates should have a strong background in computer science. Prior experience with medical imaging or teledermatology is beneficial but not mandatory. The project will require a creative approach to problem-solving and an eagerness to work in interdisciplinary teams.

Projektteam

Student:in 1:	Choekyel Nyungmartsang
Betreuer:in:	Dr. Ludovic Amruthalingam

Auftraggeber

Firma:	Algorithmic Business Research Lab
Ansprechperson:	Dr. Ludovic Amruthalingam
Funktion:	
Strasse:	
PLZ/Ort:	
Telefon:	+41 41 349 30 74
E-Mail:	ludovic.amruthalingam@hslu.ch
Website:	

Version 13.06.2023 / bcl