Project Title	Learning from noisy labels by EczemaNet
Supervisor	Dr Reiko Tanaka
Theme(s)	Computational and Theoretical Modelling Medical Devices
Project Type	Desk based
Project Description	Eczema is the most common form of skin disease. The eczema severity is currently assessed by trained clinical staff. However, the subjective nature of assessing these disease signs could be a source of significant inter and intra-observer variability.Our group recently developed EczemaNet, a prototype novel computer vision pipeline for automated evaluation of eczema severity from camera images (Pan, Hurault et al. 2020). EczemaNet uses a CNN that first detects areas of AD from camera images and then makes probabilistic predictions of the severity of seven clinical signs of AD. EczemaNet was trained using the camera images with eczema severity scores provided by trained clinical staff. However, the severity scores may have inter-rater variability, resulting in noisy labels. This project aims to further improve EczemaNet by achieving a better generalisation capability in the presence of noisy labels. The student is expected to review, implement, and validate the image analysis pipeline using off-the-shelf deep-learning and image analysis techniques and software packages to improve the prediction accuracy in the presence of noisy labels.

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