

Why statistics plays an important part in my research

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Abstract

Traditionally, tongue diagnosis depends solely on personal knowledge and experience of the practitioner. Lack of scientific verification and manifestation of low agreement in diagnosis are critical issues frequently debated and challenged by healthcare providers. This situation is expected to change with the development of Automatic Tongue Diagnosis System (ATDS). The ATDS is developed to extract a variety of tongue features and provide practitioners with objective information to assist diagnoses. ATDS can serve as a clinical medical device, teaching tool and dynamic evaluation system. The reliability validation of ATDS is performed to derive the intra-observer agreement of both ATDS and TCM doctors, and the inter-observer agreement between ATDS and TCM doctors. Statistics plays a vital part in this validation stage. The high agreement of ATDS demonstrated can provide objective and reliable tongue features to facilitate doctors in making effective observation and diagnosis of specific diseases. After the reliability validation, ATDS now targets on large-scale sampling of specific diseases, hoping to derive representative visual indices and providing non-intrusive screening means to the early detection of diseases. Three kinds of experts are indispensable in this work, namely, TCM doctors, engineer and statistician. Among them, statistics plays an even more important part in analyzing large amounts of data and deducing meaningful results.