

Smartphone-Based Photogrammetry for Localization of Functional Near-infrared Spectroscopy Channels

Tatsuya Suzuki¹

Yumie Ono¹

¹ Meiji University

Functional near-infrared spectroscopy (fNIRS) requires accurate spatial localization of the fNIRS channel. Although structured-light 3D scanning has been recently introduced as an accurate and mobile channel localization technology for the conventional electromagnetic digitizer method, it still requires a specialized depth sensor for the measurement. We investigated the use of a smartphone-based photogrammetry application to generate a 3D head model and compared its accuracy in detecting fNIRS channel positions with the 3D scanning method. The median Euclidian distance between the channel positions measured by the 3D scanning method and photogrammetry was 1.20 mm, demonstrating the usefulness of photogrammetry as a low-cost and easy-to-use head digitizing method.