

4th Global Experts Meeting on

PARKINSON'S & MOVEMENT DISORDERS

May 14-15, 2018 Singapore

Usefulness of gait-aid system using smart glasses for freezing gait of parkinson's disease

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Background & Objective: Parkinson's Disease (PD) is a chronic progressive disease caused by loss of dopaminergic neurons in the substantia nigra, degenerating the nervous system of a patient over time. PD symptoms can cause gait disturbance such as Freezing Of Gait (FOG) for patients. Meanwhile, a recent study shows that the gait of PD patients experiencing FOG can be significantly improved by providing the regular visual or auditory patterns for the patients.

Method: Our android based gait-aid system continuously monitors the gait of a PD patient to detect FOG with wearable sensors and upon detection of FOG, it projects the most effective visual patterns on the glasses as if the patterns were actually on the floor.

Result: We demonstrate that our system improves the gait speed and stride length of PD patients by 23% and 36%, respectively. Moreover, our system is much safer than the existing systems where the visual patterns may block the wearer's sight.

Conclusion: Our gait-aid system based on smart glasses can be adapted for and applied to FOG of PD.

Biography

Jung-Eun Kim is currently working as a Senior Researcher in Kyungpook National University Chilgok Hospital. She has received her Master's degree from Kyungpook National University in Electrical Engineering and Computer Science. She has worked as a Clinical Research Coordinator from 2005 to 2012 in Kyungpook National University Hospital, South Korea. Her research interests include parkinson's disease, dementia and other neurological diseases.

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