

Wearable solution for suppression of hand tremors

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Hand tremor can be debilitating, interfering with everyday activities such as eating and drinking, writing, and use of technology. It can also be indicative of a serious underlying health problem.

Dana Vishnu, G.A. Dhanush, S. Siddharth, and Kiran S. Raj of the Department of Computer Science and Engineering at the Amrita School of Engineering in Coimbatore and Shriram Vasudevan of Software Services MNC in Bengaluru, explain that most tremors in a person's hands are not critical medical issues nor life-threatening, but can interfere with normal life and for some may cause embarrassment.

The problem facing healthcare when it comes to hand tremor is that there are many different types of tremors with a range of causes. There are ways to address the problem in some cases, but the conventional solutions work only with one specific type of tremor. There is no current medical intervention to relieve hand tremor.

Work from India published in the *International Journal of Intelligent Systems Technologies and Applications*, discusses a wearable solution to hand tremor in the form of an electronic glove and a feedback system linked to software that the user can access and control. The device can detect problematic muscle activity in the hand and suppress it safely without interfering with conscious movements.

The team explains their approach: "Our system contains two models that work together in order to reduce the tremors," the researchers write. "The first model is a time series analysis model which is used to predict the hand tremors in advance and the second model is a deep learning LSTM model which receives input from the previous model along with the signal from actuators and figures out the correct intensity that reduces [hand](#) tremors of the patient."

The next stage of the research will be to reduce the "handprint" of the glove by streamlining the circuitry and wiring. In addition, the team hopes to be able to improve latency so that the response to involuntary movements can be made by the technology much faster. Finally, they hope to unshackle the device from the internet with software that is on-

board and so the glove functions entirely autonomously addressing the patient's needs.

More information: Dana Vishnu et al, Innovative and affordable wearable solution for suppression of hand tremors, *International Journal of Intelligent Systems Technologies and Applications* (2022). [DOI: 10.1504/IJISTA.2021.120523](https://doi.org/10.1504/IJISTA.2021.120523), www.inderscienceonline.com/doi/10.1504/IJISTA.2021.120523

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