

### 1. Personal Information

<b>First Name</b>	Wen-Chao
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### 2. Curriculum Vitae

#### ◆ Educational Background & Experience

Year	Affiliation	Position
2009.8-Now	Shanghai University of Traditional Chinese Medicine	Teacher
2012.9-2015.7	Shanghai University of Traditional Chinese Medicine	Ph.D.
2006.9-2009.7	Shanghai University of Traditional Chinese Medicine	Master
2001.9-2006.7	Zhejiang University of Traditional Chinese Medicine	Bachelor

#### ◆ Publications

No.	Contents
1	Xu L, Gong H, Zhong Y, Wang F, Wang S, Lu L, Ding J, Zhao C, Tang W, Xu J. Real-time monitoring of manual acupuncture stimulation parameters based on domain adaptive 3D hand pose estimation. Biomedical Signal Processing and Control. 2023 May 1;83:104681.
2	Wang BG, Xu LL, Yang HY, Xie J, Xu G, Tang WC. Manual acupuncture for neuromusculoskeletal disorders: the selection of stimulation parameters and corresponding effects. Frontiers in Neuroscience. 2023 Jan 30;17:1096339.
3	Su C, Wang C, Gou S, Chen J, Tang W, Liu C. An action recognition method for manual acupuncture techniques using a tactile array finger cot. Computers in Biology and Medicine. 2022 Sep 1;148:105827.
4	Lyu R, Gao M, Yang H, Wen Z, Tang W. Stimulation parameters of manual acupuncture and their measurement. Evidence-Based Complementary and Alternative Medicine. 2019 Aug 28;2019. manipulation. JoVE (Journal of Visualized Experiments). 2021 Oct 28(176):e62750.
5	Tang WC, Yang HY, Liu TY, Gao M, Xu G. Motion Video-Based Quantitative Analysis of the ‘lifting-Thrusting—Method: A Comparison between Teachers and Students of Acupuncture. Acupuncture in Medicine. 2018 Feb;36(1):21-8.

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# ICMART 2024

## 37<sup>th</sup> ICMART World Medical Acupuncture Congress

September 27 – 29, 2024 | Shinhwa World, Jeju, Korea

### 3. Abstract

Lecture Title	The measurement of manual acupuncture stimulation parameters and its application prospects
<p>Manual acupuncture (MA) involves specific finger manipulations that drive the translation, rotation, or tremor of the acupuncture needle, producing different therapeutic effects. The selection of stimulation parameters like frequency and depth plays a crucial role in determining outcomes. However, quantifying and measuring these parameters remains challenging, hindering standardization and reproducibility of research.</p> <p>This work reviews progress in quantitative research and measurement instruments for MA manipulations. Theoretical studies have identified kinematic (amplitude, velocity, acceleration), kinetic (force), and temporal (frequency, duration) stimulation parameters. While some guidance on parameter values exists, a rigorous system is lacking. Measurement approaches have modified the needle body with sensors or the operating environment using specialized apparatuses. Recently, camera-based motion-tracking has enabled kinematic analysis without altering needle or surroundings. However, no solution simultaneously measures kinematic and kinetic parameters without affecting natural operation.</p> <p>Overcoming this bottleneck by developing accurate tools would enable standardization of MA techniques, improve acupuncturist training, and facilitate clinical efficacy research. Quantifying stimulation parameters could also pave the way for novel devices precisely controlling and modulating stimulation, expanding clinical applications of this ancient therapy.</p>	

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