

	Name	Chang, Chih-Hung (張志宏)
	Country	United States of America
	Official Title	Professor
	Department	Occupational Therapy, Medicine, and Orthopaedic Surgery
	Institute	Washington University School of Medicine in St. Louis
	Telephone / Fax	+1 (314) 747-7957
	E-Mail	chih-hung.chang@wustl.edu
	Mailing Address	4444 Forest Park Avenue, MSC 8505-66-1, St. Louis, Missouri 63108-2212, USA
Education Background	1987: BS in Psychology, National ChengChi University, Taipei, Taiwan 1995: PhD in Research Methodology and Quantitative Psychology, University of Chicago, Chicago, Illinois, USA	
Professional Career	2023-present Visiting Professor, Chang Gung University, Taiwan 2022-present Visiting Professor, Taipei Medical University, Taiwan 2021-2023 Co-Editor-in-Chief, Journal of Patient-Reported Outcomes 2020-present Joint Appointed Research Fellow, National Research Institute of Chinese Medicine, Taiwan 2019-present Visiting Professor, China Medical University, Taiwan 2018-present Professor, Washington University School of Medicine in St. Louis, USA 2013-present Faculty Affiliate, Center for Health Statistics, University of Chicago, USA 2012-2018 Director of Clinical Outcomes and Infometrics, Shirley Ryan AbilityLab, USA 2010-2018 Adjunct Professor, China Medical University, Taiwan 1999-2018 Professor, Northwestern University Feinberg School of Medicine, USA 1995-1999 Assistant Professor, Rush University, USA	

Speech Title

AI in Healthcare: Bridging Ancient Wisdom and Modern Technology in
Traditional Chinese Medicine
(醫療 AI 新視野：融合中醫古智慧與現代科技)

Big data and artificial intelligence (AI) are transforming Traditional Chinese Medicine (TCM), offering powerful tools to enhance screening and diagnosis, body constitution profiling, personalized care, and practitioner development. This transformation is unfolding across four key areas:

First, diagnostic objectivity is advancing through technologies such as computer vision, biosensors, and wearable devices. These tools extract measurable features from traditional signs—like tongue color, pulse waveform, and facial complexion—and convert them into digital biomarkers using deep learning models and image processing techniques. This promotes diagnostic consistency, standardization, and improved clinical training.

Second, AI-driven pattern discovery uses machine learning (ML) methods, including unsupervised clustering, association rule mining, and natural language processing (NLP). Large Language Models (LLMs) support interpretation of classical texts, clinical notes, and case records, revealing semantic patterns among syndrome types, body constitution classifications, and treatment outcomes. These insights inform more precise herbal prescriptions, lifestyle interventions, and personalized care plans.

Third, individualized predictive modeling integrates constitution-based assessments with multimodal data—such as genomics, behavioral factors, and environmental exposures—using predictive ML algorithms to forecast disease risk and long-term health outcomes. This enables early, constitution-guided prevention consistent with TCM’s principle of “treating before illness manifests.”

Fourth, dynamic assessment of TCM practitioner competencies is powered by Item Response Theory (IRT), Computerized Adaptive Testing (CAT), and conversational AI chatbots. These systems evaluate diagnostic decision-making and provide adaptive feedback and precision education, while AI chatbots serve as intelligent tutors—offering real-time guidance, answering clinical questions, and supporting lifelong learning.

Together, these innovations bridge classical theory with modern computation, empowering TCM to evolve as a data-driven, adaptive, and globally relevant system of personalized medicine—enhanced by interactive, AI-powered tools for both practitioners and patients.