CURRICULUM VITAE
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I. Current Position:

Emeritus Professor, Department of Radiology, Taipei Veterans General Hospital (VGH-TPE)
Professor, School of Medicine, National Yang Ming Chiao Tung University, Taiwan
Head, Medical Solutions, Taiwan AI Labs, Taipei, Taiwan
Consultant, AI Center for Medical Diagnosis, CMU Hospital, Taichung, Taiwan
President, The World Federation of Neuroradiological Societies (WFNRS, 2022-2026)
Co-Founder, AItewan BioMed Technology Inc.

II. Education

a) Undergraduate	1974-1981 Medical Doctor, China Medical University (CMU), Taiwan
b) Graduate	1989-1993 PhD, Karolinska Institute (KI), Stockholm, Sweden

III. Professional Experience

1981-1983	Military Surgeon
1983-1989	Residency and attending radiologist in Dept. of Radiology, VGH-TPE
1989-1993	Fellowship, Dept. of Neuroradiology, Karolinska Hospital, Stockholm, Sweden
1994-2006	Chief, Division of MRI, Dept. of Radiology, VGH-TPE
2006-2016	Chief, Division of Neuroradiology, Dept. of Radiology, VGH-TPE
2006-2010	Member-at-large, World Federation of Neuroradiological Societies (WFNRS)
2010-2013	President, The Neuroradiological Society of Taiwa (NRST)
2013-2016	President, The Chinese Taipei Society of Radiology (CTSR)
2014-2018	Member, Executive Committee, WFNRS
2014-2018	President, XXI SNR-Symposium Neuroradiologicum （2018 World Congress of Neuroradiology, Taipei, Taiwan）
2018-2022	President-Elect/Vice President, WFNRS
2016-2022	Professor and Chairman, Department of Radiology, VGH-TPE, Taiwan
2005-present	Professor, School of Medicine, National Yang Ming Chiao Tung University,Taiwan
2022-present	Emeritus Professor, Department of Radiology, VGH-TPE

IV. Honors

1. Derek Harwood-Nash Pediatric Neuroradiology Scholarship 1998, The Hospital for Sick Children university of Toronto, Toronto, Canada
2. Visiting Professor, Division of Pediatric Neurosurgery, Department of Neurosurgery, Jikei University, School of Medicine, Tokyo, Japan, Aug 14-21, 2004
3. Honorary Member, American Society of Neuroradiology (2014)
4. Honorary Member, American Roentgen Ray Society (2015)
5. Honorary Member, KCR-AOCR (2022)
6. Foreign Honorary Member, JSNR (Japanese Society of Neuroradiology) (2024)
7. Honorary Member, ANRA/FAARDIT (2024)

V. Publications and Lectures

Hundreds of publications and hundreds of domestic and international invited speeches.
Five SCI Journals cover story papers

VI. Research Interest

Artificial Intelligence (Medical Imaging), Neuroimaging, Fetal Imaging, Brain Tumors, Radiosurgery, Cerebral Vascular Disorders, Diagnostic Radiology, Quantitative Imaging.

Implementation of Imaging AI in Radiosurgery and Beyond

Wan-Yuo Guo

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Introduction

Imaging AI holds immense potential across various clinical applications. In medical imaging, AI aids clinicians in identifying and segmenting anatomical structures or pathologies in images, such as tumors, organs, or blood vessels. Its capabilities include pattern recognition, such as detecting nodules in lung CTs or hemorrhages in brain MRIs, and performing quantitative analyses, such as measuring tumor volumes or changes in tissue density to guide treatment planning. Particularly in radiosurgery, AI's impact is significant due to key factors like imaging-guided procedures, computational intensity, and the need for longitudinal monitoring of therapeutic effects. Imaging AI can optimize radiosurgical workflows, supporting neurosurgeons, neuroradiologists, radiation oncologists, nuclear medicine specialists, and other clinicians, especially when the AI is seamlessly integrated into clinical services.

Clinical Applications of Imaging AI in Radiosurgery

Imaging AI has a variety of clinical applications, including: Detecting target lesions, Segmenting and defining target volumes, Integrating AI models with treatment planning systems, Quantitatively monitoring treatment responses, Adjusting treatment regimens as needed.

"Multi-Model" and "Multi-Modal" AI

The integration of "multi-model" AI, which targets organ- or disease-specific imaging, offers clinicians a comprehensive approach to imaging diagnosis, cancer staging, and treatment planning. In contrast, "multi-modal" AI combines data from laboratory results, pathological findings, and imaging, providing a broader perspective that helps develop more effective treatment strategies.

Federated Learning in Radiosurgery

Federated learning (FL) provides a machine learning framework that leverages data from multiple institutions to create extensive clinical datasets, such as electronic health records (EHRs), imaging, genomics, speech reports, and disease coding. In radiosurgery, FL enhances the development of AI models by enabling collaborative training across institutions without sharing sensitive patient data. This decentralized approach ensures data privacy while allowing the creation of generalized, robust AI models with a higher clinical impact. Importantly, FL ensures that AI models remain trustworthy, transparent, interpretable, and clinically verifiable.

Large Language Models in Clinical Decision-Making

Large Language Models (LLMs) have transformed various industries, including healthcare, by revolutionizing natural language processing. In medicine, LLMs offer valuable assistance by interpreting vast amounts of medical literature and providing clinical advice. Integrating LLMs with computer vision has opened new opportunities for clinical decision-making, where systems can analyze imaging characteristics to identify patterns and abnormalities.

These systems, powered by Chain of Thought (CoT), and Retrieval-Augmented Generation (RAG) techniques, can recognize specific imaging features, correlate them with clinical data, and suggest potential diagnoses. This capability supports clinicians in interpreting imaging studies, proposing potential conditions, and crafting personalized treatment strategies.

The Future of AI in Radiosurgical Services

AI's role in the ecosystem of radiosurgery is poised to expand. In the near future, AI models will become even more integral to radiosurgical services, assisting clinicians with initial reads, triaging imaging studies, and optimizing workflows of treatments. Ultimately, AI will enhance treatment outcomes by facilitating more precise and effective therapeutic interventions.