PRESIDENT'S SCIENCE & TECHNOLOGY AWARDS

YOUNG SCIENTIST AWARD 2024

Daniel Ting Shu Wei
Senior Consultant (Surgical Retina)
Chief Data and Digital Officer
Singapore National Eye Center

Director
AI Office
SingHealth

"For his significant contributions to AI in ophthalmology and healthcare, and his pioneering work in deep learning, generative AI, and trustworthy AI, advancing global ocular health."

Dr Daniel Ting Shu Wei is a senior consultant vitreo-retinal surgeon working in the Singapore National Eye Center (SNEC), an Associate Professor with Duke-NUS Medical School and an Adjunct Clinical Associate Professor and an Innovation Mentor at Stanford University. He is also the Director of Singapore Health Service (SingHealth) AI Office, SNEC Chief Data and Digital Officer, and the Head of AI and Digital Innovation in Singapore Eye Research Institute (SERI). He also represents SingHealth at the Ministry of Health AI Steering Committee.

Dr Ting has made significant contributions to the fields of AI in ophthalmology and healthcare, focusing on the development of safe, ethical, and responsible AI applications. His research integrates advanced technologies such as machine learning, deep learning, and trustworthy AI to address critical challenges in global eye health. With over 300 publications, including 50 in high-impact journals like JAMA, NEJM, and Lancet, his work has been instrumental in advancing the field. A key example is SELENA+, a deep learning algorithm for detecting major blinding eye diseases including diabetic retinopathy, glaucoma and age-related macular degeneration, which has been used in over 500,000 screenings worldwide.

Motivation for this groundbreaking work is deeply rooted in a commitment to improving global health outcomes and advancing health equity. Passion for both the technical and ethical aspects of AI drive his mission to develop innovative tools that enhance diagnostic accuracy while ensuring patient safety and data privacy. This dedication is further demonstrated in contributions to international AI standards and guidelines, such as STARD-AI, QUADAS-AI, and DECIDE-AI, which are essential for the safe and reliable use of AI in clinical practice.

A comprehensive approach to research, combining cutting-edge AI technologies with practical clinical applications, distinguishes Dr Ting's work. The primary objective is to reduce the global burden of eye and systemic vascular diseases. Beyond SELENA+,

research innovations have extended to areas such as myopia, diabetic macular edema, chronic kidney disease, and generative AI for structured data, medical imaging, and electronic health records. These advancements are not only implemented in clinical settings but are also transitioning into new startups and licensing agreements, broadening their impact.

The impact of Dr Ting's research is vast, benefiting patients who receive early and accurate diagnoses, healthcare systems that access cost-effective AI tools, and the medical community through the adoption of global AI consensus standards and guidelines. Recognition for his work includes prestigious local and international awards, such as the USA Evangelos Gragoudas Award, USA ARVO Bert Glaser Award for Innovative Research in Retina, MICCAI OMIA Prestigious Achievement Award, Tatler Asia Gen T Award, and Singapore NMRC Clinician Scientist Award. Global recognition is further underscored by consistent inclusion in the World's Top 100 Ophthalmology Power list by The Ophthalmologist (2022-2024) and ranking as a Top 3 Deep Learning AI Researcher over the past 13 years among more than 100,000 researchers worldwide (2011 to 2024) by ExpertScape.

Mentorship of the next generation of researchers is a key focus of Dr Ting's work, with an emphasis on fostering innovation and collaboration across institutions. His educational philosophy, centered on kindness, collaboration, and excellence, inspires mentees to dream big, work hard, and make meaningful contributions to the field. Through continued research and mentorship, Dr Ting aims to further enhance Singapore's research, innovation, and startup ecosystems, particularly in AI and digital health. He is committed to ensuring sustained global leadership and a strong pipeline for the next generation of Singaporeans to compete in the global AI race for health. This vision is not only about fostering individual success but also about establishing Singapore as a global hub for technological innovation and entrepreneurship.