

# 專題演講

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題目：Deep learning in trauma and critical care medicine.

摘要：

Trauma is a potentially lethal condition. Early intervention is essential to save the patient's life and rapidly identify the injured organ. The physician must read various information and images in a short time and high-pressure environment.

Deep learning is proven effective in several medical image domains. The application of deep learning in trauma includes hemorrhage detection of brain CT, fracture detection of the chest and pelvic X-ray, and fluid detection in ultrasonography.

In the trauma department of Linkou Chang Gung Memorial Hospital, we aim to apply deep learning algorithms to various critical trauma image modalities to develop a computer-aided diagnosis system. We have successfully developed fracture detection models in pelvic X-rays, rib fracture detection models in chest X-rays, and spleen injury identification models in abdominal computed tomography.

In the future, we aim to conduct this system in the clinical information system. We aim to apply these models to the trauma image warning system and provide a computer-assisted diagnosis of trauma patients' critical injuries at all hospitals. We can improve trauma care quality and save patients' lives by diagnosing severe injuries early.

簡歷：

## Biography

Dr. Chi-Tung Cheng is an associate professor of the trauma and emergency department in Chang Gung Memorial Hospital, Linkou branch. He is also a Ph.D. in the biomedical engineering field and was a visiting scholar of the Johns Hopkins Malone center for engineering in healthcare. As a trauma surgeon, he focuses on applying novel technology to improve the quality of trauma and critical care. He is working on developing AI to assist diagnosis in the clinical scenario. His publication across medical databases, imaging, AI, and computer science fields.

## Honors/ Awards

18<sup>th</sup> National Innovation Award, Taiwan, 2021

17<sup>th</sup> National Innovation Award, Taiwan, 2020

"Most Downloaded Paper Award 2019", European Society of Radiology, 2019

Outstanding teaching physician at Chang Gung Memorial Hospital, 2016

Resident Excellent Paper Award of Taiwan Gastroenterology Society, 2011

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Resident Excellent Paper Award of Taiwan Gastroenterology Society, 2011