

STATIC & ROTATIONAL EQUILIBRIUM

Units 15 & 3 Dr John P. Cise,

Professor of Physics, Austin Community College, 1212 Rio Grande St., Austin Tx. 78701 & NYTimes October 19,2012 by Rachel Saltz

MOVIE REVIEW

Mystical Tai Chi Against a Giant Machine

From China, Stephen Fung's 'Tai Chi Zero'



Jayden Yuan as an outsider who leads a village of martial-arts experts as they fight for their town in "Tai Chi Zero," directed by Stephen Fung.

Directed by Stephen Fung In Mandarin, with English subtitles

1 hour 34 minutes

Can you fight progress and the West? In "[Tai Chi Zero](#)," a village of martial-arts adepts battles the forces of modernity. It's the late 19th century, and a giant, steam-belching metal machine lies in wait to crush the town for the coming railroad; soldiers use guns against villagers when kung fu fails; and a fellow educated abroad has introduced gramophones and ... coffee!

INTRODUCTION: This Tai Chi fighter at left hits the guy on head with force F_2 . At that instant the pole is in static and rotational equilibrium. Distance from left hand to right hand is 1.5 ft. Distance from right hand to center of mass is 1 ft. Distance from center of mass to guys head is 2 ft.

QUESTION: Find force F_1 and F_2 using condition concepts for static and rotational equilibrium. $\Sigma F_y = 0$
 $\Sigma \tau = 0$

ANSWERS: $F_2 = 28.89$ lb.
 $F_1 = 51.11$ lb.