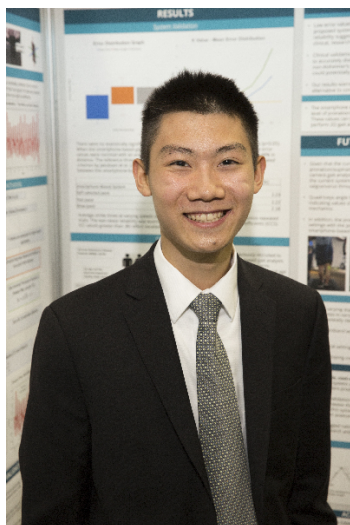


# CWSF 2019 - Fredericton, New Brunswick



## Kai Leong

### Smartphone-Based Gait Analysis: A Boon for Disease Diagnosis

**Challenge:** Innovation

**Category:** Senior

**Region:** Greater Vancouver

**City:** Vancouver, BC

**School:** Killarney Secondary

**Abstract:** Changes in gait have been validated to predict and screen for neurodegenerative diseases, fall risk, and chronic health conditions. Thus, an accessible, economical, and versatile smartphone-based gait analysis system was developed to provide quantitative measures of walking, allowing for earlier and more accurate disease diagnosis. The proposed system has the potential to be used in clinical, research and home-settings.

#### Biography

Kai Leong is a 12th-grade student in Vancouver, BC. After his grandmother's diagnosis with Alzheimer's disease, Kai was inspired to develop a tool to improve and expedite the process of neurodegenerative disease detection. He hopes that, with further research, gait analysis can be an accessible tool available to the general public in both the developed and developing world. Outside of his research endeavors, Kai works as a facilitator at Here4Peers where he spreads awareness about mental health in his local community. In his spare time, Kai thoroughly enjoys hiking, playing the piano, and trying new foods. In the future, Kai intends to pursue a career in research pertaining to neurodegenerative disease diagnosis and treatment.

#### Awards

#### Value

International Summer School for Young Physicists Award - Senior Sponsor: Perimeter Institute for Theoretical Physics	\$3 500
S.M. Blair Family Foundation Award - Senior Sponsor: S.M. Blair Family Foundation	\$1 000
Ted Rogers Innovation Awards - All categories Sponsor: Rogers Communications Inc.	\$2 000
Excellence Award - Senior - Gold Medal Sponsor: Youth Science Canada	
Dalhousie University Faculty of Science Entrance Scholarship Senior Gold Medallist - \$5000 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$5 000
UBC Science (Vancouver) Entrance Award Senior Gold Medallist - \$4000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$4 000
University of Manitoba Entrance Scholarship Senior Gold Medallist - \$5000 Entrance Scholarship Sponsor: University of Manitoba	\$5 000
University of New Brunswick Canada-Wide Science Fair Scholarship Gold Medallist - \$5000 Entrance Scholarship Sponsor: University of New Brunswick	\$5 000
University of Ottawa Entrance Scholarship Senior Gold Medallist - \$4,000 Entrance Scholarship Sponsor: University of Ottawa	\$4 000
Western University Scholarship Gold Medallist - \$4000 Entrance Scholarship Sponsor: Western University	\$4 000
Youth Can Innovate Awards - Senior Sponsor: The Gwyn Morgan and Patricia Trottier Foundation	\$1 000
China Adolescents Science and Technology Innovation Contest (CASTIC) Sponsor: Youth Science Canada	\$2 500
International Swiss Talent Forum (ISTF) Sponsor: Youth Science Canada	\$2 000
<b>Total</b>	<b>\$39 000</b>

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