

CWSF 2012 - Charlottetown, Prince Edward Island



Raymond Wang

Smart Knee Assistant

Challenge: Innovation

Category: Junior

Region: Greater Vancouver

City: Vancouver, BC

School: St George's School

Abstract: Knee conditions are a prominent health issue. Through analyzing the typical biomechanical movement of the legs during stair-climbing, a Magneto-Rheological composite support core, coupled with a movement responsive control system, was innovated as the solution. In contrast to traditional knee orthotics, the Smart Knee Assistant provides dynamically adapting knee support. Tests proved my innovation feasible to improve the execution of everyday tasks like stair climbing.

Biography

I attend Grade 8 at St. George's School in Vancouver, BC as a top academic and student council representative. Science has always been one of my strongest passions, applying my observation, creativity, research, and problem solving skills to tackle long standing problems and potentially benefit society. After exhibiting a Gold Medal project at CWSF 2011, I am excited to return for my second CWSF. In my spare time, I enjoy making music, whether perfecting my ARCT Diploma in Piano, mastering my RCM 10 Clarinet Repertoire, teaching myself the French Horn, or composing original works with MIDI workstations. Being an avid animator, I have also produced various award winning shorts for local film festivals. I participate in several sports, including Swimming, Tennis, Basketball, and Curling. Computer sciences have always fascinated me. I started reading computing manuals at age 3, installing my first OS at age 7. I am training myself for various certifications, while learning programming languages like LISP and BASIC. Actively involving myself with world happenings, I have been recognized through activities like Model UN. I created a newspaper in Grade 5, named "Dragon's Monthly" that involved everyone in my class to report on world issues and promote eco-friendly activities.

Awards

Value

S.M. Blair Family Foundation Award - Junior Sponsor: S.M. Blair Family Foundation	\$500
Excellence Award - Junior - Gold Medal Sponsor: Youth Science Canada	\$1 500
Western University Scholarship Gold Medallist - \$4000 Entrance Scholarship Sponsor: Western University	\$4 000
Total	\$6 000