

## CWSF 2010 - Peterborough, Ontario



### Michael Yuan

#### A Greener Wind: Designing A More Efficient Wind Turbine Blade

**Division:** Health Sciences

**Category:** Senior

**Region:** Northwestern Ontario

**City:** Thunder Bay, ON

**School:** St. Ignatius S.S.

**Abstract:** A more efficient wind turbine blade was designed using moveable flaps on the blade's trailing edge. The flaps changed the blade's angle of attack and airfoil shape to attain greater efficiency relative to wind speed. As a result, the turbine's cut-out (maximum) speed increased and its cut-in (minimum) speed decreased. The innovative use of flaps showed an increase in turbine efficiency up to 60%.

#### Biography

I was born in Montana in 1992 and have lived in several states. My family moved to Thunder Bay, Ontario in 2001. I am in grade 11 at St. Ignatius High School. During school, I am active in science fair, math competitions, the debate team, and the mountain biking club. Outside of school I train with a Tae Kwon Do competition team and will be testing for my black belt soon. I enjoy biking, hiking, skiing and everything outdoors. My family and I have traveled all over North America, Asia, and Europe. Two years ago I lived in Sweden for six months for my dad's work, and then traveled around Europe for 10 weeks. This year I hope to get some research experience and learn more about the many science based career choices available to me.

#### Awards

#### Value

|  |              |
|--|--------------|
| Honourable Mention - Earth & Environmental Science - Senior<br>Sponsor: Suncor Energy Inc. | \$100        |
| <b>Total</b>   | <b>\$100</b> |

