

CWSF 2007 - Truro, Nova Scotia



Tavian Barnes

The Carom Physics Engine

Division: Earth & Environmental Sciences / Automotive

Category: Intermediate

Region: Calgary Youth

City: Calgary, AB

School: Queen Elizabeth Junior Senior High School

Abstract: This project focused on the development of a physics engine, a computer library that will predict the results of certain scenarios using the laws of physics; specifically, Newtonian mechanics. Carom is a high-precision physics engine written mostly in standard C++, with two routines optimized using assembly, and some components relying on C99 features. It features built-in high-precision numerics, and some original algorithms.

Biography

Tavian Barnes is a Grade 10 student in Calgary, Alberta. He enjoys math, physics, and computers, all of which he has used in his project. He also enjoys writing and music. He is a member of the debate team, and the stage and jazz bands at Queen Elizabeth High School. Outside of school, he plays piano professionally.

Awards

Value

The University of Western Ontario Scholarship Silver Medallist - \$1500 Entrance Scholarship Sponsor: University of Western Ontario	\$1 500
The University of Western Ontario Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Western Ontario	\$1 000
Bronze Medal - Automotive - Intermediate Sponsor: AUTO21	\$300
Silver Medal - Computing & Information Technology - Intermediate Sponsor: Intel of Canada, Ltd.	\$700
Total	\$3 500