

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

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|---|----------------|
| 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 |